

Teaching Digital Citizenship

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Abstract: - As technology advances, so do the techniques for abusing it. While traditional crime has not increased in some countries, cyber crime are becoming increasingly common and steadily growing. One of the duties of educators is to teach the learning community about digital citizenship so everyone can understand, address, and prevent technology abuse. This paper defines digital citizenship, discusses its ramifications on individuals and the learning community at large, and recommends strategies for digital citizenship education.

Keywords: - digital citizenship, information literacy, technology, instructional design, resources, learning objects, ethics

1 Introduction

The world is changing faster than ever because of social and economic factors, which have been significantly impacted by technology. As the world seems to grow smaller, due to increased communication and population transience, the global scene reflects a more interactive mode relative to information. Economic and social activities rely on information and communication technologies. Knowledge is ever-flowing, and social interactions seem web-like [1].

Therefore, the need for critical use of information is more important than ever. In a digital world where the amount of information doubles every two years, individuals need to evaluate resources carefully and determine how to use relevant information to solve problems and make wise decisions. It is no longer principally an issue of getting information: it's getting the right information at the right time to do things right and to do the right things.

This changing informational environment affects education, and also emphasizes the need for lifelong education to prepare today's workforce to deal with an uncertain tomorrow. Moreover, Since 85 percent of twenty-first century jobs will involve technology, it makes sense to incorporate technology throughout instruction. Nonetheless, 22 percent of Americans lack digital literacy skills [2].

But teaching about information and technology is not enough. It is imperative to teach learners how to be responsible and ethical users of them. They need to be digital citizens.

2 The Information Society

At the 2003 world summit on the Information Society, governments and world leaders "made a strong commitment towards building a people-centred, inclusive and development-oriented Information Society for all, where everyone can access, utilise and share information and knowledge" [3]. What constitutes an information society? Fundamentally, an information society is one in which information replaces material goods as the chief driver of socio-economics. Human intellectual capital has higher currency than material capital, or at least intellect is needed to optimize the use of material resources.

Since information and material have always been needed, what particularizes the recent notion of an information (or knowledge) society? New information and technology have vastly increased the speed, access, and interconnectedness of information worldwide. Simultaneously, information and communication have converged, such as telecommunications and broadcasting, giving rise to informational industries. At this point in history, telecommunications and media constitute one-sixth of the U. S. economy, and 30 percent of all economic growth between 1996 and 2000 was attributed to enhanced productivity based on information technology [4]. The cost of technology has dropped precipitously so that the majority of people can access it, thereby reinforcing mass media and other information entities. As a result, new forms of organization and social interaction have emerged [5].

This information society impacts existing institutions and cultures. The speed and globalization of information leads to constant change, which can be hard to digest and manage. The majority of jobs now involve technology and other related new skills, so

that the idea of a “terminal” degree or a static skill set is becoming an outdated paradigm. Rather, adults often need to “retool” themselves throughout their work lives. Particularly for adults who are largely digital immigrants, this new world of information, especially in electronic form, can be puzzling and overwhelming. Do they have enough background information to understand and use the *new* information?

What then do today’s learners need to know and be able to do?

- Be information literate: access, evaluate, use
- Be lifelong learners: pursue interests, read, generate knowledge
- Be socially responsible: uphold democracy, be ethical, cooperate.

3 Technology Use

In 2010 400 million people had Facebook accounts, 126 million blogs exist, 50 million tweets are created daily, and 91 percent of mobile web users access social networking sites. Additionally, 44 percent of online videos viewed are done at the workplace [6].

What are people doing online?

- social producing
- learning social rules
- designing profiles
- exploring identity
- writing blogs
- writing software codes
- sharing producing music
- discussion interests
- social and political activism
- keeping friends
- risk assessment.

What *else* are they doing?

- seeking validation
- competing for popularity
- venting
- showing off
- embarrassing oneself
- damaging reputations
- getting even
- threatening
- harassing.

They also may be victims of online cons and abuse. In short, individuals build and impact their digital reputation every time they go online, especially when doing social networking. Particularly because the workplace can monitor online activity, individuals need to be aware of their technology behavior at all times.

While protective actions can be put in place such as Internet filtering software and spyware, people need education more than protection.

