

Tennessee Association of Middle Schools



Service learning at Craigmont Middle School, Memphis, Tennessee

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COVER PAGE PICTURES: Craigmont Middle School's 7th Graders Prepare to Deliver Care Packages

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Service Learning: Making it relevant for middle school students

By Shirley Key, Associate Professor, University of Memphis

Cedrick Gray, Principal, Craigmont Middle School, Memphis, Tenn.

Service learning occurs when a class is taken to pick up trash on a riverbank, to study water samples under a microscope, to count the number of tires dumped in the runoff ditch and trace the source, and start a campaign to stop the dumping of batteries in one's neighborhood. When science students collect and analyze water samples, document their results, and present findings to a local pollution control agency ... that is *service-learning*.

Service-learning is a teaching method that enriches learning by engaging students in meaningful service to their schools and communities. Young people apply academic skills to solving real-world issues, linking established learning objectives with genuine needs. They lead the process, with adults as partners, applying critical thinking and problem-solving skills to concerns such as hunger, pollution, and diversity.

Service learning is important in schools and curriculum because it integrates all disciplines and allows students to experience real world learning. The students take the learning from the classroom to the outside world. It is authentic learning. Service learning usually is demonstrated by youth ownership, connects to a genuine community need, connects to some learning objective, and involves a partnership (NYLC, 2006).

It is a learning and growth process. Service learning teaches students to give back to their community. Service learning and community based learning helps to engage students and allow them to see the relevancy in their school work. It empowers students and let them know that even the least of us can make a change in someone's life.

For example, in 1993, many communities were embarking on recycling and building recycling centers. One TV station was placing recycling bins on all school campuses. But this city was strategically placing recycling bins in some affluent neighborhoods. The sixth grade students were studying recycling and alternative energy sources. While reading an article from the local newspaper on local recycling efforts students began to ask why don't we have curbside recycling like other communities? Their communities were predominantly working class communities of African American and Hispanic families. They began to brainstorm why the city had not chosen their communities for recycling.

One of the many reasons given was that the community might not have wanted it or would support it. The students then designed a project to find out if their communities would support curbside recycling. They designed a pilot study using their peers (student body) as the sample. They designed a survey to see how many students believed in recycling, how many students were practicing recycling in their homes, and if the students would use curbside recycling if the bins were provided. They surveyed the student body, analyzed the data, placed the information in charts and graphs, and made an oral presentation to the class. Based on the data they found, they believed that the families in their communities would support curbside recycling.

They then reevaluated their surveys and strategically divided the neighborhood, and surveyed their neighborhood. After they collected and analyzed their data, they researched their city officials and found the name of their mayor, city council person, and the Director of Public Works. They later sent a letter expressing their survey results to each of these persons and requested curbside recycling in their communities. Each person responded to each student and thanked them for that insightful information. The following year, green bins were placed in the communities for curbside recycling. Service learning in this instance integrated all of the disciplines and demonstrated authentic learning and assessments. It also empowered the students (Key, 2006).

A second example of service learning is the cover story at Craigmont Middle School in Memphis, Tennessee. The seventh grade teachers at Craigmont Middle School want the students to become more actively involved in their community and, at the same time, to learn how to help others. In order to accomplish these goals, the teachers devised a plan in which the entire seventh grade would work together all year in various service projects. A different project is planned for each six weeks period.

During the first six weeks the students held a drive for donations to create “care packages” for homebound senior citizens. The students worked through the HOPE Project sponsored by MIFA. The campaign was a great success. The students managed to put together more than 105 bags to take to MIFA. Mr. Charlie Nelson, MIFA projects coordinator, was very excited to see all of the great things that Craigmont Middle seventh graders had accomplished. The total dollar amount of the donations was \$750.00.

The teachers kept the students motivated throughout the project and gave one big incentive: the homeroom bringing in the most donations will be treated to a Krispy Kreme doughnut breakfast. The winning homeroom the first six weeks was Ms. Hicks.

To get into the swing of this type of service project, the Scorpion Team started the year by creating “Welcome Back” bags for the entire faculty and staff at Craigmont Middle School. Each bag was decorated by the students and was full of goodies that had been provided by them. Every staff member in the school, from administrators to cafeteria workers, received the bags.

Seventh grade teachers involved in these projects were Scorpion Team teachers Tonya Hicks, Gwen Ford, Robert Rogers, Phillip Flowers, and Corey Alexander. Panthers Team teachers are Michelle Gilbert (with student teacher, Keleona Hunt), Mary Dodson, Robert Robinson, Clarence Dickson, and Della Williams. Eagles Team teachers are Mona Bland, Pat Primrose, Elona Charbonnet, Mildred Williams, and Sandy Jowers. CMS art teacher, Mary Sikes headed up the creation of the decorative bags. These teachers helped to demonstrate service learning with their students at the school level. Whether at the community level or the school level, service learning benefits the students as well as the community and put the “relevancy” in learning for middle school students.

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Fostering Eco-Consciousness through Sciencesthetics in Middle Schools
By
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Abstract: There is currently a trend toward ‘greening’ the science curriculum in middle schools today. As science teachers, we ought to foster in our students a passion for protecting and conserving their natural environments. Yet, how do we engage students in eco-consciousness without adding more science content? In this essay, I will discuss *sciencesthetics*—an approach that integrates the natural sciences and the arts to promote more authentic conversations and significant inquiries regarding the natural environment.

Introduction

Al Gore (2006) reminds us in his environmental film, “An Inconvenient Truth” that we are living during a period of consequences. He points to the overwhelming evidence of global warming caused by atmosphere pollution. He illustrates how the consequences of global warming will inevitably affect future generations and their livelihoods. Unfortunately, today’s science curricula may limit the ways in which students are taught to participate in the natural world. An overemphasis on rationality/objectivity in science education may reduce a teacher’s ability to cultivate in students the full spectrum of human thought; it may limit students’ abilities to explore and decipher the natural world. Thus, students may not learn to fully appreciate, care for, or connect with their environment—at least, not in schools (Coyle, 2005). Here, I will discuss the importance of constructive thinking in science education, begin to dissolve the science/arts dualism, integrate the natural sciences and the arts through sciencesthetics, and justify this integration by illustrating the artistic/ aesthetic ways in which scientists have for centuries participated in the natural sciences. Further, I will argue that we should deliberately foster eco-consciousness through sciencesthetics in middle schools.

The Importance of Constructive Thinking in Science Education

In *Transforming Critical Thinking: Thinking Constructively*, Thayer-Bacon (2000) challenges us to think about scientific thinking through a reflective lens that acknowledges and recognizes that all knowledge—including language and our inquiry methods—are constructed by humans. She notes that scientists, too, are embedded and embodied knowers with limited perspectives, and cannot be separated from their knowledge of the natural world; their knowledge is derived within social and cultural contexts experienced in paradigmatic shifts. She encourages us to think about science in new ways, to “discover aesthetics, as well as ethics and politics, for example, existing in relation together” (p. 53).

In her theory of constructive thinking, Thayer-Bacon (2000) notes that rationality is over-emphasized by scientists as *the* exclusive tool of inquiry in order to reduce personal bias and assumptions that may interfere with objectivity. She affirms that while reason is essential to the construction of scientific knowledge, it is not exclusive and cannot be separated from the other tools of emotion, imagination, or intuition. She elaborates that,

. . . once we name these activities as ones that help us constructively think, then we can learn to better appreciate them, understand them, and even encourage them. We begin to see students talking to each other as a way for them to practice their communication and relational skills and enlarge their views. We realize that students performing drama, music, and art are using their constructive thinking tools just as much as students reading from text books or writing research papers. We begin to understand that a constructive thinking theory offers us ways to more comprehensively explain forms of inquiry in our classrooms (p. 172).

Thus, we must move scientific thinking in school science beyond the exclusivity of rational/ objective thought and into the larger spectrum of expanded and enhanced constructive thinking—embracing, in addition to logic, emotion, imagination, and intuition if we wish to cultivate care for and connection with the students’ natural environments.

Dissolving the Science/ Arts Dualism in Science Education

Reason too often is reflected in the process and products of school science, such as in scientific language which may inadvertently perpetuate an unnecessary dualism between science and other disciplines, such as the arts. This dualism, often termed the science/ arts dualism (Thayer-Bacon, 2000), separates the natural world from the aesthetic world and may contribute to the frustration that many teachers experience when teaching science far too rationally. Students can benefit from opportunities to investigate the natural world and use/ develop the full range of constructive thinking abilities available to them from within many different perspectives.

As teachers, we can not afford to deemphasize or ignore the importance and value of an aesthetic and artistic approach to teaching science (Mueller, 2006; Mueller & Bentley, 2005; Girod, Rau, & Schepige, 2003; Irwin, 2003). According to Greene (1995), aesthetics is a focus on the beauty and harmony of the parts of a discipline that appeal to the senses, rather than on the content of the discipline alone. Thus, an aesthetic approach to teaching science aims to illuminate and accentuate the experience of doing science. It embodies the actual experiences that many scientists describe as they participate in the discipline. An aesthetic approach does much to motivate, interest, and liberate students as they seek the beauty of ideas and pursue a courtship with life-long learning. Further, an aesthetic approach provides students with opportunities to symbolize and structure their experiences in order to “see more, hear more, make more connections, [and] embark on new and unfamiliar adventures into meaning” (Greene, 2001, p. 50).

Often, we teach the way that we were taught and are tied to traditional ideas of rigor in science education (Eisner, 2005). However, it has been difficult to establish what constitutes “intellectual toughness” (p. 10). The arts have much to offer including difficulty. Eisner notes that “the exercise of judgment in the absence of rule is one of art’s most demanding requirements” (p. 10). Knowing when a painting, dance, or drawing is finished requires a great amount of judgment. Eisner believes that the arts make three things possible. First, they develop the mind by providing opportunities to think in unique ways. Second, the arts make possible communication by means other than those that depend exclusively on language. Finally, the arts provide opportunities for us to enrich our lives. Eisner suggests “where taken seriously, the arts have much to teach educators; they could provide the models needed to create schools that genuinely educate” (p. 10).

Both Greene and Eisner remind us that by valuing the arts and aesthetic nature of science, we enlarge our students' understanding of what it means to participate in the natural world. By providing opportunities for students to engage in the natural sciences and the arts, we help students to reflect, critique, clarify, and structure their experiences.

Integrating the Natural Sciences and the Arts through Scienceesthetics

Scienceesthetics is a holistic and inclusive theory that approaches the teaching of the natural sciences through its aesthetic aspects; by integrating the arts as medium for reflection and critique; and by valuing and embracing the socio-cultural and ecological contexts in which knowledge is constructed to foster eco-consciousness (Mueller, 2006). Scienceesthetics is aligned with constructive thinking described by Thayer-Bacon (2000) which I have presented as an inclusive and empowering theory of how we as individuals in relation to others construct knowledge about the natural world. Additionally, scienceesthetics is aligned with Greene's (1995) and Eisner's (2005) notion of teaching and learning in more aesthetic and artistic ways. Scienceesthetics is an overarching concept that aims to expand and enhance the notion of *inquiry-based learning* (American Association for the Advancement of Science, 1993; National Research Council, 1996, 2000) in science education by embracing and valuing a wide range of human experiences that cultivate an appreciation, care for, and connection with the earth.

