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Digital Literacies In The Middle Years Of Schooling

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Glister (Glister, 1997) describes digital literacy as:

The ability to understand information and—more important—to evaluate and integrate information in multiple formats that the computer can deliver. Being able to evaluate and interpret information is critical. You can't understand information you find on the Internet without evaluating its sources and placing it in context (p. 1).

This paper uses Glister's interpretation of digital literacy whilst acknowledging that a computer is not the only means for the delivery of digital texts. I will explore how we can support student teachers to develop understandings about the teaching in the middle years in order to work with students in schools to successfully read digital texts, create digital texts, search, find and use information in the digital world and to become critical users of digital texts. Students in the middle years of schooling are facing increasingly sophisticated literacy demands of new technologies that go well beyond that of the traditional printed page as they interact with information communicated through a range of digital media both inside and outside of school. At best new technologies can open doors to students for researching and accessing a world far beyond their own environment, empowering them to direct and control their own learning and produce quality work.

New technologies include computer software, CD ROMs, DVDs, electronic games, email, chat programs and Internet chat rooms, web sites and video conferencing as well as older technologies such as radio, television, video and movies. Added to this there is a proliferation of mobile phones and messaging systems as well as a continuous stream of emerging new technologies.

New technologies make new and different demands on teachers' pedagogical practices. The New London Group (2000) describe pedagogy as a "complex integration of four factors: Situated Practice, Overt Instruction, Critical Framing and Transformed Practice" (p. 32). This view of effective pedagogy acknowledges the value of learning experiences that include immersion as a community of learners whilst engaged in authentic versions of such practice (situated practice), supplemented by overt instruction and enhanced by teaching approaches that give rise to critical understanding of the workings of power, politics, ideology, values (Fairclough, 1992), and cultural sensitivity. As The New London Group explain these four components of pedagogy do not constitute a linear hierarchy but rather are components that are related and interact in complex ways.

New technologies provide new teaching and learning possibilities as students engage in higher order thinking skills as they seek to transform information for their own purposes or conduct critical evaluations. Active learning requires the student to transform or customize the information to make it their own. Inactive learning is electronic cutting, pasting and rearranging.

It is important for teachers to see the use of new technologies in the wider context of education and the development of young people who are able to analyse, synthesize and make informed judgements from their learning experiences. According to Lankshear and Snyder,

it is still common for teachers to think of technology in terms of tools and implements ... concentrating only on the tools or implements aspect of technology [that] can blind us to its important social and cultural dimensions. ... This is not to say that it is wrong to identify technology with tools and applications and gadgets - only that it can be limiting (Lankshear & Snyder, 2000 p. 32).

Middle years learners and new technologies

Teachers in the middle years need to acknowledge not only the world of school or the world of text books but also the world outside of school. Teachers cannot ignore the uses students make of new technologies outside the school curriculum. Adolescence has been described as a time of potential and promise, a time of enthusiasm, curiosity and eagerness to achieve; a time when adolescents are developing their ability to reflect and think abstractly; a time when young people are developing a sense of social conscience, are willing to think critically about social issues, and have an interest in participation and decision making.

475
(Kruse, 1998). Conversely, it is also a time when young people are at greatest risk of disengaging with school and becoming 'at risk' of not completing their education (Fuller, 1998). Fuller has identified some of the factors that help young people develop resilience, or coping strategies, in relation to schooling. These include: having a sense of belonging and connectedness to school, having positive achievements in the school setting, having someone who believes in them and having a positive relationship with an adult outside the family, who may or may not be a teacher.

The inclusion of new technologies in teaching and learning can lead to positive achievements in the school setting for some students who otherwise may not have their successes celebrated. Students who have difficulty with spelling and presentation of their work due to poor fine motor skills and accompanying handwriting difficulties, may find that publishing their work using a computer will overcome some of these difficulties as they are more willing to edit their writing, repeatedly if necessary (including the use of the spell checker). With the removal of the stress to write neatly, many of these students will then demonstrate a greater willingness to take risks, greater creativity, more enhanced skills in composing, revising, editing and more interesting text development (Gäster, 1997). Computers provide a means for the development of both independent and collaborative writing. Many students experience pride in the professional quality of the work they publish using computers.

