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It's Never Too Soon: Responsible Technologies in K-12 Education

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WHAT IS RESPONSIBLE TECHNOLOGIES?

Some are beginning to ask a very important question of K-12 education: "Should we be teaching reading, writing, and copyright?" (Slind-Flor, 2000). We believe the answer to this question is a straightforward yes, and to this end, the "Responsible Technologies" (RT) project, funded by the University of Wisconsin System, is underway. RT is the understanding, knowledge, and uses of technologies in ethical and legal ways.

Why is it more important now than ever to teach responsible technologies? There are many reasons: Firstly, technology use in K-12 settings has grown exponentially. Relatedly, students are not learning responsible use along with technical skills, and this must change. Secondly, such high profile cases as Napster are raising awareness of legal and ethical dilemmas in technology use for all users, not simply computer professionals. Thirdly, many states are now mandating standards which include a component of legal and ethical competence in technology use. For instance, in Wisconsin, where the RT study is underway, the Model Academic Standards for Information and Technology Literacy (WMACITL, 1998, p. 14-15) dictate that:

"By the end of Grade 4 students will ... Use information, media, and technology in a responsible manner, by the ability to demonstrate use consistent with the school's acceptable use policy, understand concepts such as etiquette, defamation, privacy, etc. in the context of online communication ... Respect the concept of intellectual property rights, by the ability to explain the concept of intellectual property rights, describe how copyright protects the right of an author or producer to, identify violations of copyright law as a crime ...

By the end of Grade 8 students will ... Use information, media, and technology in a responsible manner by the ability to describe and explain the applicable rules governing the use of technology in the student's environment, demonstrate the responsible use of technology, recognize the need for privacy and protection of personal information ... Respect intellectual property rights by the ability to explain the concept of fair use, and that the application of the concept may differ depending on the media format, relate examples of copyright violations, explain and differentiate the purposes of a patent, trademark, and logo...

By the end of Grade 12 students will ... Use information, media, and technology in a responsible manner by the ability to assess the need for different informational polices and user agreements, understand concepts such as misrepresentation and the need for privacy of certain data files or documents ... Respect intellectual property rights by the ability explain why fair use is permitted for educational purposes but not in for profit situations, and the conditions under which permission must be obtained for the use of copyrighted materials ..."

Thus, various reasons exist to support a systematic and systemic program to educate K-12 teachers, administrators, media specialists, and technology coordinators—and their students—about emerging legal and ethical issues in technology use.

RT is a multi-year project developed with these overarching goals:

1. To assess the current state of knowledge and perceptions of a sample of K-12 teachers, media specialists, technology coordinators, and administrators from a five county population in Southeastern Wisconsin surrounding legal and ethical implications of technology use in the classroom;
2. To teach this sample about legal and ethical uses of technologies in the classroom;
3. To work with participants to develop resources about legal and ethical uses of technologies in the classroom and make these resources widely available;
4. To assist K-12 educators become aware and knowledgeable about law and ethics in order to better instruct their students so they become responsible users and consumers of technologies.

It is with this last goal that we hope the RT project begins to facilitate systemic change in the attitudes and actions of children and young adults in regards to technologies. Only educated individuals can make truly informed ethical and legal decisions.

ASSESSING RT BELIEFS AND KNOWLEDGE

This paper reports briefly on the first goal and the results from year one, which assessed perceptions and knowledge of technology ethics and law, in particular, copyright and fair use of media and information technologies in school settings. Twenty-seven individuals representing 20 schools completed a pre and post assessment survey.

One survey area polled participants about their beliefs surrounding technology law and ethics, asking, for example, in a Likert scale format (1=strongly disagree to 5=strongly agree) such statements as:

- My school has a policy about ethical uses of technology (computers, World Wide Web, software, etc.).
- I am familiar with ethical uses of computer technology.
- I understand what an acceptable use policy is.
- I teach my students why copying software or committing other copyright violations is wrong.
- I teach my students about the social implications of technology use.
- Technology ethics should be taught distinct from the regular curriculum.
- Copyright or other legal concepts are too impractical to teach to K-12.