The Artistic and Aesthetic Nature of Science—the Work of Scientists

Einstein (1950/1993) noted that “all religions, arts, and sciences are branches of the same tree (p. 7). Ironically, many of the biological traits expressed in the natural sciences are also expressed in the arts (Greenberg, 2002; Hagendoorn, 2003). There are many notable scholars throughout history who have embraced and valued the importance the arts and aesthetic nature of science in their work, including Leonardo da Vinci (Kemp & Wallace, 2000), Nicolaus Copernicus (Chalmers, 1999), Charles Darwin (Gribbin, 2002), Albert Einstein (1950/1993), and Barbara McClintock (Keller, 1983; Thayer-Bacon, 2000). Today, scientists continue to participate in the natural sciences because of their artistic/ aesthetic determination. One example is Stanley Williams, a renowned volcanologist at Arizona State University, who was on top of the Columbian volcano Galeras in 1993 when it erupted—injuring him and killing several of his colleagues. That event did not deter Williams from continuing his life's work on volcanoes and inspiring students to engage in the geological sciences. In his book *Surviving Galeras*, Williams (2001) notes how his fascination with volcanoes “taps into something universal and timeless” (p. 5). He illustrates his interests in volcanoes through the ancient knowledges (and narratives) of the Mayas, Aztecs, Incas, Greeks, Romans, and Icelanders. And he illustrates his own affinity for volcanoes:

From the moment I first set foot on a volcano – at Pacaya, Guatemala, in 1978, where I stared into a crater with dozens of hissing fumaroles – I have found it an exhilarating experience. The spectacle, especially at lava-spewing volcanoes, is impressive. On later visits to Pacaya, I watched as the volcano – with a big *KAVOOM!* – repeatedly launched blobs of magma as big as trucks 200 yards into the air, whereupon the projectiles disintegrated and fell back to earth in hundreds of glowing, baseball-size pieces. At that same volcano, a group of students and I witnessed a lava flow, 9 feet thick and a half mile long, slowly ooze out of

Payaca's flank. We tossed banana peels into the flow and watched them turn into ash with a hiss. Rocks tumbled out of the black stream, revealing the incandescent, orange-yellow core of the lava tongue. We clocked the flow's speed, about 15 feet per hour, and took its temperature, 1,970 degrees F. You could only insert the temperature probe when the wind was blowing away from your body; otherwise you started to cook (pp. 5-6).

The "something universal and timeless" that Williams refers to here is the artistic/aesthetic aspect of the natural sciences that opens the mind to greater possibilities of knowing the natural world. To illustrate this point further, I'll use the metaphorical words of Katia Krafft (1942-1991), a renowned volcanologist and photographer who died with her husband Maurice in a pyroclastic flow on the Japanese volcano Unzen in 1991:

I would always like to be near craters, drunk with fire, gas, my face burned by the heat . . . it's not that I flirt with my death, but at this point I don't care about it, because there is the pleasure of approaching the beast and not knowing if he is going to catch you (as cited in Williams, 2001, p. 101).

Once again, we are reminded by the artistic/aesthetic way in which Krafft describes her experiences on the volcano that the science/ arts dualism is indeed a false dichotomy. If asked, I believe that most modern day scientists would acknowledge an aesthetic affinity for the natural world. I suggest that this affinity is cultivated through the natural sciences *and* through the arts. This full range of experience is available to the scientist as much as they would like to get away from it in his or her inquiry methods. The arts enlarge our view of the natural world if embraced and valued. For the scientists described, the natural world is not apart from their lived experiences. When we start thinking in terms of the full range of human experiences, we come to know an artistic and aesthetic science that actually exists—what I refer to as *sciencesthetics*. If we embrace and value sciencesthetics in our classrooms, we can enhance our students' ability to investigate and care for the natural world.

Fostering Eco-Consciousness through Sciencesthetics in the Classroom

DeBoer (1991) notes that, "before arguing for 'more science,' it seems that we need to make better arguments for the kind of science that should be taught" (p. 237). Through sciencesthetics, I do not argue for "more science." However, I do argue that we should approach the teaching of science differently by integrating the natural sciences and the arts through sciencesthetics to expand and enhance the *quality* of students' investigations and at the same time, foster eco-consciousness. Now, I will illustrate how sciencesthetics might be enacted in the middle school classroom through an imagined investigation of petrified wood.

An Imagined Investigation of Petrified Wood

The colors embedded in stone are as brilliant as the earth's evolution—a magnificent work of art! The specimen is decomposed wood replaced by the lightning blues and greens, striking reds and calming orangey yellows of Agate, Chalcedony, Opal, and Quartz. If examined closely, the circular tree rings reveal the dendrochronology or annual life his/ her—stories of the tree-that-was—hot and dry season, cool and wet season, and wildland fire. In the past, this specimen may have been a dwelling place for various plants, insects, birds, and other wildlife. It may have been a shelter from the rain

or sun, a source of food, an erosion barrier, or a wind chime of leaves. This fossil may have been said to have supernatural powers, healing powers, or medicinal uses by the ancient peoples. This stone embodies the full spectrum of human intellect and can be used to foster eco-consciousness through sciencesthetics.

Beyond the Exclusive Use of Reason/ Objectivity in the Investigation

In science class, *reason* is most often designated as the way that valid, reliable knowledge and language is constructed. Often, we reinforce the use of reason by teaching students to objectively consider or reduce their biases, assumptions, values, and beliefs as if constructing knowledge in science does not involve them and that science is outside of them; that knowledge in science is “value-free” (Brickhouse, 2001, p. 284). However, scientific knowledge is embedded in culture and within us—we cannot escape it. Constructive thinking occurs when learners are actively engaged in the world. Thus, science is not something ‘out there’ in the world and can not be detached from human beings. Reason is important, however, we must include the other tools of constructive thinking in sciencesthetics such as emotion, imagination, intuition, as well as the artistic/aesthetic nature of science, which are too often overlooked.

Encouraging Emotion in the Investigation

We can encourage students to investigate petrified wood with *emotion*. Emotions are part of our students’ experience, “historically contingent, socially constructed tools” they use to construct knowledge that is a reflection of our own unique society (Thayer-Bacon, 2000, p. 96). Students appreciate the use of emotion because it provides them with opportunities to approach an investigation of the specimen from other points of view. For instance, many people collect petrified wood for its beauty and monetary value. Thus, there are hefty fines for stealing petrified wood from national parks, to help preserve this limited wonder. Engaging in conversations about these issues guides students to consider the environmental ethics and stewardship involved in protecting this geologic resource for generations to come (and can be related to the plunder of other natural resources). Designing a theatrical play or choreographing a dance performance regarding this ethical dilemma can intrigue students about the aesthetic qualities of petrified wood. Additionally, we search for other literature, collections of poems, or essays that depict fossils through aesthetic language (cf. Osborn, Pirrie, Nicholson, Holbeck, & Hogden, 2005; Stewart, 2003, 2005). Emotions cultivate in students a love for the subject matter of the natural sciences and passion for doing investigations.

Encouraging Imagination in the Investigation

Next, we can encourage students to investigate petrified wood with *imagination*. Imagination is the ‘minds-eye’ at play that expands our students’ scientific vernacular well beyond the norms and standards of our society (Greene, 1997). In many ways, imagination is at the root of all science. Imagination provides opportunities for students to construct possibilities. For example, it takes imagination to think through the ways in which a living tree might become a perfectly preserved rock: How do we know that petrified wood—a combination of minerals—was once a thriving, beautiful tree? Or, was it a rotting log teeming with insects? Students’ imagination enhances their ability to understand new perspectives, see more, and make connections.

We can encourage the use of ‘thought experiments’ valued by John Dewey, Albert Einstein, and other influential thinkers. Of course, imagination enhances a student’s ability to conduct thought experiments—to think through investigations—before actually doing them. Thus, thought experiments may reduce or even eliminate mischief and sometimes, serious consequences—an important safety consideration that “provides a safety net for experiment and rehearsal” (Eisner, 2002, p. 5). In many ways, imagination makes it possible for students to conduct the elaborate investigations we could not conduct without extensive resources. And, imagination makes it possible to do more cutting-edge science such as incorporating technology (for instance, the internet) to do ‘virtual’ scientific research such as on the importance of trees in Costa Rica!

In addition, imagination enhances students’ ability to really *see* the natural world. *Seeing* is not merely a task, “it is a result of *making* sense of a part of the world” (Eisner, 2002, p. 12). For most students, observation stops as soon as there is a label attached to the thing, well before the qualities of the specimen are explored. For instance, when students hear the label ‘petrified wood,’ they may stop looking for characteristics such as tree rings, mineral colors, cell structure, boring insect damage, hurricane or flood debris—beyond the fact that it is simply petrified. These characteristics are important because they allow the student to understand the ecological importance of the tree. When students see more, they see beyond labels, inhibitory language, and finely tune their scientific thinking and eco-consciousness.

As students explore the qualities of petrified wood, they can use aesthetic language including metaphors such as ‘triumph over death,’ ‘ecological/ historical document,’ or a ‘painter’s palette,’ or similes such as ‘colorful as a rainbow trout,’ ‘minerals meshed together like peas in a pod,’ or ‘brilliant as the colors of autumn,’ or neologisms such as ‘dendrodepictionology,’ ‘histotree,’ or ‘rainbow rock’ to enhance their perceptions. Aesthetic language helps students see more deeply, beyond the obvious. Essentially, these students become architects of their own language and scientific investigations; they begin accepting personal responsibility for their learning.

Encouraging Intuition in the Investigation

Finally, we can encourage students to investigate petrified wood with *intuition*. Our students are not by nature any certain way, but become individual through connections between them selves and their environments. For instance, many students have had experiences and can relate stories about trees, minerals, rocks, forest fires, rainfall, bugs, time, color, and rings—all characteristics of petrified wood. These experiences provide an impulse, feeling, hunch, or suggestion, as students construct new ideas. Eventually, students learn to trust their intuition and their ability to do science as they write stories, draw in nature journals, debate controversial scientific issues (cf. Zeidler, Sadler, Simmons, Howes, 2005; Zeidler, Walker, Ackett, Simmons, 2002), engage in field studies and community service learning projects (cf. Roth & Barton, 2004; Smith, 2004), or explore the nature of science from diverse perspectives (cf. Aikenhead, 2006). Inevitably, students embrace and value sciencethetics as a way to explore the world around them as participants in and consumers of science—encroaching scientific literacy and embracing eco-consciousness.

Conclusion

I began this paper with a brief discussion of constructive thinking, aesthetics, and the arts in science and science education. We found that scientists are, like everyone else, limited, fallible, embedded, and embodied individuals who construct meaning; that scientists must be inclusive of different ways of knowing; that the constructive thinking tools of emotion, imagination, intuition, and reason are equally important; that the science/ arts dualism is indeed a false dichotomy; that the arts and aesthetics in science expands our understanding of what it means to participate in the discipline; and finally, that the arts and the aesthetic nature of science open the mind to greater possibilities of knowing the natural world. Furthermore, I described how sciencethetics might be enacted in the middle school science classroom by emphasizing the constructive thinking tools and by acknowledging the artistic/ aesthetic nature of science. I situated sciencethetics within the wide range of human experiences that cultivate appreciation, care for, and connection with the natural world.