The inclusion of new technologies in teaching practices can provide opportunities to challenge such curiosity and critical thinking. Whether it be researching within the complex domain of the web, the decision making and intricacies of developing websites or the skills required to communicate effectively in chat rooms or with text messaging, new technologies provide for many, a means of excitement and engagement that cannot be matched by any teacher or text book. A teacher may, however be the adult outside the family who believes in them and supports them to have positive achievements in the school setting, and technologies may be the key to that success for some students.

Teachers have an enormous responsibility to equip themselves and their students to operate effectively in this world of new technologies. "Some children will have more constrained life chances if school literacies do not include learning and applying the available processes of reading and using information that are now more commonly available in digital form" (Green & Campbell, 2003, p. 154). Experiences for some children beyond the classroom are vast, e.g., playing electronic games or visiting a chat room, while others have little or no experience. How does quietly reading a page in a magazine compare to playing an online game with 1500 other participants, while sending and receiving text messages and listening to music on CD? Students in the middle years may be so used to multi-tasking outside school that they find it difficult to focus independently on one task within school.

Even without new technologies students in the middle years are faced with literacy experiences that are becoming ever more complex as the learning materials they are exposed to increase in length, level of abstractness as well as increasing in the complexity of the language and the modes of delivery.

**Language of new technologies**

The development of new technologies brings along with it evolving new language forms and structures. These include new words and new uses of old words. For example we say access a web site instead of finding it difficult to focus independently on one task within school.

**How can school students learn about new technologies?**

The four pedagogies of multiliteracies as described by The New London Group of immersion/situated practice, overt instruction, critical framing and transformative practice can be used to assist students to learn about and with new technologies.
Immersion/situated practice
Often it is useful to start with a 'playing in the sandpit' approach which allows for immersion and trial and error learning. This approach requires a totally non-threatening environment where all learning is celebrated and problems are seen as learning opportunities as students work as a community of learners. Students should be aware that their efforts will not be assessed in any way and that risk taking will be valued. Keeping a notebook with details about 'how' to do new things on a computer or when using a particular piece of software is a very useful strategy that students (and teachers) can refer to at a later date.

Overt instruction
Following an opportunity to 'play in the sandpit' with a new task, activity or piece of software the class or teacher may identify particular aspects that require overt instruction. Teachers can then present a mini lesson for the whole class if it is required but the teacher may also decide to target particular students who may require specific support on a particular task rather than teaching all the class how to do something most already know how to do.

Critical framing
Lankshear and Snyder argue that the 'critical dimension of literacy is the basis for ensuring that individuals are not merely able to participate in an existing literacy and make meanings within it, but also that, in various ways, they are able to transform and actively produce it' (Lankshear & Snyder, 2000 p. 31). Overt instruction lends itself well to the 'how' but critical framing is an important dimension that provides opportunities to address the 'why' and the 'why not'. This is particularly important when creating texts and when searching and finding.

Transformed practice
Transformative practice provides students with opportunities to apply their learning in new or slightly different contexts. This allows students to build on and practice previous skills and understandings, to revise and to apply what they have learned in other contexts or cultural sites (Lankshear & Snyder, 2000 p. 35). One of the strengths of new technologies is that it allows texts to be saved and remade in different formats at a later time. What was created in a word document or as PowerPoint presentation can be reused later incorporating more elements of color, changes in design or recreated as web pages with images, sound and/or animation. A PowerPoint presentation can become an animated cartoon shown by making duplicates of slides with minor changes to each one that is then run in fast speed to simulate movement.

In creating digital texts students will be making decisions about audience, structure, design elements, links and various media to be included. Some teachers may decide to focus first on 'reading' digital texts and then work on 'creating' digital texts but it is more likely that a mix of experiences will work best with students and teachers learning from each experience and each other which in turn will help them to be more effective in the other form.

Reading digital texts
Any reading involves active engagement with a text. It is a complex process of creating, interpreting and analysing meaning from text as the sources of information are integrated (Green & Campbell, 2003 p. 155). Reading digital texts places many additional demands on the learner. Students have to navigate and transform textual information rather than just predicting and interpreting it. Students not only have to make meaning from letters, words, phrases and other key elements of print based texts but they also have to deal with various visual and audio components and a structure that is rarely linear, or left-right, top down in format. So when students read digital texts they not only have to decode and make meaning of the 'marks on the page' but they also have to make meaning out of the images, animations, sound, video snippets and integrate this information with the words, sentences or paragraphs. Even the 'marks on the page' may be presented differently than they are in traditional flat print based texts.