In addition, a battery of legal questions and scenarios was presented for responses. Here, questions spanned a wide range of copyright issues: "Can a teacher make a copy of a pre-recorded music CD or videocassette for personal use?", "Is there a blanket exception for educational reproductions of copyrighted material, in other words is every educational use a fair use under the copyright law?", "Can a student scan a photograph from National Geographic into a word processing document and use it as an illustration in a class term paper?", "Could a student take two minutes of the Johnny Depp movie *Sleepy Hollow* and use it in a multi-media presentation in a class on American authors of the Romantic Period?", "Under Sections 512 and 1201, could a teacher refer in class to a web site that is likely to contain infringing material, such as one that has over 1,000 theatrical videos downloadable for free, or one that has available for downloading anti-circumvention technology on it such as DeCSS that would allow users to 'crack' a protection code on a DVD?" This paper does not report on the battery results.[1]

Overall, the goal of the survey was to determine the extent of knowledge and beliefs of this sample of K-12 educators in order to proceed to stage two of the project—the development of teaching and curricular resources, which is a major area of need. Few teacher education programs have specific courses or course content on legal and ethical issues in technology use, and educators must often rely on in-service sessions or grant projects such as these to gain knowledge and skills to both understand and practice RT and to develop curriculum to use with their students to instill a sense of responsibility in them.

Results were reviewed to compare differences between the pre-survey and the post-survey responses. Comparisons were also reviewed between the following groups[2]:

- Those who taught library or technology-related subjects and those who did not;
- Those who taught primary grades (K-6) and those who taught secondary (7-12) (in the instances where a teacher taught in both categories, he/she was placed in the category that he/she taught more; i.e., a teacher who taught Grades 4-8 was placed in primary since Grades 4, 5, 6 represent a majority of the grades.); and
- Those who taught greater than 15 years and those who taught less than 15 years.

SUMMARY OF OPINION QUESTION RESULTS

Regarding the levels of agreement with the school's and teacher's knowledge of, enforcement of, and support of legal and ethical use of technology, the post-survey responses indicated a decrease in confidence. In the post-survey, fewer participants indicated that their school had a copyright policy (73.1% to 63.0%), that they were familiar with the content of such a policy (66.7% to 40.7%), and that their school administrator was supportive of responsible use (88.5% to 66.7%). It is notable that more non-library/technology teachers disagreed that they were familiar with the school's copyright policy (75.0%) than library/technology teachers (50.0%) in the post-survey.

An interesting finding regarding the support of RT within the school was that none of the participants agreed that their school as a whole punishes teachers for the infringement of copyright in either the pre- or post-survey, which conflicts with the fact that the majority of them (greater than 50%) said that their administrator was supportive of responsible use. However, the number of participants who agreed that their administrator was supportive of responsible use did drop approximately 22% (88.5% to 66.7%). On a related issue, a majority (greater than 50%) strongly believed (level of 4-5) that their school as a whole punishes students for unethical or inappropriate use of technology.

A greater number of participants' reported a greater understanding of ethical uses of technology, the meaning of intellectual property, and the definition of an Acceptable Use Policy (AUP) in the post-survey. A large number of people reported that they enforce AUPs in their classroom in the pre-survey, 80.7% chose level 3, 4, or 5, but it is worth pointing out that in the post-survey, 100.0% chose level 3, 4, or 5. There was also an increase in the levels participants indicated regarding what they teach their students (why plagiarism is wrong, why copying software is wrong, respecting others in online environments, privacy rights, and using technology responsibly). It is worth mentioning, however, that the levels of agreement in the pre-survey were considerably high (more than 50% reporting levels 3, 4, or 5) in these areas as well. It seems that more participants learned the need to also teach the social implications of technology. 44.4% indicated a level of 1 or 2 in the pre-survey while 88.8% indicated a level of 3 or 4 in the post-survey regarding social implications.

Not many participants were aware of the "Ten Commandments of Computer Ethics" (Computer Ethics Institute, 1992) before the inservice (63% indicated level 1), with 0% indicating level 4 or 5. However, in the post-survey, 48.1% indicated a level of 4 or 5.

More people indicated a higher level of confidence in teaching technology ethics in their classroom. Before and after the inservices, participants felt that technology ethics should not be taught distinct from the regular curriculum (greater than 70% indicated level 1 or 2), and that it is appropriate to teach ethics and legal issues to K-12 students (greater than 60% indicated level 1). However, in both of these areas, the number of people indicating a level of 4 or 5 jumped from 3.7% to 14.8% and 0.0% to 7.4%, respectively.

CONCLUSIONS

While small, this sample of educators reveals that much needs to be learned and attitudes do need to be changed in regards to RT. Our belief is that RT should not be looked at from the punitive perspective; that is, technology ethics and law violations are occurring in the schools not due to malicious intent, but to ignorance, and while punishment may be necessary, a preventative program would benefit both educators and their students greatly. If we change the ways in which educators receive information about technology law and ethics within their preparatory programs, they will be better suited to practice RT within their classrooms. Students will then see RT in practice, and learn RT from their educators both by example and within the curriculum.

ENDNOTES

1 For discussion, see Lipinski and Buchanan (2002).

2 Few significant differences were found among these distinctions.

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