A sciencethetics approach aims to cultivate more authentic conversations and significant scientific inquiries. Sciencethetics allows for the aesthetic appreciation of the natural sciences, knowledge that liberates students and accentuates their full spectrum of thought. Sciencethetics helps students symbolize and structure their experiences in the natural world using the arts as a medium for reflection and critique. And, sciencethetics provides the unique context for a ‘green’ curriculum which fosters in students the passion to protect and conserve their environments. Like Einstein, I believe that “the experience of mystery is the most thrilling of all. It is the source of all real art and science” (as cited in Poirier, 2003, p. 135). Perhaps, it is the experience of mystery that will propel our students beyond a period of consequences.

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“We Had to Teach Them Our Slang”: What Language Arts Teachers Can Learn About Linguistic Diversity, Good Discussions, and New Ways of Being from Middle School Students’ Online Chats about Literature

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The Web Pen Pals Project

This experience wasn’t like any other. We were able to communicate with students at the college. That was my first time interacting with someone at another school from mine. I am looking forward to continuing talking to this student. –Devon¹

I liked it, because we got to chat with people who we usually would not talk to. I think by chatting it will give us the chance to talk to different people and learn with them.
--Andrea

Devon and Andrea are describing their reactions to their first online, synchronous chat with their university web pen pals. They discussed Avi’s young adult novel *Nothing But the Truth (NBTT)* in a virtual room in a virtual house in cyberspace (see Figure 1).

David Crystal (2001) describes synchronous chat as “real-time, continuous discussion on a particular topic, organized in ‘rooms’ at particular internet sites” (p. 11). During the spring semester of 2005, [the second author, a middle school teacher] and I hoped to provide an opportunity for her middle school students and the college-level prospective teachers enrolled in my university class on young adult literature to engage in “continuous discussion” about literature face-to-face, in small book clubs. Due to conflicting schedules and time constraints, however, the two groups of students couldn’t physically meet, so a secured online chat room seemed to be a logical space where the two groups of students could meet and talk. Thus, the Web Pen Pals project² was born.

Three times during the course of the spring semester, both sets of students traveled to computer labs at their respective schools and logged on to secure chat rooms to chat with each other about literature. 24 middle school students, enrolled in an average-level reading class in an urban middle school in East Tennessee, participated; eight pre-service teachers, enrolled in the master’s/licensure program in English education at a four-year, land-grant university in East Tennessee, participated in the project. Each web pen pal group consisted of one pre-service teacher and two or three middle school students, assigned randomly by the course instructor.

Why Talk About Literature?

We think talking about what we read is important because talk is an important part of the learning process—a process which involves making sense of what goes on around us, even as that “sense” is constantly reconstructed through our interactions in various contexts with other people who see the world differently than we do. What a

learner brings to a learning situation is important because building new knowledge often requires building on top of what a learner understands, believes, values, and can already do.

Talking about a topic allows for existing ideas and explanations to find voice, and thus, to be taken up, considered, and reinterpreted. Talk, then, is an important way of working on understanding. As Barnes & Todd (1995) explain, “Talk is flexible; in talk [students] can try out new ways of thinking and reshape an idea in mid-sentence, respond immediately to the hints and doubts of others, and collaborate in shaping meanings they could not hope to reach alone” (p.15).

We use young adult literature as a medium for talk because we believe young adult literature can provide “a context for students to become conscious of their operating world view and to examine critically alternative ways of understanding the world and social relations” (Glasgow, 2001, p. 54). Avi’s book was chosen because of its multi-genre, multi-voice format, which lends itself to the analysis of multiple perspectives—something we think relates to learning how to facilitate and participate in effective discussions with people whose opinions and beliefs may differ from one’s own. Avi’s book tells the stories of Ms. Narwin, a 9th grade English teacher, and Philip, one of her students. Their stereotyped beliefs about each other cause a lack of communication which ultimately leads to tragedy for both.

We anticipated benefits of cyberspace discussions for both groups of students: the prospective language arts teachers would get practice facilitating discussion about books while also getting a sense of adolescent personalities (and an opportunity to sharpen their technology skills); the middle schoolers would get to read young adult novels and might be more motivated to read knowing they would be discussing the books with college students, using a technology often discouraged in schools. Both sets of students reported initial excitement about the project because they would be talking to real middle school/college students.

This was the first time many of the pre-service teachers had ventured into cyberspace. According to pre-project surveys, many of the pre-service teachers used e-mail and searched the Internet, but few used Instant Messaging or talked in chat rooms. In contrast, many of the middle school students spent time in chat rooms outside of school, and Instant Messaged friends on a daily basis. According to Nielsen/NetRatings, almost 60% of the online population under age 17 uses Instant Messaging and participates in chat rooms (Lee, 2002).

Though at times the pre-service teachers were frustrated, they ultimately realized they had to be willing to learn from the middle school students if they were to be successful communicators in cyberspace. As Devon’s and Andrea’s comments represent, the project shows potential for this experience to expand not only communication beyond the classroom, but collaborative learning as well.

What Did the Pre-Service Teachers Learn?

What Does LOL Mean?

One of the first things the pre-service English teachers noticed as they began chatting with their middle school pals was the middle schoolers’ use of abbreviations, emoticons, and smileys, (i.e., “LOL” for “laughing out loud,” or “TTYL” for “talk to

you later;” ☺). The pre-service teachers didn’t always understand these abbreviations and symbols and often requested clarification from their middle school pals. This frustrated one middle school student who said, “It’s...annoying that none of them use Instant Messenger and I can’t say things like nvm (nevermind), idk (I don’t know), or gtg (gottago) without having to explain it...” (personal communication, May 15, 2005). Another middle schooler said, “We have little abbreviations because no one feels like typing the whole word. And it’s like they don’t understand and they type back, ‘What are you talking about?’” (personal communication, May 15, 2005).

Initially this language barrier hindered discussion. As a result, we asked the middle school students to create a dictionary of abbreviations and emoticons they used in the online chats so that the pre-service teachers could communicate with them. Table 1 represents the product of their efforts. The college-level students appreciated the dictionary, and would usually have a copy of one out by their computers when they went online to chat.

The middle school students thought this was “cool” that they had to, as one middle schooler explained, “teach them our slang” (personal communication, May 15, 2005). We thought this was pretty cool, too, because both sets of students were able to find a way around their language barrier, but only because the pre-service teachers were willing to learn from the middle school students, who were more than willing to teach them!

New Rules Apply

The pre-service teachers also learned from the middle school students that they couldn’t transfer their beliefs and expectations about how traditional, face-to-face classroom discussions should occur to the online medium. As Table 2 illustrates, the social conventions and conversation norms of traditional, face-to-face (f2f) discourse usually dictate that “school talk” will be linear, moving from teacher to student, and then back to the teacher. The teacher usually asks the questions (and thus chooses the topic), directing the questions to individual predetermined students, or to students who raise their hands to be called on. After a student response, talk moves back to the teacher, who may evaluate the response and then ask another question. Thus, turn-taking rules are explicit; discussion doesn’t overlap, as one person speaks at a time. Students are usually not encouraged to talk to each other about the topic at hand while the teacher or another student is talking.

We saw the pre-service teachers attempt to transfer these rules and conventions to the virtual book discussions. They attempted to ask most of the questions and direct the topics of discussion. One pre-service teacher, Tara, explained in a post-interview that she understood the teacher’s role in facilitating discussion to be “[keeping] them [students] on topic, to keep them moving, to switch topics when they do stay on a topic too long, you can talk something to death” (personal communication, June 6, 2005).

Too, as Figure 2 illustrates, the pre-service teachers’ posed continuous questions requesting clarification and elaboration and were often unwilling to share personal opinions with their middle school pals. One middle school student explained he felt like he was the “target” of “rapid-fire questioning” (personal communication, May 15, 2005).

In her post-interview, Sylvia explained she used the traditional classroom discourse tool of asking questions to individual students “so that they had to either respond ‘I don’t know’ or give me a response because I was asking them directly”

(personal communication, June 6, 2005). She explains that she felt the middle school students needed her “to run the conversation... someone to get the ball rolling, because they’re not maybe not equipped to do that themselves at this point” (personal communication, June 6, 2005). We believe that pre-service teachers’ beliefs about discussion and their roles in facilitating discussions caused them to position their pals as respondents only; thus, they missed opportunities to engage and develop students’ literary responses when their pals resisted their attempts at “running the conversation.”

Student Resistance in Cyberspace

In traditional f2f classrooms, students have little power to resist teacher expectations and social conventions associated with literature discussion; it is difficult for students not to respond to teacher questions in some way, whether in words or in gestures. Too, teachers can demand student response through physical maneuvering, verbal demands, and ultimately, banishing students from the physical classroom (Anagnostopoulous et. al, 2005).

In cyberspace, however, traditional f2f classroom discourse rules and roles do not apply because the nature of the online medium requires new rules and thus roles in talking about literature. Whereas teacher/student participation in f2f classroom discourse relies on the communicative and representative modes of speech (sounds) and accompanying non-verbal features (sights, physical presence, gestures), teacher/student participation and interaction in the online chat medium is entirely text-based; thus, teachers can’t rely on traditional classroom discourse modes to monitor and control student participation. As one middle school student explained in a post-interview:

You don’t have to raise your hand or you know, you don’t have to ‘Is it my turn to speak? Can I speak now?’ See, in the classroom you have to raise your hand and wait for all these other people who raised their hands to be answered before you, so in the chat room you can just speak freely when you need to, well, when you want to speak or whatever. (Personal communication, May 15, 2005)

Perhaps this explains why we saw the middle school students resist the pre-service teachers’ attempts to position them as passive, acquiescent responders who needed a teacher figure to lead them through discussion. For example, we saw the middle school students attempt to pose questions to their adult pals *and* to each other, as evidenced in Figure 3, where Anne, a middle school student, begins talking to her classmate Raymond to make a point about one of the characters in *NBTT*:

At first, Tara, the pre-service teacher, seems agitated that Anne might be going “off-topic,” as evidenced by her question on line 6, “What do you think that his favorite sport has to do w/ it?” Anne responds to Tara, explaining why she thinks the question is relevant, then asks Raymond to make a connection between himself and a central event in *NBTT*, which Raymond does—something Tara is unable to get Raymond to do during the entire chat.

Students in the online medium, then, may not need teachers-as-question-askers to facilitate discussion of literature. Later in this same discussion, Raymond directs a question to Anne (see Figure 4), which Anne is unable to before the chat ends. When asked how she felt about Raymond asking a question to Anne, Tara explained:

I took it just as I was not doing a good job in the chat room... I didn’t know how to take them to another level and it was just all flat... It’s perfectly OK he asked

her. I was just kind of like, “What about me?” My own ego was kind of a little “Mmmm, that’s not nice.” I wish he would have asked me...but I guess I don’t have to be in control all the time. I need to let the students be the guides sometimes. (Personal communication, June 6, 2005)

Implications for Language Arts Teachers (and Language Arts Teacher Educators)
New Ways of Being

One implication of this project points to the need for language arts teacher educators to better prepare beginning teachers to facilitate and participate in discussions, especially when those discussions take place in cyberspace. If teachers’ questions don’t get the students discussing, and the medium itself allows students to take more ownership of their learning, then new strategies that place teachers in different roles need to be considered and practiced.