The 'marks on the page' in information published digitally has many similarities to factual instructional texts in the organisation and presentation of the information in that digitally published texts tend to use lots of headings (which or may not be images) and dot points and lists are commonly used. They are usually more interactive than traditional print based texts in that some of the objects will be links or will cause 'something to happen' such as an animation or the opening of a new window. This non-linear aspect can confuse those inexperienced in the reading of digital texts in that they may lose track of, or forget, where they have been and have difficulty finding their way back to the original piece of text.
Making meaning of images

In order to learn how to effectively decode digital texts students should be given time for Immersion/Situated Practice where they explore a digital text and identify aspects that cause them difficulty. This can be followed by Overt Instruction (explicit teaching) by demonstrating how different components work. In a session the teacher could show a particular web site and demonstrate how running a mouse over some images or pieces of text will cause a window to appear that explains about or describes an object. If the mouse is placed over an image the cursor will change its form from an arrow to a hand. This alerts the reader to the fact that this image is also a link that will take the user to another place. In a similar way, if the mouse is placed over a link it will cause the site or place it is linked to, to appear in the status bar at the bottom of most web browsers. This supports the reader to make more informed decisions about whether or not they wish to use that link. It is also useful for readers of digital texts and web sites in particular to know that some links will move you to another web page or site and others will open a new window while the previous window will remain open behind. This is a particularly useful piece of knowledge when users are wishing to navigate back to a previous page. Teachers would also want to ensure that all their students understood and could use the navigation sections of the web browser which is independent from the particular web page or site. After overt instruction on aspects such as these teachers should allow students an opportunity to apply and practice these strategies.

Sound files and animations are also part of some digital texts. If the digital text is a CD ROM the sound files commonly run seamlessly but when they are part of a web site it is not uncommon for them to require special software to be installed on individual computers. Some files require plug-ins such as Shockwave to be installed. Most will show a warning if this is the case. This can cause frustration for the inexperienced user so overt instruction incorporating modelling and demonstrations can support students.

Creating digital texts

Writing is a complex process. Ideas, feelings and information are recorded in print according to conventions that assist the writer to record their message and the reader to interpret it appropriately. As a 'text creator' the nature of the writing process changes with the use of new technologies. The term creating is used rather than writing digital texts to reflect the complexity and what is different about creating digital texts. For example instead of thinking linearly the use of hyperlinks encourages students to read and write in a non-linear fashion. When creating digital text students may be involved in an inter-layered process where planning, drafting, editing and publishing are happening simultaneously rather than chronologically as more commonly happens in the creation of print based texts. Creating web pages and using PowerPoint and HyperStudio are two examples of digital texts that will now be considered.

Creating: Web pages

When creating texts that will be published as web pages there are a number of decisions the writer/creator will have to make. They will need to make decisions about the content: What content? How much content? Who might our audience be? What sort of language will be used? What else will be included, still images, animation, video, audio? What will they be linked to? What will be used for links? What colours will be used? How will colour be used? How will other media be used? How will the layout be managed? Where will non-textual items be placed? How many pages? Will it just be one page or an entire web site? How will the files be managed? So it can be seen that it is not just a process of making marks on a page.

Added to this is a question about what computer software might be used to create web pages. Although they could be created by writing the html (hypertext markup language) tags throughout a piece, this is not a very efficient use of time. Let us assume that students in the middle years will be using a software program that makes this task manageable. Macromedia DreamWeaver is widely used but a word processing program could be used since most come with an option to create web pages or 'save as' html (e.g., MS Word).

Since web sites usually include images it may be useful to ensure students have some skill in basic image manipulation. This task along with most tasks using new technologies will have its own specific language for students and teachers to learn.

Searching, finding and using information

When students create and publish texts on a web site it helps them read, understand further and critically evaluate web sites (critical framing) they find when searching on the web. Through the process of creating and publishing their own material students come to a better understanding of the content of the web.
Once they know that material they have created can be published on the web just like any other material on the web they may develop a healthy scepticism of the material they find on the web.

Teachers often suggest that their students research the Internet to find information on a particular topic. But students need the necessary skills to do this effectively. If not they can spend an enormous amount of time for very little value. For example a search was carried out today using two search engines, Google and Yahooligans to identify web sites that provide information about 'the environment'. Google, currently one of the most popular search engines provided 66,200,000 responses which is at least 66 million more than anyone could want. Yahooligans, described as the web guide for kids that is more directed towards primary aged students, provided 266 responses. This sort of activity may be worth carrying out with students to help them to understand the differences in these search engines. Following that it would be advisable to use the advanced search feature in Google with students to support them to develop more efficient searching skills.

