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Teaching Information Ethics

edited by Elizabeth Buchanan and Dennis Ocholla

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Editorial: On IRIE Vol. 14

"Practice what you preach" is a simple but nevertheless reasonable moral imperative. Usually it is compliance that we struggle with in this regard and not the reasoning. As far as our current issue is concerned it is now quite opposite. Most of us – the readers, editors, authors, contributors – practice the teaching of Information Ethics – mainly professionally. And now we asked (them) to raise this as an issue, to reflect one's own practice, to preach of what one is doing in his daily business. And all of a sudden the reasoning became difficult: thus this time we weren't really flooded with articles in response of our call for papers.

"Finally!" one should like to say. It is indeed a good sign that we did not break a dam with our call in this particular case. The practice of teaching Information Ethics seems to become a matter of course. Information Ethics is about to arrive! It is on the verge of becoming an inherent part of academic curricula. And the scholars already professionally blinkered? Could this be a reason for the lower amount of contributions this time? Not quite, not yet! It is (still) probably more a matter of self-confidence than of the blindness for one's own routines: the self-confidence that is necessary (especially in the beginnings) to understand oneself as a coherent group in teaching Information Ethics – despite the differences in culture, fields of research or target audiences. In fact, disciplines as diverse as computer science to business to library science and communications, now offer courses in Information Ethics at the higher education level. Increasingly, too, it is common for Information Ethics to be taught at school – even to primary school students, as in Seoul, Korea's "netiquette program." Yes, it does need some self-confidence to proudly report on the tops and flops of one's own field, where one succeeded and where the areas of improvement are compared with such a variety of peers and colleagues.

In fact, Information Ethics itself as a discipline has gone through such a development - and very quickly so. It started with concerning (mainly) the Internet (as cyberethics etc.) and was closely related to professionals (particularly computer professionals and LIS professionals). Very quickly it became clear that the issues raised in Information Ethics affect the society itself and cannot be restricted to issues of professional ethics (any more). It finally became evident since the Internet

itself developed from a technology and professional tool into a social space itself.

Thus, more and more not the core and inherent questions of Information Ethics like freedom of speech, copyright, privacy etc. had to be dealt with in Information Ethics but the everyday life of people became the subject. That broadened the scope of "information" beyond the field of knowledge (its storage, transmission etc.) into other areas and disciplines so that IE became an interdisciplinary topic and – it goes without saying - an intercultural as well.

We do hope that this issue and the common quest on establishing, broadening and improving the teaching of Information Ethics all over the world will open the eyes and hearts of some readers, especially in in regions such as the Near East where the field is almost non-existent (as an academic field, but really existent as the potential object of such academic reflection).

Yours,

the editors.

Elizabeth A. Buchanan and Dennis Ocholla:

Introduction: Teaching Information Ethics

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 - Buchanan, E. and Britz, J. (2010). Ethics from the Bottom-Up? Immersive Ethics and the LIS Curriculum. *Journal of Information Ethics* 19 (1), 12-19.
 - Buchanan, E. and Ess, C. (2009). Internet Research Ethics and the Institutional Review Board: Current Practices and Issues. *Computers and Society*, 39 (3) 43-49.
 - Buchanan, E. and Hvizdak, E. (2009). Online Survey Tools: Ethical and Methodological Concerns of Human Research Ethics Committees. *Journal of Empirical Research on Human Research Ethics (JERHRE)* 4(2), 37-48.
 - Buchanan, E. (2009). Academics and Reflection: A Guest Editorial. *Journal of Information Ethics*, 18 (1), 3-5.

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 - Mutula, Stephen and Ocholla Dennis (2010), Building Trust in e-Government: A Proposal for an Integrated Model. *Mousaion*, Vol.28(1), 128-148
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In this issue we explore different aspects of teaching information ethics. The research base around IE is solid, and fortunately, continually growing. We have considerable understanding of the types of research ongoing across the world in IE. We are also aware of the many fruitful networks of IE scholars, including the most recent, African Information Ethics Network (ANIE). And yet, our sharing of experiences in how we teach, what we teach, how and why students learn and engage best remains virtually unexplored in our field. This is problematic, as our responsibilities as scholars included teaching the next generation of professionals and scholars. Through our teaching, we mentor and we influence. While this issue presents enlightening experiences from our colleagues across a range of issues, from academic freedom to online identity to issues of teaching ethics in an "information school," we are missing experiences from many cultural and pedagogical viewpoints.