Linguist Naomi Baron (1998) explains major shifts in communication will produce markedly different sorts of linguistic (and resulting attitudinal or social) behavior (p.123). We wonder if chat technology can make possible conditions that encourage language arts teachers and their students to reconceive their own roles from passive recipients to active participants in dialogic development of literary knowledge.

Gee (2004) reminds us that literacies are always caught up *with* and *in* social practices--practices that involve, rather than just an engagement with print, “recognizing various distinctive ways of acting, interacting, valuing, feeling, knowing, and using various objects and technologies that constitute the social practice” (p. 15). The social practices associated with traditional classroom discourse are challenged by the online chat medium, and this may be a positive thing, as traditional classroom discourse has been characterized as “pseudo-communication” (Henson, 1993, p. 30), as it is overwhelmingly dominated by teacher-talk and the rituals of traditional classroom discourse.

In the chat rooms, we saw students attempt to participate in their own learning--something that could increase their engagement, and we also saw teachers become learners, something true collaborative learning requires as “the teacher-of-the-students and the students-of-the-teachers cease to exist and a new term emerges: teacher-student with students-teachers.They become jointly responsible for a process in which all grow.” (Freire, 1970/1994, p. 61).

Linguistic Diversity

Other implications of this project exist for language arts curriculum. First, in incorporating chat technology in the language arts classroom, teachers can acknowledge and celebrate the “remarkable linguistic versatility that exists within...ordinary young people” (Crystal, 2001, p. 170)—a versatility in student language that is often ignored or penalized. Language is a dynamic, changing phenomenon, mediating between culture, history, and experience (Okawa, 2000), and students come into our classrooms shaped by their diverse histories and past experiences through their language.

For many youth, this includes experiences in chat rooms, where they must learn and employ the linguistic rules of what some call “Netspeak” to be successful communicators. Crystal explains “Netspeak” is “chiefly characterized by highly colloquial constructions and non-standard usage, often following patterns known in other

dialects or genres” (p. 165). In “Netspeak,” verbs are omitted, words run together (*whatajerk*), “word play is ubiquitous...[and] new jargon emerges”(p. 165).

But in their English classes, Internet language-savvy students are often confronted with teachers’ demands to learn Standard English and practice its prescriptive rules and stylistic form. In these classes, non-standard uses and dialects may be viewed by teachers as “incorrect, irregular, ungrammatical, and deviant” (Milroy, 1992, p, 7), and some English teachers view students’ use of “Netspeak” as “rude, careless,” and “a continuing assault of technology on formal written English” (Lee, 2002).

Instead, we see the use of online chat and reflection on language change in the language arts classroom as an opportunity to help students understand language as something that changes and develops over time, as it is composed and read by people—especially young people--interacting in communication events. Language arts teachers can help students see that language evolves, from the Rosetta Stone to Shakespeare to hypertext, from hand-written letters to e-mail, and to consider why and how this evolution occurs.

Second, language arts teachers could also use Internet chat language to explore with students what makes Standard English “standard,” and what makes a “nonstandard” dialect nonstandard. Conversations like these could help middle school students begin to understand how such definitions and categorizations are based on how social groups (usually disempowered, disenfranchised, and disfavored groups of people) are viewed by other, more powerful groups of people (Wheeler & Swords, 2006).

Finally, language arts teachers can ask middle school students to reflect on how the constraints of any linguistic medium affect its use. The middle school students had good reasons for writing with acronyms and abbreviated language in the chat rooms. One middle school student explained, “We figure it’s easier than typing the whole word, like ‘never mind,’ or ‘laughing out loud,’ you know...if something’s funny or someone makes a comment, it is quicker [to type LOL] than writing out ‘Oh that was funny,’ you know, it’s a lot easier” (personal communication, May 15, 2005).

These characteristics are not arbitrary, then, but result from the fast-paced, multimodal nature of the synchronous online chat medium, where it’s easy to get left behind on a scrolling screen. Short, succinct phrases and abbreviations make sense in such a medium: typing “idk” is more efficient and requires less effort than typing “I don’t know,” and typing “lol” for “laughing out loud,” or “lots of laughs,” followed by a smiley face can quickly and simultaneously communicate an emotive response while softening a comment in a medium where gestural cues—facial expressions, touch--can’t be relied on.

Language arts teachers can build on this knowledge to help students understand different contexts and mediums of language use carry varying sociolinguistic expectations that, as Crystal (2001) explains, we “must obey if our contribution is to be judged acceptable...there are sociolinguistic expectations and mores...people must pay attention to, or expect to be judged accordingly” (p. 7). The college-level teachers had to meet the middle schoolers’ “sociolinguistic expectations” if they were to be successful in the online medium and be “judged acceptable.”

We think engaging language in these ways is a valuable thing for language arts teachers to do, as Okawa (2000) warns, “ignorance of language as systematic social behavior with historical roots...produces language attitudes that shore up the English Only movement, fuel the Ebonics controversy, and provoke other forms of linguistic

intolerance or shame among students.” She furthers, “We need to understand how we ourselves make language policy on a daily basis—and how individually culpable we are in silencing or encouraging the linguistic growth of our students” (p. 278).

Ultimately, we learned a lot from the middle schoolers, and they learned something, too. They commented on how they made friends through the online chats with people in their class who they’d never spoken to face-to-face. They also commented on how the chat space allowed them to speak freely, without fear of being laughed at. One middle school student explained, “When you’re in the classroom there’s a lot of people and you might feel embarrassed to say something to some of them, but when you’re on the computer there’s less embarrassment” (personal communication, May 15, 2005).

We see real potential in this project and look forward to learning with and from middle schoolers as the project continues.

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Footnotes

¹All names are pseudonyms.

²The Web Pen Pals project (www.webpenpals.org) was made possible through TeacherBridge, a project funded by the [National Science Foundation](#) and directed by the [Center for Human-Computer Interaction](#) at Virginia Tech. TeacherBridge is an innovative set of collaborative resources for educators. The Web Pen Pals project is one such resource created by Dr. Daniel Dunlap at Virginia Tech. For more information, please contact dunlapd@vt.edu or xx@xx.edu.

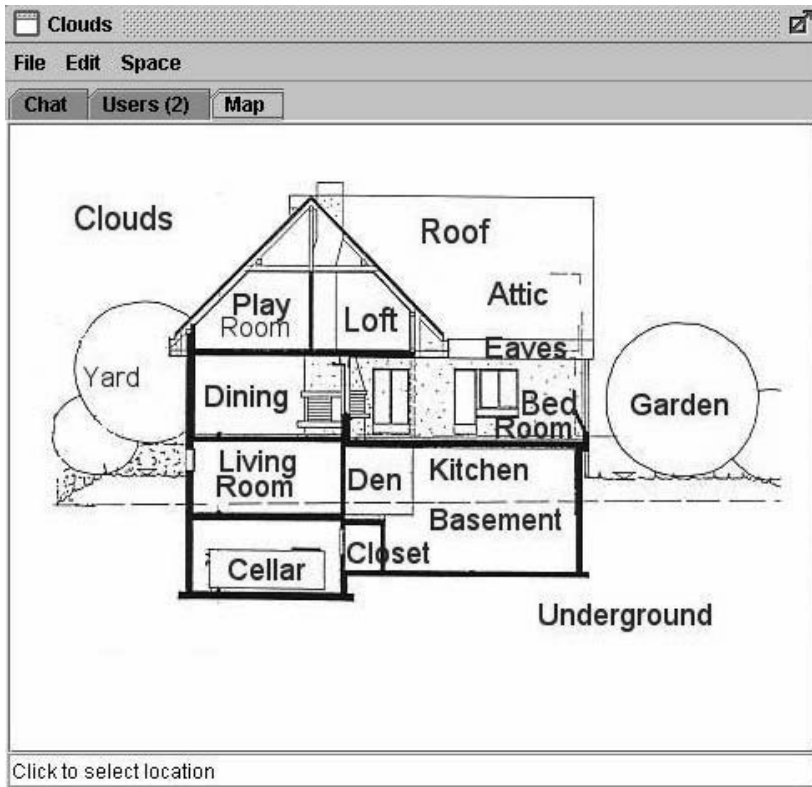


Figure 1. Map of virtual house with assorted chat rooms.

1 Sylvia	What did you think about the ending?
2 Ted	Strange
3 Barbara	it was really surprising to me
4 Dan	it was alright
5 Sylvia	what do you mean by strange, ted?
6 Sylvia	What do you mean by alright dan?
7 Sylvia	Barb, why was it surprising?

Figure 2. Excerpt from web pen pals chat.

1 Anne	Raymond...whats your favortie sport! this is really relavant tell me!
2 Tara	Do you think that Philip is immature, Anne, or just having a hard time with this?
3 Anne	neither
4 Tara	ok
5 Raymond	my favorite sport is basketball, thanks for asking
6 Tara	what do you think that his fav sport has to do w/ it?
7 Anne	ok if i had to have a 2.0 to be in band....and i missed it by one grade...by one class where the teacher,i though, was out to get me, id be mad to
8 Anne	Raymond what if that happened to you with basketball?
9 Raymond	I think that his parents are giving him the wrong ideal of so called standing up for yourself
10 Anne	youd be mad! yous try to start something..do something about it....
11 Anne	his dad is
12 Raymond	I'd go off!!

Figure 3. Excerpt from web pen pals chat.

1 Raymond	Anne, can you give me an explanation about why do Philip and his parents think that Mrs. Margret Narwin is such a bad person? Do you think she is a bad person can you tell me why?
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Figure 4. Excerpt from web pen pals chat.

Table 1
Netslang Dictionary Created by Middle School Students

Abbreviation/Symbol	Definition
cu	See you
l8ter	Later
lol	Laugh (ing) out loud
rofl	rolling on floor laughing
jk	Just kidding
nvm	Never mind
g2g	Got to go
sry	Sorry
cuz or b/c	Because
h/o	Hold on
k	Okay
ne	Any
brb	Be right back
w/e	Whatever
ur	Your/you're
w/b	Write back
n/m	Not much
n2m	Not too much
cyl	See you later
OMG	Oh my gosh
idk	I don't know
ttyl	Talk to you later
idc	I don't care
Kewl	Cool
Ihtg	I have to go
dl	Down low/ keep quiet
j/a	Just asking
j/m	Just messing/ playing around
j/w	Just wondering
j/c	Just chilling
j/j	Just joking
j/h/o	Just hanging out
hru	How are you?
sup	What's up?
☺ or :)	Happy
☹ or : (Sad
**	Oops, spelled something wrong
smiles	**'s around a word means an action, like *smiles*
???	What???