4 Digital Citizenship

Digital citizenship may be defined as the ability to use technology safely, responsibly, critically, productively, and civically. Two national sets of recent standards reinforce the need for digital citizenship, informing the standards committee, the teacher librarian community, and the rest of the educational community. The 2007 ISTE national education technology standards for students (http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_Students_2007_Standards.pdf) and 2008 standards for teachers (http://www.iste.org/Content/NavigationMenu/NETS/ForTeachers/2008Standards/NETS_T_Standards_Final.pdf) address these same issues of technological responsibility. Students must exhibit digital citizenship, and teachers are supposed to “promote and model digital citizenship and responsibility.” Likewise the Standards for the 21st Century Learner developed in 2007 by the American Association of School Librarians, asserts that “ethical behavior in the use of information must be taught” [7]. In terms of specific academic domains, the National Council of Teachers of English supports media literacy education [8]. Several of the United States national Common Core standards [9] reiterate the need for digital citizenship across the curriculum: most directly being to use technology and digital media strategically and capably, but also supported by respond to the varying demands of audience, task, purpose, and discipline; comprehending and critiquing; valuing evidence; and understanding other perspectives and cultures.

The overarching goal is effective and responsible personal and social engagement with digital resources for learners. While some of the motive is protection and safety, which has resulted in required filtering software and acceptable use policies, a more positive spin is the need for learners to learn coping skills and demonstrate that they can *contribute* meaningful knowledge to the digital society.

5 Instruction

Education has as its goals, among others, to prepare students to become effective life-long learners, responsible citizens, and positive contributors to society. Digital citizenship crosses curricular lines. On a systemic level, the entire learning community can examine digital citizenship competency alongside subject matter standards in an effort to develop an interdependent matrix of learning

activities that can insure learner competent. Just as each training session builds on the prior knowledge set, so to can digital citizenship skills build upon prior experience that is contextualized to optimize meaningful engagement.

Using this approach, classes can also focus on one digital citizenship skill, such as working cooperatively toward a goal, which can be implemented in a physical education or music class as well as in a science class. Similarly, if students are comfortable evaluating print resources, they can concentrate on evaluating web-based resources for the moment. Having a school-wide scope and sequence across curricular areas provides a venue for meeting specific digital citizenship standards *and* linking them to the overall intellectual framework.

While technology may sometimes feel ubiquitous in today's society, its use is not ubiquitous in education. Even with well-maintained labs and a solid collection of digital resources, learners will not profit from technology-enhanced activities if educators do not provide such learning opportunities. For the most part, the chief reason that technology is not used to improve learning is lack of knowledge on the part of the educators themselves. Most of them are digital immigrants, and have not experienced a technology-rich academic setting themselves. Many educators use technology on a personal basis, such as communication, but have not had formal training in technology-integrated instructional design. Therefore, many do not feel comfortable in using such educational technology in the classroom or online. Not only should educators learn technology, including web 2.0 tools, but they should also seek opportunities to commingle with technology users. On the other hand, educators have life experiences and a developed moral sense that they can leverage when incorporating digital citizenship.

Furthermore, the educational community needs to *model* digital citizenship in its infrastructure and actions: providing equitable access to digital information, making provisions to ensure that the educational community is digitally safe, having a plan to secure and protect educational data in case of crime or disaster, maintaining privacy and confidentiality of individual records, creating and enforcing policies that protect the digital rights of everyone, and training staff to keep them current in digital citizenship education themselves.

The organization also needs to be realize that learning *about* technology differs from learning *with* technology; the former views technology as an end in itself while the latter views technology as a means. With technology as an end, systems and organizational goals are the central concern, and advanced project management skills are needed; the

entire enterprise is changing. When technology supports learning, digital citizenship is the focus, and the education controls the process to the large extent; the organization as a whole is not in flux [10].

5.1 Awareness

For learners to deal with digital information, they must first become aware of it. Life is full of information and informational needs: from stop signs to epistemologies, from finding a pencil sharpener to finding ways of dealing with illness. In educational settings, it is usually the teacher who tries to call a learner's attention to information – or the need for information. Indeed, the existence of the need is, in itself, a piece of information that requires a sense of awareness for it to be acted upon. When educators can draw attention to a learner's *own* digital informational needs, be it as a positive experience or as a response out of fear of the consequences if they ignored the information (such as missing appointments or losing sight), then the information is more likely to be given the attention needed to become engaged with it.

Qualitative assessment can elicit interest, and provide pre- and post-test data. By eliciting learner perceptions via surveys and focus groups, educators can ascertain what needs exist for addressing digital citizenship. The respondents can also give several coping techniques, such as keeping social networking sites private and phone numbers unlisted, stop enabling others to harass, and reporting incidents.

5.2 Engagement

While learners are engaged with information, they are accessing it physically and intellectually. Before they can comprehend the information, they need to decode its "language", be it verbal, visual, or sound. Only then can they begin to understand the content in terms of associated concepts and societal consequences. If learners do not have the pre-requisite skills (linguistic, technical, experiential), they will not be able to connect; in these cases, educators need to scaffold the learning so students can bridge the intellectual gap.