To this end, we would like to encourage more sharing among our colleagues who are teaching information ethics. As Capurro rightly notes, "...the concept of Information Ethics itself is changing very quickly. It started as concerning (mainly) the Internet (as cyberethics etc.) and closely related to professionals (particularly computer professionals and LIS professionals) but it became also very quickly clear that this is an issue that concerns society in different ways and cannot be restricted to issues of professional ethics. This became evident since the Internet developed into a social space. Many digital technologies (most of them connected with the internet) are having a big impact on societies but they are not directly concerned with questions of freedom of speech, copyright etc. but with the life of the people as individuals (with their bodies, particularly, for instance in case of implants) and with new applications in the field of robotics, bionics etc. that broaden the scope of "information" beyond the field of knowledge (its storage, transmission etc.) into other areas and disciplines so that IE becomes an interdisciplinary topic" (2011). With this in mind, we see exponential potential for teaching in the field of IE.

As we explore the papers in this issue we take note of **Toni Samek's**, Teaching Information Ethics in Higher Education: A crash Course in Academic Labour" that builds on her earlier personal accounts, "Talking about Information Ethics in Higher Education" published in the Journal Information for Social Change and a short column titled "Tested Teaching" published in the Journal

of Information Ethics, by "extending the discussions into a deeper exploration of the academic labour that frames conditions for teaching information ethics. Without recognizing the importance of supportive conditions, our efforts to teach relevantly and relevant issues is undermined.

David J. Saab, paper on "Teaching Information Ethics in an iSchool," provides useful practical information on how to develop and deliver an "information ethics course, paying attention to student receptivity and learning, course structure and assignments, as well as its connection to the wider curriculum and its efficacy." While specifically situated in an "i-school," Saab's advice is generalizable beyond those settings.

Michael Zimmer's paper "Innovations and Challenges in Teaching Information Ethics Across Educational Contexts" explores the need for teaching IE at all educational levels and the challenges that occur at these diverse settings. His paper is based on a 2011 Association of Library and Information Science Educators (ALISE) panel discussion and "offers recommendations towards achieving success in information ethics education."

Miguel Alvarez observes the impact of social communities on scientific practices. He argues that the epistemic figure of self-reflection is a guiding principle of virtual scientific communities and thus a moral imperative to its members - reinforced by the technologies enabling web 2.0 communities.

Finally, we include **Stephen Mutula's** article entitled, 'A framework for Integrating Information Ethics (IE) in the Curricula for Africa, that recognises the debate about integrating IE in LIS curriculum in the region. Still problematic and contested, however, is the issue of which theoretical framework such discussions should be based in the IE content and context for Africa.

After finalizing the issue we took note of and were discussing the reasons for the strongly varying amount of contributions from the different cultural regions of the world. With respect to the emergence of strong regional IE networks in Africa we were grateful to the report **Coetzee Betzer**, Executive Director of ANIE, contributed in the course of that discussion. Encouraging more activities in this regard we subsequently included his report in this issue.

Toni Samek:

Teaching Information Ethics in Higher Education: A Crash Course in Academic Labour

Abstract:

This article builds on several prior informal publications that delve into my experiences teaching a course on intellectual freedom and social responsibility in librarianship in the context of the North American library and information studies curriculum. Here, I extend those discussions into a deeper exploration of the academic labour that frames conditions for teaching information ethics. While the intellectual freedom and social responsibility in librarianship subject matter represents only one narrow slice of the bigger information ethics pie, the actual teaching of it sheds light on more universal instructor immersion in contestations over internationalization of higher education, the contingent worker model, the meaning of global citizenship education and research, and academic freedom in the 21st century. This focused lens takes in how the working conditions of faculty are the learning conditions of students, as well as how some of the ill practices explored in information ethics (e.g., censorship) can also be apparent in the institutions in which it is taught. Thus, this article recognizes the political context of information ethics within the academy, a place undergoing redefinition in academic visions and plans designed to push faculty, staff and students harder in global competitions for university rankings.

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 - Toni Samek. (2008). *Biblioteconomía y derechos humanos: Una guía para el siglo xxi*. Gijón, España: Ediciones Trea, S.L. 268 p.
 - Toni Samek. 2007. *Librarianship and Human Rights: A Twenty-first century guide*. Oxford: CHANDOS (Oxford) Publishing. (Read the [preface](#).)
 - Toni Samek. 2001. *Intellectual Freedom and Social Responsibility in American Librarianship, 1967-1974*. Jefferson, NC: McFarland & Company, Inc., Publishers. 179 p.

Information ethics offers opportunities to explore ethical questions about relationships in society among people, information, recorded knowledge, and the cultural record. The field exposes local, national, and international issues related to the "production, collection, interpretation, organization, preservation, storage, retrieval, dissemination, transformation and use of information" and ideas. (Capurro, Rafael and Hjørland, Birger (2003), *The Concept of Information*, *Annual Review of Information Science and Technology* 37, 389.) Contributions to information ethics occur between disciplines, across different disciplines (e.g., computer science, gender studies, law, business, library and information studies), and even beyond disciplines. Teaching and learning in information ethics includes examination of numerous timely topics, including knowledge economy, indigenous knowledge, cybernetic pluralism, post 9-11 surveillance, cognitive capitalism, imposed technologies, public access to government information, information rights, global tightening of information and border controls, and accelerated extinction of languages.