Table 2
Differences Between Traditional Face-To-Face (f2f) Discussion and Online Chat

Traditional face-to-face (f2f) classroom discussion	Online chat
<p>Linear Symmetrical In classroom, can follow I-R-E pattern Doesn't overlap Turn-taking rules explicit Few interruptions Topic change at teacher discretion Immediate response No simultaneous talking</p>	<p>Non-linear Can talk over others/interrupt Simultaneous talking Enter conversation randomly Asymmetrical Don't know if other person will react/reply/respond to you Don't know who will react/reply/respond to you Lag time—under pressure to be short, swift, succinct Tendency toward single words, single sentences, fragments Abbreviations/initialisms Topic decays quickly</p>

Note. Excerpted from Baron, 1998, & Crystal, 2001.

From Manager to Math Teacher: A Middle Grades' Licensure Program
for Second-Career Teachers

By

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Abstract

The NCLB (2001) requirement for Highly Qualified middle school teachers coupled with the growing number of post-baccalaureate students seeking teacher certification were the impetus for the new Middle Grades licensure program at the University of Tennessee. In this article, we outline the rationale for creating a middle grades licensure program, describe how the program aligns with the National Middle School Association standards for initial teacher preparation, and highlight the experiences of a member of our first cohort.

What courses should be required of all prospective middle school teachers before they ever have their own classroom, in order to set them up for a successful educational career? How much university-supervised classroom experience should prospective middle school teachers have before they are licensed, so that they are well versed in sound instructional and management strategies? According to George Will, the renowned political commentator and editorialist for *Newsweek*, the answers to these questions are simple: none. In his recent article "Ed Schools vs. Education" (2006), Will calls for institutions of higher learning to eliminate their teacher preparation programs in order to salvage K-12 education. At the University of Tennessee, however, we have taken the opposite approach: rather than decrease our presence in the arena of teacher preparation, we have recently instituted a new middle grades licensure program. This new licensure program will assist future teachers with meeting the specific needs of adolescents learners in grades 5-8 while also providing a licensure avenue for those who are interested in changing their careers to teaching, as it is designed for both the post-baccalaureate student and "traditional" preservice teacher. In this article, we outline the rationale for developing a middle school licensure program, address the specific aspects of our middle grades licensure program, and highlight the background and experiences of a member of our first cohort.

Rationale for a Middle Grades Licensure Program

With the introduction of the *No Child Left Behind* Act of 2001, the term "Highly Qualified" has become synonymous with "strong content background" for middle grades teachers. In Tennessee, Highly Qualified teachers must have at least twenty-four credit hours or a major in the subject area they plan to teach; new teachers can also earn that status by meeting or exceeding the Tennessee passing score of 150 on the PRAXIS Middle School Content Knowledge exam (www.tn.gov/education/nclb). Although passing this test satisfies the content knowledge requirements of middle grades teaching, the test fails to assess the pedagogical aspects unique to middle grades instruction.

These pedagogical issues were distinct enough for the National Middle School Association (NMSA) to create its own set of standards for middle level teacher

preparation. NMSA specifies seven performance-based standards, all of which target the unique instructional, developmental, and social needs of young adolescents (NMSA, 2006). The seven standards focus on the following areas:

1. Young adolescent development
2. Middle level philosophy and organization
3. Middle level curriculum and assessment
4. Middle level teaching fields
5. Middle level instruction and assessment
6. Family and community involvement
7. Middle level professional roles

Traditionally, teacher licensure programs have tagged middle grades on one end of certification – either certifying teachers for grades K-8 or 7-12. The elementary certification focuses on the developmental issues of young children, while the secondary certification emphasizes content-specific issues. The NMSA teacher preparation standards are too comprehensive to be effectively melded into an existing K-8 or 7-12 licensure program, as they extensively outline the research-based *best practices* for dealing with a small subset of students in both of those licensure grade ranges. Clearly, licensure programs which try to encompass the full range of elementary levels or the former “junior high/senior high” grade levels cannot prepare teachers who will meet the NMSA standards, and stand-alone middle grades licensure programs are needed. A positive trend to focus teaching licenses specifically for middle grades is continuing, with 43 states and the District of Columbia now offering such certification; however, only 21 states require middle grades teachers to be middle grades certified (Gaskill, 2002, as cited by McEwin, Dickinson, & Smith, 2002).

With regard to content preparation, Standards 3 and 5 outline differences between middle grades teacher and secondary level colleagues. A strong content knowledge background is needed for both the seventh grade life science teacher’s job and the high school biology teacher. However, the understanding of the interdisciplinary nature of knowledge is also imperative. Standard 3 states the following: “Middle level teacher candidates . . . understand the interdisciplinary nature of knowledge and how to make connections among subject areas when planning curriculum” (NMSA, 2006, p. 8). Young adolescents are still making sense of their world by looking for connections through concrete experiences, unlike the more abstract nature presented in secondary school content areas; pedagogical methods used in the middle grades need to reflect that difference. As stated in NMSA Standard 5, middle level teacher candidates should “use a variety of teaching/learning strategies and resources that motivate young adolescents to learn, (and) encourage exploration and problem solving so that all young adolescents can be actively engaged in learning” (p. 12).

Additionally, recent brain research supports these ideas and indicates that the human brain undergoes major changes throughout puberty, or during the middle school years (Casey, Giedd, & Thomas, 2000). Scientists conclude that adolescent brains are being refined. Synapses and circuits that are not used are lost, while those that are used often are strengthened. Middle school educators then have an obligation to encourage and strengthen the connections that will enhance the teen’s later life. Interdisciplinary and multi-sensory units and activities can encourage the development of many circuits in the brain. Content units in the middle school should require students to collaborate with

peers, involve real-life apprenticeships, challenge their thinking, encourage reflective writing, and link the arts and physical activity to encourage the growth of multiple synapses within the brain. Thus, it is important that middle school teachers understand the emotional and physical growth of the adolescence as well as their cognitive growth. Teacher education programs that promote interdisciplinary units and attend to the special needs of the adolescence prepare more effective middle school teachers, and make it necessary to have programs designed specifically for middle school teachers.

Design of the Post-Baccalaureate Licensure Program

The notion that a career choice implies a lifelong, static career path is changing, rendering obsolete the loyalty to a single company or organization (Peske, Liu, Johnson, Kauffman, & Kardos, 2001). Although many teachers made their career choices early in their lives, another subset of potential teachers is emerging – those who worked in other fields first, and then decided to pursue a career in teaching. For some second-career teacher candidates, teaching is a career they always knew they wanted to pursue, but were persuaded by others to choose a more lucrative or prestigious career path. Others may have never considered teaching until they had extended opportunities to interact with children. They realize an unanticipated interest in and ability for teaching, and decide to pursue their certification.

To make the transition to a school-based career, a myriad of routes now exist for teacher certification. Programs such as “Troops to Teachers” and “Teach for America” as well as state-approved emergency licensure waivers in high-needs subject areas such as mathematics serve as pathways for new teachers to enter classrooms. However, in the same rationale that going to the doctor since birth does not qualify one to practice medicine, a long-term student status does not qualify someone to enter the classroom adept at the craft of teaching. Teacher preparation in the form of classroom experience and pedagogical course work is imperative for improving the retention probability of new teachers. Research by Harrell, Leavell, van Tassel, and McKee (2004) suggests that limited classroom experience is a factor influencing teacher attrition. Their study was in response to the recent flurry of emergency licensure teachers needed to fill classrooms with teachers who met the Highly Qualified status. They contend that NCLB designers worked under the misconception that the removal of teacher certification barriers would increase the quality, instead of just the quantity, of teachers (p. 48). Based on survey results from over 1000 teachers who earned their teaching license from the University of North Texas, the researchers state the following: “It is evident that teacher preparation and sustained professional development are needed to increase the pedagogical knowledge necessary for teachers to be successful *before* and *after* entering the classroom” (p. 58).

While emergency licensure waivers for second-career teachers may fill immediate needs for teacher vacancies, the sustained and purposeful preparation of Highly Qualified teachers for middle grades is needed. In response to both the NCLB-based reforms for Highly Qualified teachers for grades 6-8 and the growing number of post-baccalaureate students interested in changing their career paths to teaching, University of Tennessee now offers a middle grades licensure program designed for both traditional and second-career prospective teachers. Content preparation is completed prior to enrolling in the program. Applicants must meet the Highly Qualified status in two content areas prior to

entering the internship phase of the program, thereby ensuring that they will have some flexibility in teaching positions when seeking employment in grades 5-8.

Pedagogical knowledge and pedagogical content knowledge are infused in the courses that prospective teachers take before, during, and after their yearlong internship in a classroom. Table 1 provides details of the courses and their alignment with the seven NMSA standards. Some courses focus on broad topics, such as the use of action research to make informed instructional decisions, which are then applied to the middle grades setting. Others target the pedagogical knowledge pertaining to middle grades instruction – an area underrepresented in the K-8 or secondary certification processes. Prospective teachers enter the program during the summer, complete coursework and their internship throughout the academic year of the school in which they intern, and can earn a master's degree in teacher education with an additional three credit hours of coursework. Successful completion of the yearlong internship qualifies as one year's teaching experience, so they enter the workforce as experienced teachers both literally and figuratively.

From Manager to Math Teacher: Mark's Story

You might expect someone like Mark - a person with a strong math background, a high-level management position with a great 401K, and two children - to be set in his career path. You might also expect that someone married to a kindergarten teacher would be highly cognizant of the incredible demands on and relatively low pay for educators – enough to make him complacent enough to continue in a career outside of education despite some questions about his current job satisfaction. However, Mark's story is typical of the kind we are expecting to hear as we continue to expand our middle grades licensure program for post-baccalaureate students. The prompts we used to interview Mark about his previous and current careers were based on Chamber's (2002) interviews with second-career teachers. Specifically, we asked Mark about his academic background, job history, motivation for leaving his most recent job, expectations for teaching middle school students, connections between his previous and current career, and level of satisfaction with his career change.

Mark earned his bachelor's degree in Business Administration from The Ohio State University in 1986. He worked in inventory control for several manufacturing corporations, specializing in Manufacturing Requirement Planning systems. During his last position as Materials Manager at a manufacturing facility of a leading producer of plastic household goods in Maryville, TN, he began to feel the drain of his career choice. Reflecting on the inverse relationship between his job success and job satisfaction, he commented: "The more I was promoted, the less satisfied I was with my career path." During that same time, he became more aware of the rewarding experiences of his wife's teaching career. In making these comparisons, he remarked that "(my career) may have successfully improved the profitability of a corporation, but hers made a positive impact on people's lives." That realization, coupled with "an increasing need to serve others," led Mark to pursue his teaching license. He was accepted into the newly created Middle Grades Licensure program at UT; because of his strong math background, he entered with a Highly Qualified status.

Mark has recognized many parallel expectations between what he did as a manager and what he has accomplished so far as an intern. In both careers, he notes that he had to motivate individuals and evaluate their performance. He anticipates that his

new career will “continually be a learning experience that allows me to improve and grow as a teacher.”