As students peruse web pages they find as a consequence of their search it may be useful to use the 'Find' function to scan an individual web page to identify whether the particular information they require is actually on the page. Internet Explorer allows the user to go to Edit, Find on this page and to type in a word or words to be found on that particular page. This can be a useful strategy to identify which sites are the most useful.

Critical users of digital texts (Critical Framing)

We need our middle years' students to be critical users of digital texts. We want them to be able to work independently to plan, research, evaluate and transform information and ideas using several texts and to study and compare texts created in different forms and from a range of view points.

To achieve this, teachers need to support students to develop skills and strategies to identify the source of information found in digital texts, particularly those accessed through the Internet. Students need to be supported to search in ways that provide them with information they are seeking, to identify the source of the information on such sites and to critically analyse the information that is identified to ensure it meets this need. Students need to be able to ask and answer questions such as: Who is the author of the material? What sources have they used to create the material? Where is the material published? Who finances the server or site? In whose interest is this material published? Is the site used to advertise anyone's products or to promote particular points of view? Which information on the page is most noticeable? How are multimedia objects used on the site? Where do links in the site take you to? Did you realize you had changed sites when you clicked on a link? What do other similar sites says about the same topic? How do you now feel about this material? Do you think it is reliable/verifiable/true?

Paul Glister (Glister, 1997) provides a tip for checking sources. If you find information that you want to use on a web site and it sounds right, but you don't know much about the author or the organization behind that page then he suggests you enter the name of the organization on a search engine and see what you find out. Search engines are not just for concepts or keywords. Glister says that if you find no name or organization, that's a red flag (Glister, 1997).

When students are creating digital texts they commonly include objects such as images they have found on other web sites. Part of critical framing is being aware of the need to acknowledge and reference your source. Similarly when students are using text materials sources should be acknowledged appropriately. Students should also be supported to take notice of the source of materials they use in digital texts.

The opportunities of new technologies

New technologies provide teachers with opportunities for learning that reach far beyond the classroom. They provide the opportunity for students to contact experts online or participate in collaborative online projects in which they work with students from diverse cultures across the world. These projects may use email, online discussion boards, video conferencing or other new technologies to collaborate with students from other countries in cultural, humanitarian or environmental projects and as a consequence of participation in relevant and meaningful tasks develop tolerance and understanding of cultures different from their own. For examples see Trinity College Western Australia's site at http://library.trinity.wa.edu.au/teaching/collab.htm for a list of project sites, Oz Projects at http://ozprojects.edna.edu.au/, IEARN projects at http://www.earn.org.au/gcpproj.htm or the Global SchoolNet Foundation at http://www.globalschoolnet.org/. These projects provide real and meaningful uses for information and communication technologies.
Assessment

When teachers include new technologies in teaching and learning it allows for different forms and processes particularly in relation to creating texts in digital formats. Therefore assessment needs to reflect this change. Alternative forms of assessment are required. Some teachers use rubrics, or scoring rubrics to identify the possible levels of quality of student work. One successful strategy that has been employed by teachers is to work with the class to develop a rubric for a particular project or unit of work so that students know exactly what is required to achieve a particular level of success. In this way the assessment process can be demystified. It also addresses the issue of fairness that students in the middle years are particularly sensitive about. Students in the middle years are quick to mention any case of a teacher who does not apply rules or mark work in a fair and equitable manner. Students at this age are becoming increasingly critical of adults so developing scoring rubrics in conjunction with students is a particularly useful strategy to overcome this issue. Rubrics should acknowledge the role of new technologies in the learning process and application of learning. Teachers must then apply the rubric carefully in the assessment process.

Conclusion

Students in the middle years of schooling are growing up in the digital age. Teachers need to encourage their students to be effective readers, innovative creators and effective and critical users of digital texts. To do this teachers must provide learning opportunities that include immersion/situated practice, overt instruction, critical framing and transformed practice where students create digital texts and use digital texts innovatively and effectively. Teachers need to think about assessment differently. They need to integrate new technologies into the teaching and learning environment where appropriate. Teachers need to make their choices wisely, aware that sometimes older forms of texts may be appropriate at times and newer forms of texts more suitable at other times and they need to be open to opportunities to combine both the old and the new in complex and imaginative ways.

References