However, just because one understands digital information, does not mean that one will use it. The first consideration is usually the task at hand: what relationship does the information have with the identified task? If, for instance, one comes upon a fact that does not apply to the immediate problem to be solved, chances are good that the fact will be ignored. In other cases, if the individual has a personal interest in that area, s/he might pursue that information.

Assessment of evaluation seems straightforward: how efficiently and effectively does one evaluate information? What is the basis for their decision? How does one deal with new, contradictory information? Ultimately, the most valid assessment consists of examining the use of the information in deriving the final solution. In the digital world, learners may find it very hard to discern the verity of information because it can be modified so easily and with so much sophistication. Educators need to teach explicit guidelines for evaluating the quality of digital information and its relevance. To check for learner understanding, and to engage them in active examination, debate, and self-reflection, educators can use a variety of technological tools: threaded discussion, online chat, blogs, wikis, and online conferencing.

Learners need to know both their digital rights as well as their digital responsibilities. Because technology keeps expanding and changing continuously, laws are behind practice, and even social norms of behavior are dynamic. When engaging with digital information from a legal or ethical standpoint, one of the most effective strategies is case studies: educators can share legal cases dealing with technology issues that arise in access to confidential information, broadcasting inappropriate information, social networking, file transfer, pirating or plagiarizing information, and other intellectual property issues. Learners can also develop their own scenarios to research. By examining the underlying conditions, the contributing factors, and the possible consequences, learners can form their own moral compass and make reasoned and ethical decisions. . As learners self-identify inappropriate digital behaviors and impacts, they become more aware of the problem. When they are involved in developing ways to solve the problem, they gain more ownership and control, feeling empowered to cope themselves as well as to help their peers.

5.3 Manipulating Information

The central question at this point is: what shall I do with the information? Digital information can be transformed into knowledge: through interpretation, organization, synthesis, reformatting, changing, relating, or combining it with other information. Digital information manipulation consists of four major processing skills: 1) extracting the information, 2) deciding how to represent the information, 3) determining the method of manipulating the information, and then 4) knowing how to do the manipulation itself [11]. Usually, learners first learn how to extract information that is represented in some fashion: locating key words, highlighting important phrases, taking notes on the main ideas.

This skill reflects an information “consumer” attitude. The “producer” side of this process is the ability to represent a given set of data: graphically, numerically, as a diagram, as a lab report. Next, they would learn how to manipulate those representations; for example, learners might draw conclusions from a data table in an almanac by graphing the numbers to reveal logical patterns. As learners become proficient in different digital manipulation strategies, they can begin to ascertain when a method would be appropriate given the nature of the data and the intended use of them.

It should be noted that part of manipulation consists of managing digital information itself: keeping track of it and recording salient parts of it for later retrieval. Learners may have brilliant insights, but if they cannot back up their ideas with evidence because it has been lost or mislaid, or if they cannot find the information they produced earlier, that person’s credibility drops.

Still, if one so desired, even those complicated manipulations can be parsed into their composite parts for the sake of fine-grained analysis. Usually, such an approach is done only when the project somehow falls below the standard, and the educator and learner are trying to figure out where the manipulation went awry. For this reason, assessing large projects along with way at designated benchmark can help the learner make adjustments and change directions proactively. It should be noted, however, that some global learners may have difficulty with a benchmark approach, appearing to be disorganized in the middle of their work so educators need to be considerate of different individuals’ manipulation styles [12]. Additionally, some data may be manipulated in a number of ways to reach the final goal, so flexibility in assessment is also recommended as long as it is equitable and fair.

5.4 Application

How does one *act* on the information? That is often the ultimate real-life goal, particularly as a digital citizen. Perhaps by analyzing available information, one decides how to vote in an election. Education should foster the application of gained knowledge. Not only does it provide concrete evidence of learning, but it also demonstrates the value of interacting with digital information. It can improve oneself and one’s surroundings. It offers a sense of empowerment that is important for an informed and engaged citizenry.

Educators can facilitate this pro-active application by having learners create white papers for the local government and presenting it at a town hall meeting so others can hear the findings and recommendations; if that student then joins a local group to implement

those recommendations, then that digital learning can impact others. Additionally, the fact that the recommendations are being carried out is a publicly validated assessment of the ability of the student to interact meaningfully with information. Other student-empowering activities that enable learner to apply digital citizenship skills include:

- reviewing books, media, Internet sites
- creating products for the community: photos, artwork, videos, displays, posters, newsletters, web pages
- capture community oral and visual history
- training and mentoring others in responsible technology use.