In reflecting on his career change, Mark has no regrets. He “expects greater personal satisfaction” in his career by helping adolescents reach their potential, and states has been “very satisfied” with his career-change decision. This high satisfaction stems from not only serving others but also by working closely with co-workers who share his philosophy. He states, “I am surrounded by what I consider to be very good people with similar objectives and priorities.”

Conclusion

George Will ends his call for the abolishment of colleges of education by lamenting that more than half of today’s eighth grade students learn math from teachers who did not major in math or focus on math during their teacher preparation. Those of us from the University of Tennessee’s College of Education, Health, and Human Sciences who are involved in the new middle grades licensure program hope that Will never gets his way. We plan to continue assisting both second-career and traditional-route teachers in their quest to become knowledgeable, effective middle grades educators.

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Table 1

National Middle Schools Association (NSMA) Standards Met by Coursework

Course	Description	NMSA Standards
Integrated middle grades methods	Integrated approach to math, science, social studies and language arts	3, 4, 5
Special education and diverse learners	Meeting the needs of diverse learners	5
Teachers, schools, and society	Relationships between schools and society	6, 7
Applied educational psychology	Creating effective classroom environments	1, 5
Reading education	Reading strategies for adolescent learners	4, 5
Middle grades: Concepts and practices	Issues unique to the adolescent learner and teacher	1-7
Advanced middle grades content methods in primary licensure area*	Content-specific middle grades instructional methods	3, 4, 5
Analysis of teaching*	Reflective practices	1-7
Clinical studies*	Completion of action research project	1-7
Internship	Academic year (36 weeks) of classroom experience	1-7

Note. * = Completed during the Internship year. 1 = Young adolescent development; 2 = Middle level philosophy and organization, 3 = Middle level curriculum and assessment; 4 = Middle level teaching fields, 5 = Middle level instruction and assessment; 6 = Family and community involvement; 7 = Middle level professional roles.

It is not just an elementary thing: A Research Based Learning Environment in the Middle School Classroom

By Kathy Brashears, Assistant Professor, Tennessee Technological University

Paper bags line the freshly painted shelves and decorate the clothesline hanging in the back of this middle school classroom. Scraps of papers, small toys, and pictures out of magazines are just visible at the top of some bags. As classes change, students burst into the room, grab the bags, and find their way to their seats. While anticipating their upcoming paper bag book reports, some students dig out trade books from their backpacks while others prepare the make shift stage at the front of the room. The teacher dims the light and calming music immediately fills the rooms as a student announces that he'd like to go first (Brashears, field notes, May 2004).

Twenty years and two degrees later, I still believe that time spent enhancing and developing the classroom environment is time well spent. I am now convinced, too, that establishing the learning environment is as important as any teaching strategy. As the vignette above indicates, attention to the physical environment reflects how teachers feel about their students, learning, and our profession. More importantly, the learning environment enhances opportunities for student learning because the physical learning environment is not just a warm, fuzzy topic. It is not just an elementary thing: The importance of the environment to learning is research based.

The Classroom Environment

As educators seek to support strategies that improve student learning, the attention to environment is sometimes lacking. By the term environment, I mean something akin to Wertsch's (1998) "setting": a stage on which human interactions may occur through the use of tools, symbols and signs. These human interactions include exchanges with and within the learning environment itself. Wertsch (1998) explains: "People often seem to think of the environment as something to be acted upon, not something to be interacted with. People tend to focus on the behaviors of individual objects, ignoring the environment that surrounds (and interacts with) the objects" (p. 21).

Other researchers emphasize the importance of the learning environment when suggesting that little learning will occur if the classroom setting or environment is uncomfortable: "Positive environments can actually produce physical changes in the developing brain," and "40 to 70 percent of our brain is developed in response to our environment" (Jenson, 1998, pp29-30). Zelman, et al. (1993) argue further that creating a positive learning environment "...is the embodiment of Best Practice" and enhances learning (p. 43).

Climate

For the most part, the literature on learning environments focuses on relatively tangible aspects of classroom practice, such as reading and writing supplies along with the arrangement of furniture. More recent research, however, addresses "classroom climate" or, sometimes, "classroom atmosphere" (Connors, 2000). Connors (2000), for example, suggests that a positive classroom climate is one in which students actively participate and engage each other in learning. Unfortunately, however, much of the

language regarding classroom climate is unclear. Slavin and Madden (2001), for instance, use the descriptors "fun-filled" and "learning-rich day" to describe a positive classroom climate. They further suggest that a positive classroom climate fosters "productive use of every minute" (p. 159). Smith (1989) provides yet another example by suggesting that a positive classroom climate provides for "a willingness to take...necessary risks" [emphasis added] (p. 100).

Although these descriptions of the environment appeal to our emotional senses, they are nevertheless vague and, thereby, sometimes overlooked by educators who want only to consider "hard" research. In fact, the imprecision of these classroom climate descriptions suggest some of the problems with establishing definitions of "effective" teaching and/or writing environments. As a result, some researchers work back from successful students. By successful they generally mean students who demonstrate, usually on some sort of standardized assessment, the ability to regurgitate what they have learned. Researchers, therefore, identify a number of classroom environment factors, outside the physical realm, that effect student learning. These factors include the roles of teachers, peers, and parents as well as the use of self-assessments.

Teacher Role

While the teacher walks around the room, monitors students' progress as they work in groups, and encourages the students with smiles and soft pats on backs, students discuss word problems displayed on the television screen via the computer. Having decided in groups who will carry out the various roles of writer, director, presenter, and time keeper/encourager, students carry out their responsibilities with little direction. While the timekeepers share with their respective groups that they have two minutes to finish up, the director hands out self and group evaluations to complete when the presentations are finished (Brashears, field notes, May 2004).

Research is replete with reference to the importance of the classroom teacher in establishing a positive learning environment as seen in the scenario. For example, Graves (1990) notes that in establishing effective learning environments, teachers not only facilitate their students' learning, but help them find ways to guide their own learning. Effective teachers, too, help their students make connections between what they are learning and "real life" situations so that it is more likely that students perceive curricular goals as related to their needs and interests. Teachers, furthermore, who establish effective learning environments, provide a wide range of learning activities in order to address different student learning styles (Graves, 1990). In fact, part of establishing a positive classroom climate includes an awareness of individual differences in learning styles and interests on the part of both students and teachers (Smith, 1998). In such an environment, effective teachers tend to employ their knowledge of both content and pedagogical strategies while providing students with feedback on their learning endeavors (Lowe, 2000). Several scholars, too, suggest that teachers tend to show confidence in their students' abilities by helping them set reasonable goals and by structuring the learning in the classroom environment so that the students know what to expect (Karge and Belinda, 1998; Allen, 2000; Campbell, 1999). Teachers, unquestionably, who understand how to establish positive learning environments, contribute to their students' success. A 1996 National Commission of Teaching and America's Future report (indicated that) teacher expertise is the most significant factor in

student success. It cites studies showing that teacher qualifications account for 40 percent of the difference in overall student performance and that teacher quality is more powerful than a student's socioeconomic background in student learning (Nagin, 2003, p. 59).

Other researchers, too, argue that in creating a classroom environment that best facilitates student learning, teachers tend to develop an awareness of student backgrounds and cultures while assisting their students in doing the same (Au, et al., 1997; Delpit, 2002). Taylor (1998) further suggests that teachers who promote positive learning environments do not believe that their students' abilities are handicapped because of their dialects or cultural backgrounds. Such findings are important since teachers who are aware of their students' culture and personal backgrounds are better able to provide appropriate learning opportunities for individual students (McIntyre, 1999). Effective teachers, too, tend to recognize that experiences in students' personal lives may not always meet expectations determined by the dominant culture (Owens, 2000). Because teachers who create positive learning environments understand that misperceptions can be detrimental to students' learning, they tend to highlight the need for openness and acceptance as Csak (2002) suggests: "What students talk and write about "reminds us that...what matters to children is not sterile and pretty. If we ask about lives, we will hear about them, and even young lives are full of warts. We need to accept what comes out, because it will be what the child needs to say" (p. 489).

A result of a learning environment where teachers model acceptance of others ideas and stories, students reciprocate by demonstrating tolerance and respect for diversity, thereby further enhancing the learning environment (Lowe, 2000). Overall, Ginott's (1972) thoughts on the classroom still hold true:

I have come to the frightening conclusion that I am the decisive element in the classroom. My personal approach creates the climate. My daily mood makes the weather. As a teacher, I possess a tremendous power to make a child's life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or humor, hurt or heal. In all situations, it is my response that decides whether a crisis will be escalated or de-escalated and a child will be humanized or dehumanized (preface).

Parent Role

Effective teachers welcome parents into the classroom and further foster a positive classroom climate by conversing with students' parents in order to develop a better understanding of student backgrounds (Au, et al., 1997). Recognizing that parental involvement is imperative to student learning, teachers, who establish effective classroom environments, tend not only to involve parents, but model for them appropriate ways to respond to their children's learning efforts (Stotsky, 1999). By providing parents with meaningful opportunities for involvement in their children's learning process, a classroom environment tends to be a place where differences are valued (Stotsky, 1999).

Peer Role

In successful middle school classrooms the teacher establishes a sense of community through natural opportunities for students to talk and learn from each other. Researchers contend that teachers, who provide opportunities for students to talk about

their writings and listen to what they have to say, acknowledge that social interactions play an important role in the learning process (Calkins, 1994; Wertsh, 1985). For example, students, who converse with each other about their work, develop a better understanding of individual perspectives and an appreciation for receiving and providing feedback (Hansen, 2001). Additionally, in the best-case scenario, these interactions not only encourage students to examine their own views, but to recognize and appreciate views differing from their own (Moore and Caldwell, 1993). As a result of interactions like these, a sense of community evolves, and, thereby, offers networking opportunities for students (Furr, 2003). Such connections make a difference in student attitudes toward school and learning-and, perhaps, increase awareness for the need of self-assessment.

Use of Self-assessment

Self-assessment is a skill much discussed but rarely implemented. However, it is more likely to appear in communities oriented to the practices described above (Lowe, 2002; Slavin and Madden, 2001). In these settings, students receive time and encouragement to reflect on various aspects of their learning and tend to develop ways to analyze their own progress, become problem solvers, and identify areas for further growth (Slavin and Madden, 2001; Daniels and Bizar, 1998). Sometimes specific rubrics-"...translations of visions of desirable performance into specification of exactly what is desirable"-help students accomplish this feat (Marby, 1999, p. 674). Although self-assessments allow learners to monitor their own growth, standardized writing tests, while not promoting independent thinking or self-evaluation, are the most widely used assessments in the United States (Rief, 1990). Because such tests are fixture in many classrooms and do not facilitate growth as a community, it is vital to the overall success of a positive classroom learning environment that teachers bring in other types of assessments, namely self-assessments (Rief, 1990).

Conclusion

While describing the essence of a positive learning environment is complex and challenging, identifying a positive or negative learning environment is easy as is the case in the following vignette.

As I enter the classroom I notice that students are engaged in literature circles involving Newbery honor books. Some students are discussing characters while one group completes a chart on story grammar. As I move about the room, some students acknowledge my presence with smiles and nods and others ask me to join in their discussion as to whether or not I think the given character made the right choice. However, so absorbed are they in their discussions, few notice when I slip out the classroom door (Brashears, field notes, May 15, 2004).

While the vignette above helps us to visualize and underlines the importance of establishing a positive classroom environment, it is through the scholarly work of Smith (1998), Campbell (1999), Allen (2000) and the research of Jensen (1998) that it is now understood that both tangible and intangible aspects of the learning environment influence student learning. We now know that in developing a positive learning environment attention must be given, not only to physical elements, but also to elements involving the classroom climate, the roles of the teachers, peers, and parents, and the use self-assessments. These elements combined create a learning environment that,

inarguably, fosters student learning as well as tolerance and acceptance of other people. In essence, current research is giving credit to what good teachers have instinctively known for years: The classroom environment is not just an elementary thing. The classroom environment is vital to student learning - perhaps especially at the middle school level!

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Using Technology to Teach Reading in Content Areas: Nine Top Approaches

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Using Technology to Teach Literacy in the Content Areas: Top Nine Approaches

What do middle school teachers need to know about using computers to teach reading across the content areas? It is widely argued that all teachers in the middle grades are reading teachers, suggesting that teachers in discipline areas such as mathematics, science, or social sciences are actively engaged in teaching students how to “read to learn”. It is also widely discussed that all middle school teachers need to integrate technology into the curriculum. Indeed during the last few years, teachers have received mandates from the *No Child Left Behind* legislation and standards from the IRA (see Figure 1) communicating the necessity to become technologically literate and infusing technology into literacy instruction. We, three university instructors and one doctoral student, are interested in learning how to use computers in our own teaching (Anderson & Puckett, 2005), so that we may inspire our university students to employ them as well. In this article, we focus specially on middle school teachers and share what we have learned about the following: (1) the current literature on teachers integrating technology into the curriculum, (2) how middle school teachers are using computers to teach literacy, and (3) the challenges associated with this movement.

Literature Review

Basic tenets of the interconnected global community are generative in nature and are facilitating the accessibility to information by rapidly changing technologies. Such change requires educators to be ready and able to align literacy curriculum and instruction. It’s not uncommon for students’ technological knowledge to be more developed than that of the teacher (Leu, Kinzer, Coiro, & Kammack, 2004) and, our goal is to remain current while addressing all possible concerns, capabilities and potentials regarding the convergence of the worldwide web and the facilitating technologies. This situation presents asymmetric challenges at times. The following examples confirm this.

Teachers and researchers in McNabb, Hassel and Steiner’s (2002) study indicated that learning activities designed to use the Internet offer opportunities for reading that enhance traditional reading skills such as vocabulary, writing, comprehension, and fluency. Internet-learning activities also develop more critical thinking skills associated with reading such as, organization of information, comparisons, and synthesis. Similarly, Schmar-Dobler (2003), found that students’ actions of searching, evaluating and using information on the Internet are aligned with the application of the reading process. Teachers’ desires for students’ metacognitive skill development is also actualized through students locating and evaluating information, recognizing their own biases in their search, and analyzing websites while understanding the influences of advertisements and other links (McNabb, et al. 2002).

Karchmer (2001) also confirmed that by K-12 teachers revealing the use of the Internet influenced aspects of students’ literacy development and literacy instruction in their classrooms;

specifically related to reading and process writing. Teachers reported an increased emphasis in three broad areas of literacy instruction in using the Internet: determining the appropriateness of reading material, evaluating the accuracy of information, and publishing student work. The reported changes in the focus of literacy instruction highlighted how teaching literacy with technology differed from teaching traditional print-based literacy with the resulting new technologies driving curriculum, instruction, and assessment.

Also, teachers use technology as communication tools. Johnson's (1996) study explored the potential of electronic discussion to increase students' deep understanding of literature. All teachers perceived increased benefits in the depth of understanding after communicating with others on a computer network, and using the Internet to access additional information or teaching resources. Teachers used technology to communicate and to connect students with other students both within and outside their own classrooms.

In another study, Heeren (2006) found that middle school master teachers planned how to use specific technology in their lessons. Teachers were observed engaging in implicit and explicit teaching strategies including: modeling Internet use, connecting learning to prior knowledge, questioning, vocabulary instruction, modeling fluency, and summarizing content learning. The study showed how teachers enhance instruction in comprehension and vocabulary strategies with new technologies.

How Middle School Teachers are Using Computers to Teach Literacy

Although there are numerous ways in which teachers are using computers to teach literacy, we offer a list of the "Top 9" approaches (see Figure 2).

1. Promote students' vocabulary development

As was stated in our introduction, middle school teachers are challenged with teaching their students to "read to learn" in science, social studies, mathematics and literature. Today's teachers are using computers to enhance students' content area vocabulary and to provide opportunities for practicing comprehension strategies specific to those areas of study. This technology has greatly expanded teachers' options for exploring their subject matter and assisting their students in acquiring the necessary vocabulary and conceptual knowledge needed for understanding.

According to the National Institute of Child Health Human Development's National Reading Panel (2000), vocabulary is learned in two distinct ways: immersion in the language and direct instruction. Computer technology supports both indirect and direct approaches to vocabulary instruction. In addition to online vocabulary programs, students can find online texts with hyperlinks that explain unfamiliar words, as well as a wide variety of online reference tools such as dictionaries, encyclopedias, and thesauri. And perhaps most importantly, because we know that extensive reading increases vocabulary, the vast amount of information available to students online provides them with an infinite number of opportunities to read and expand their word knowledge.

2. Develop reading comprehension

Comprehension is the goal of reading and according to the National Reading Panel (2000) there are six strategies that strongly support this goal. They include: monitoring comprehension strategies, using graphic and semantic organizers, applying question-answer strategies, generating question strategies, recognizing story structure strategies, and summarizing strategies. There are numerous ways in which computer technology can provide direct

instruction in these comprehension strategies. One example includes using electronic books (see Figure 2) with hypertext features that allow teachers to model “think alouds” Another example is using the popular software *Kidspiration* and *Inspiration* that provides students with structure for concept mapping & organizing. Perhaps the most widely used software is *Accelerated Reader*, a system that is noted to motivate students to read and test their comprehension. Teachers are also using strategies such as online questions generated from students reading to keypals or classmates, online story maps and timelines that allow them to check students’ understanding of story structure and sequence, and blogging to summarize or respond to students’ reading.

3. Provide writing process instruction and electronic publishing sources

One of the most powerful ways that middle school teachers use computers is to teach students process writing and to provide electronic sources for publishing students’ work. In process writing, students engage in prewriting, drafting, revising, editing and publishing. Both individual and group writing is generated at the computer and word processing affords the opportunity to easily make changes. For instance, today middle school students are learning how to use the tracking tool feature to easily give and receive peer feedback.

Publishing students’ work is an excellent way for students to engage in meaningful and purposeful tasks. When students know that someone is going to read their writing, they are more motivated and excited to write. Not only are students posting traditional text or word processed books to the Web, they are also creating multimedia books and electronic presentations by using tools such as *Microsoft Powerpoint*, *Apple Keynote*, *eZedia* and *Microsoft Frontpage*.

See Figure 2 for popular websites where students are publishing their writing.

4. Enhance their own professional development

We find that not only are middle school teachers using the computers to teach literacy, but they are also using it to promote their own professional development. They are doing this in various ways. First, teachers are participating in online conversations with colleagues via email, text messaging, and blogging. These colleagues consist of teachers both inside and outside their building. Teachers are also active in professional organizations that offer online versions of journals, chat rooms for conversations, and bulletin boards of current events, such as the IRA, (www.readingonline.org), and The National Council of Teachers of English (www.ncte.org). There are also a growing number of teachers who are enrolled in graduate courses that lead to a teaching endorsement. Many of these courses are supported through local districts. Teachers are also utilizing the growing number of professional sites that include lesson plans, curriculum examples, and instructional ideas (Blanchard & Marshall, 2004). And finally teachers are finding that WebQuests are not only facilitating their students’ learning, but their own learning as well (Johnson & Zufall, (2004).

5. Communicate and connect students with peers outside the classroom

For years middle school teachers have connected students with other students via pen pals. Currently, teachers are taking advantage of the growing opportunities to connect students electronically throughout the world via key pals. Numerous sites such as *ePals Global Network* (<http://www.epals.com/>) and *Intercultural E-Mail Classroom Connections* (<http://www.iecc.org/>) make it easy to connect electronically with other cultures. Often teachers select countries that relate to their social studies curriculum, current events, or students’ interest.

It is difficult to communicate just how engaging middle school students find it to share their writing, discuss a book, or simply discuss issues important to adolescents. Students are also using text messaging and blogging (Oravec, 2002) to communicate with others. Another example of how students communicate with others outside the classroom is through asking an expert questions or engaging in a discussion with one of their favorite authors. As an example, see Ask the Author (<http://ipl.sils.umich.edu/youth/AskAuthor/>.)

6. Communicate and collaborate with students inside the classroom

Computer technology allows students and teachers to communicate and collaborate within the classroom as well as beyond its walls. Educators have long understood that social interaction plays a key role in the development of middle school learners and is a great motivator in the classroom. Email allows teachers to give student feedback as well as structure classroom assignments and answer specific content related questions. Small groups working on projects are able to collaborate and integrate their work into multimedia presentations such as PowerPoint. Students can develop Web pages that explain new and ongoing projects and again allow for personal communication.

7. Research and access information

During the past few years, there has been a great deal of national attention on students having access to a wealth of multimedia information in the form of text, graphics, and sound from libraries, businesses, and government departments on the Internet. This is one major opportunity that computers afford, though at the same time, it poses special concerns for teachers. Not only are teachers concerned about students perusing safe and appropriate sites, they are equally concerned about students' ability to comprehend and critique what they read. There is non-referred material on the Web, and teachers are embracing strategies that teach students how to be wise consumers of this information. A similar issue that is creeping to the forefront is plagiarism. Again, teachers are sensitive to the importance of teaching middle school students to take notes and paraphrase to avoid this happening. On a more positive note, teachers are expanding the opportunities for students to engage in project-based learning experiences. One popular example is WebQuests. (Dodge, 1995, 1998; Grant, 2002) Generally, teachers feel safe with implementing these WebQuests because they are interdisciplinary and collaborative inquiry projects that allow students to access information from predefined sites. Find examples on WebQuest homepage (<http://webquest.org/>).

8. Participate in discussion groups

Middle school teachers and students can expand their learning time through on line blogs and threaded discussions. Blogging has become increasingly popular with students due to its informal and social nature. It allows students to respond to their reading, writing, and life, much like in a journal or learning log. Teachers may structure blogs to achieve specific standards or skill, such as responding to a short story or summarizing a new problem solving technique in mathematics. It is an open forum that invites public response. Another less public and more structured way of involving middle school students is through threaded discussions. In this forum, the teacher or perhaps a designated student serves as a facilitator and poses a question on the topic to the group. Each group member then has the opportunity to respond and/or ask a question and thus direct the discussion. Several software programs are available for this purpose such as *WebCT* or *Blackboard*.