6 Instructional Resources

Throughout the instructional design process, educators need to determine which technologies will be used – and to what extent. Such decisions need to be addressed in light of intellectual access for learning. At the very minimum, educators need to determine whether technology will be used as a tool to deliver instruction, as a learning aid, or as the outcome itself. Even the instructional focus, whether to emphasize a technology tool or educational task, requires careful consideration to make sure that learners have the prerequisite skills and knowledge in order to learn with technology – and consider its responsible and ethical use. The decision-making process itself may well involve technology, particularly when gathering data (e.g., online surveys, mobile device observation templates, web counters) and analyzing it (e.g., spreadsheets, databases, content analysis software). Technology-based choices apply at each step in designing instruction, as shown here.

- *Assess needs*: online survey, video capture of behavior, analysis of website “hits”
- *Identify learners*: online solicitations, RSS feed subscriptions, organizational lists
- *Identify outcomes*: technology standards, online content standards, online education syllabi
- *Identify indicators*: technology rubrics, technology products, electronic Delphi method (i.e., getting experts to come to consensus on key points)
- *Identify prerequisite skills*: web-based assessment, performance observation, content analysis of sample work
- *Identify content*: online training documents, electronic journal articles, virtual chat
- *Identify the instructional format*:
 - resources (Internet, DVDs, e-books)
 - instructor (technician, instruction designer, remote-site expert)

- methods (web tutorial, hands-on instruction, video presentation)
- timeframe (self-paced, real-time, just-in-time)
- location (computer lab, classroom, home)
- grouping (individual, online group, work unit)
- individualization (programmed instruction, choice of technology, coaching)
- affective domain (wiki, threaded discussion, virtual chat)
- *Contextualize instruction*: web page within work website, professional development database, digital images of applications
- *Implement the plan*: project planning software program, web page development, video conferencing
- *Assess the plan*: PDA (personal digital assistant) questionnaire, videotape, online survey.

Each type of technology tool lends itself to specific learning approaches. Whenever possible, the unique properties of each tool should be exploited to optimize these experiences.

The careful selection of digital content is key in digital citizenship education. Instructors need to be able to identify good examples of each concept of digital citizenship as well as counter examples for learners to compare.

One of the most useful types of resources in digital citizenship education is learning objects. These are self-contained modules that can be incorporated into training to aid teaching or learning. Although most learning objects originate as parts of a course or training session, they can be used by others and repurposed in other contexts. Sample learning objects include diagrams, slide shows, simulations, lecture notes or presentations, case studies, assessment instruments such as quizzes or self-tests, or other granular information. Learning objects may be categorized into three clusters:

- *Learning content*: courses, course materials, content modules, learning objects, collections, journals
- *Tools*: support OER creation, delivery, use and improvement
- *Implementation resources*: intellectual property licenses, design principles, --localization of content.

Open Education Resources (OER) are a subset of learning objects. They are available for free, and are usually regulated by a Creative Commons agreement that stipulates how they may be used. Typically, educators can use and modify them as long as they credit the original authors. Educators are also encouraged to submit their modifications for others to

use, crediting the changers. In this way, intellectual property is shared ethically and advances the profession quickly. Sample directories and repositories of digital citizenship OERs can be found at <http://creativecommons.org>.

7 Conclusions

Digital information is *potential* power until it becomes used, at which point it becomes kinetic power. Putting humans into that power equation means that power can be used for good or for evil. While educators can help protect learners from evil, they can also teach learners how to use and create digital information for good. Thomas Jefferson asserted that an informed citizenry is needed for a sound democracy. Informed citizens can make better decisions and act on them. Extended to the cyber environment, digital citizenship necessitates participating responsibly and respectfully in cyberspace to act wisely for social and personal improvement.

8 Online Resources

- <http://cybercitizenship.ning.com>
- [http:// digitalcitizenshiped.com/](http://digitalcitizenshiped.com/)
- <http://www.digitalcitizenship.net/>
- [http:// www.onguardonline.gov](http://www.onguardonline.gov)
- [http:// GetNetWise.org](http://GetNetWise.org)
- <http://CommonSenseMedia.org>
- <http://NetSmarts.org>
- <http://WiredSafety.org>
- <http://www.connectsafely.org>
- <http://StaySafeOnline.org>
- <http://letmeknow.girlscouts.org>
- <http://pbskids.org/license/>
- <http://www.medialit.org/>
- <http://phoneybusiness.com/etiquette.html>
- <http://www.plagiarism.org>
- <http://csla2008.pbworks.com>

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