9. Assess student work

As middle school teachers search for authentic methods of student assessment, computer technology allows them to update a traditional tool – the portfolio. Portfolios have long been used in education as a way to collect student work and assess growth over a period of time. Now with electronic portfolios (E-folios) teachers are able to collect this student information using the computer technology available in their classrooms. E-folios have numerous advantages over the hard-copy method as they: require little storage space, can include a wide variety of student work not limited by space and source such as a multimedia presentation, can be easily shared with the next year’s teacher(s), and can serve as a communication link with parents inside or outside the classroom. The use of E-folios in middle school classrooms is a natural way to involve students in their own assessment as they become part of the process in selection and storage. The ease of this process is of practical value to teachers and students.

Challenges

In addition to the multiple opportunities for technology use as discussed above, there are numerous challenges for middle school teachers as well (Blanchard & Marshall, 2004). In this section we address the top four challenges from the literature and our data: lack of computers/maintenance, time, diverse learners, and standards.

Lack of Computers/Maintenance

One of the major challenges for teachers using technology in instruction is a lack of access to computers. This challenge exists as both the physical issue of providing the hardware needed for student use, as well as the cyberspace issue of providing access to communication technologies. A related challenge to that of computer access is the maintenance of the computers that teachers do have, and keeping them current with new software technologies.

Teachers reported specific obstacles to technology integration in the classroom in a qualitative study of 30 “tech-savvy” teachers in K-12 classrooms. Bauer and Kenton (2005) noted that a key issue for technology instruction was that students did not have enough time at the limited computers available for instruction. Additionally, and specifically to Internet use, teachers reported connectivity problems and large class size were issues they had to resolve.

Similar specific instructional challenges can be linked to working with early adolescents in a middle school setting. The Pew Internet and American Life Project (2000) discussed the widening gap between students who are “Internet savvy” and other non-technological students and teachers. Teachers must consider the fact that many older students already have acquired knowledge and experience from using the Internet outside of school (Kuiper, Volman, & Terwel, 2005), while others have had limited access due to socioeconomic factors. This challenge is exacerbated when computers at school are non-existent or lacking in current technologies.

The lack of equitable access to Internet wired computers was an overwhelming challenge reported and observed in a study of middle school teachers’ instruction and assessment practices with Internet literacy (Heeren, 2006). Classrooms observed had every possible configuration of computer access. For example, to illustrate opposite ends of the spectrum in access, one classroom had a laptop cart, with a laptop computer for every child. Another teacher had to take his students on an “in-school field trip” to the computer lab, which was equipped with 20 outdated computers, some broken, for his 28 students. Teachers indicated that providing students with access to the Internet was an on-going problem, especially in low-income areas. This is a

notable challenge, all the more important because in lower income schools, families are less likely to have Internet access at home. Challenges such as this must be addressed by the educational community, or learning gaps between socioeconomic groups are likely to increase rather than decrease. This finding was corroborated by Au and Raphael (2000), who found that a literacy achievement gap existed between students of diverse backgrounds (minority, ELL, or socioeconomically disadvantaged students) and their mainstream peers.

Diverse Learners

Students are arriving today in classrooms with not only varied reading abilities but with various backgrounds and experiences with using computers. Add to this mix, is the growing number of ESL students who are also dealing with language issues. Although we did not find the following suggestions in our research data, we did find numerous suggestions in the literature for ways teachers are turning to websites for help. Following are a few examples: (1.) Writing: The Global Schoolhouse <http://www.gsn.org> provides opportunities to showcase students work globally, (2.) ESL Projects: The Internet for ESL Teachers <http://edvista.com/claire/internet-esl.html> provides numerous links to ESL sites, and (3.) Dave's ESL Café <http://www.eslcafe.com> includes ESL chat rooms, lesson plans for teachers and forums for students.

Time

When technology is integrated into the curriculum, time becomes an issue. Teachers are uncertain how to integrate technology into their content area and this increases their planning time. Questions arise about covering all of the traditional content when adding technology into the curriculum, leading to teachers struggling with how to best use instructional time. Another time issue centers on the students. Frequently teachers use class time to instruct students in how to use the technology; again, taking time away from content area instruction. Additionally, it takes time for teachers to stay abreast of current innovations in the use of technology integration in light of other obligations. Finding time for professional development is a challenge.

4) Meeting the standards of a statewide testing program

The *No Child Left Behind* legislation requires most middle school teachers to adhere to a statewide curriculum that includes a mandatory end of year testing program. This curriculum and testing program poses major concerns for many middle school teachers. Many believe they must balance the challenges of the curriculum with the desire to inspire and motivate students with the use of computer technology. They ask questions like, "Can I afford to take time away from my content area teaching to instruct the students in how to use the technology?" and "Is time spent on gathering information from the Internet and taken away from the state approved text going to pose a problem for my students at testing time?"

Implications

Multiple technologies are becoming part of our lives. As our virtual world expands in and out of the classroom, educators need to be cognizant of standards for use of the Internet and technology as they are infused in the literacy classroom. As Leu, et al. (2004) state, "...technological change happens so rapidly that the changes to literacy are limited not by technology but rather by our ability to adapt and acquire the new literacies that emerge"

(p.1591). We hope that these nine approaches will assist you in adopting and applying new technologies in your middle school classrooms.

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According to the International Reading Association, students have the right to:

- Teachers who are skilled in the effective use of ICT (Information and Communication Technology) for teaching and learning
- A literacy curriculum that integrates the new literacies of ICT into instructional programs
- Instruction that develops the critical literacies essential for effective information use
- Assessment practices in literacy, including reading and writing with technology tools
- Opportunities to learn safe and responsible use of information and communication technologies
- Equal access to ICT

Figure 1. Integrating Literacy and Technology in the Curriculum: A Position Statement of The International Reading Association

1. Promote students' vocabulary development
2. Develop reading comprehension
3. Provide writing process instruction and electronic publishing sources
4. Enhance teachers' professional development in the use of technology
5. Communicate and connect students with peers outside the classroom
6. Communicate and collaborate with students inside the classroom
7. Research and access information
8. Participate in discussion groups
9. Assess student work

Figure 2. Using computers to teach literacy: Nine top Approaches.

“Ask the Author”
 (<http://ipl.sils.umich.edu/youth/AskAuthor/>)
 Carol Hurst’s Children’s Literature Site
 (<http://www.carolhurst.com/index.html>)
 Classics for Young People
 (<http://www.ucalgary.ca/~dkbrown/storclas.html>)
 The Children’s Literature Web Guide
 (<http://www.ucalgary.ca/~dKbrown/>)
 Children’s Story Books Online
 (<http://www.magickeys.com/books/>)
 Childrenstory
 (<http://childrenstory.com/>)
 Laura Ingalls Wilder Home Page
 (<http://webpages.marshall.edu/~irby1/laura.htmlx>)
 Newberry Award Home Page
 (<http://www.ala.org/alsc/newbery.html>)
 Poems, Poetry, Poets
 (<http://www.spondee.net>)
 Project Gutenber
 (<http://www.gutenberg.org/>)
 Reading Rainbow
 (<http://gpn.unl.edu/rainbow/>)
 Recommended Youth Reading
 (http://www.st-charles.lib.il.us/youth_services/yrl/ythread.htm)
 Tales of Wonder: Folk and Fairy Tales from Around the World
 (<http://www.darsie.net/talesofwonder/>)
 Winnie the Pooh and Friends
 (<http://www.worldkids.net/pooh/>)
 The Electronic Text Center at the University of Virginia
 (<http://etext.lib.virginia.edu/uvaonline.html>)
 The Online Books Page
 (<http://onlinebooks.library.upenn.edu/lists.html>)

Figure 3. Electronic book resources

- Guide to Grammar and Writing <http://webster.comnet.edu/grammar/index.htm>: Students ask questions about grammar problems.
- Biography Writer's Workshop <http://teacher.scholastic.com/writewit/biograph>: Students publish their biographies online.
- KidsPub <http://www.en-garde.com/kidpub>: Publishes all work submitted by students.
- The Scoop <http://www.friend.ly.net/scoop/adventure/index.html>: Provides stories to which students can write their own ending.
- WAC-L listserv@vmd.cso.uiuc.edu: Focuses on writing across the curriculum.
- The Write Site <http://www.writesite.org>: Contains many newspaper writing opportunities and resources.

Figure 4. Popular websites to assist students with writing and publishing.



Did an Exciting Presentation? Was your session popular?
Publish it as an article in the TAMS Journal

Spring 2007

This is the call for manuscripts for the upcoming edition of the Spring 2007 issue of the *Tennessee Association of Middle School Journal*. Deadline for submission of manuscripts is February 1, 2007. This is an open edition, which allows you to write on any topic related to middle schools. Some topical questions are:

What are your most effective strategies for middle school students?

What are the needs of beginning teachers in middle school?

What special projects are being supported in your middle school?

What mentoring programs are supported in your school?

Other manuscripts of interest are partnerships in middle schools, partnerships in urban and rural middle schools, and inquiry teaching in the middle grades.

Send your manuscript to:

TAMS Journal
Dr. Shirley Key, Editor
University of Memphis
401A Ball Hall
Memphis, Tennessee 38152
skey@memphis.edu.

Guidelines for Articles submitted to *TAMS Journal*

The Tennessee Association of Middle School Journal is the journal of the Tennessee Association of Middle Schools. It is published twice in an academic year, November and April. If you are interested in submitting a paper about middle school concepts, students, or practices, please adhere to the following guidelines:

1. A variety of materials for publication is accepted for the *TAMS Journal*. Papers can assume (but are not limited to) the following types: articles about enhancing learning and teaching for the middle school (research investigations, position papers, policy issues, and critical review of literature), curriculum materials for learning and teaching middle school students, federal and state legislation on the education of the middle school students, and assessments and evaluation of content learning and teaching in the middle school.
2. Publication materials should be prepared according to the style prescribed by the fifth edition of the Publication Manual of the American Psychological Association. Please follow the manual precisely with regard to (A) content and organization of the manuscript, (B) writing style, grammar, and use of non-biased language, and (c) capitalization, punctuation, spelling, use of abbreviations, headings, quotations, tables, figures, and references cited in the text, and the references list. Papers should be typed or computer-generated on standard 8 1/2 by 11 paper, with one-inch margins. Typical page length for articles is between 13-16 pages doubled spaced. The author's name, title, and affiliation should appear on the cover page only of the manuscript.
3. One copy of the paper, a computer disk labeled with the file name and software utilized (IBM -Microsoft Word preferred) or sent electronically, and an index card with name and mailing address should be mailed to the Editor. The editor and two other reviewers will review the manuscripts.
4. The *TAMS Journal* is published two times per academic year, November and April. To guarantee your paper consideration for publication in the next issue, please submit your paper at least 45 to 60 days in advance of the publication date.
5. Papers accepted for publication will appear in the next edition of the journal. If we begin to have a backlog of papers, we will publish them according to the date of acceptance. Authors will receive one copy of the journal if they are not a member of TAMS; authors who are members of TAMS will receive two copies (one through regular mailing and an additional one through special mailing). Once your paper is published in the *TAMS Journal*, it becomes the property of the Tennessee Association of Middle School. If you wish to publish your paper after it has been published in the *TAMS Journal*, you must cite TAMS as the source of the manuscript.
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