Earlier this year I published an informal article titled "Talking about Information Ethics in Higher Education" in the journal *Information for Social Change* and a short column titled "Tested Teaching" in the *Journal of Information Ethics*. This work now builds on those earlier personal accounts by extending the discussions into a deeper exploration of the academic labour that frames conditions for teaching information ethics. This is important, because the working conditions of faculty are the learning conditions of students. Some of the ill practices explored in information ethics (e.g., censorship) can also be apparent in the institutions in which we teach it. This article recognizes the political context of information ethics within the academy, a place undergoing redefinition in academic visions and plans designed to push faculty, staff and students harder in global competitions for university rankings. For example, on my own campus (University of Alberta), the current DRAFT academic plan "The Vibrant Academy: The University of Alberta's Academic Plan for 2011-2015", which is presently undergoing campus-wide discussion and critique, includes reference to the University having a "distinct competitive advantage in the global contest for elite people." (Accessed 12 November 2010. *The Vibrant Academy*.)

[http://www.provost.ualberta.ca/~media/University%20of%20Alberta/Administration/Office%20of%20the%20Vice-Prov-](http://www.provost.ualberta.ca/~media/University%20of%20Alberta/Administration/Office%20of%20the%20Vice-Provost/Provost/Documents/Academic%20Plan/AcademicPlan.ashx)

[ost/Provost/Documents/Academic%20Plan/AcademicPlan.ashx\)](http://www.provost.ualberta.ca/~media/University%20of%20Alberta/Administration/Office%20of%20the%20Vice-Provost/Provost/Documents/Academic%20Plan/AcademicPlan.ashx)

Other characteristics of the contemporary university landscape include: new managerialism or the introduction of corporate managerialism; more administrators who are not academics (even Presidents); market values set by students as customers and their market demand for courses; a vocational orientation to train people for jobs without a context of a broader education; civil discourse and respectful workplace policies used in a way to fundamentally threaten academic freedom; the growing national security; surveillance in campus-wide information systems; assault on tenure in medical schools; faith or ideological tests as a condition of employment; corporate consulting contracts; conflicts of interest and misconduct; the race for internationalization; and, the unbundling of academic work (e.g., course development done by one person and "facilitating" or "moderating" of that course performed in eClass by another).

The broad information ethics teaching terrain is inextricably linked to diverse understandings of life, liberty, the law, and the state; justice and injustice; communication, information, misinformation, disinformation, and propaganda; education, knowledge, and power; equality, equity; universal access to information; human rights and moral dilemmas; and, multicultural landscapes, immigration and mobility patterns. My main interest at present is in how educators, students, administrators and their stakeholders in higher education consciously and unconsciously enable these words for better and for worse in post 9-11 society. In Canada, where I teach in a Master of Library and Information Studies (MLIS) program, the academy of the 21st century is transforming by an increasing reliance on contract academic staff (the single biggest threat to academic freedom). "In the USA, more than 75 per cent of academic positions are

off the tenure track and the number worldwide is close to 80 per cent. At the larger Canadian universities, the figure is reaching 50 per cent." (Penni Stewart. "Nothing Casual About Academic Work". *President's Column. CAUT Bulletin Vol 57. No 6. June 2010.*) The Canadian Association of University Teachers (CAUT) has been sending the warning that protecting tenure is building a fence around a dwindling core and suggests that we need to put serious work into pushing for contract language for contract staff that puts onus on university administrations to state their reasons for non-continuance of contracts and to build in offers of first refusal rights for cours-

es. Otherwise, contract staff will continue to teach contract to contract with no job security; the obvious implications for academic freedom are serious.

Academic freedom depends on job security because tenure is its procedural safeguard. "Academic freedom requires that academic staff play a major role in the governance of the institution. Academic freedom means that academic staff must play the predominant role in determining curriculum, assessment standards, and other academic matters." (Accessed 12 November 2010. CAUT Policy on Academic Freedom.

<http://www.caut.ca/pages.asp?page=247&lang=1>)

What is meant by academic freedom? CAUT asserts that "academic freedom is the life blood of the modern university. It is the right to teach, learn, study and publish free of orthodoxy or threat of reprisal and discrimination. It includes the right to criticize the university and the right to participate in its governance. Tenure provides a foundation for academic freedom by ensuring that academic staff cannot be dismissed without just cause and rigorous due process." (Accessed 12 November 2010. CAUT - Academic Freedom.

<http://www.caut.ca/pages.asp?page=140>)

While we do not have a duty of loyalty in the Canadian academy, academic freedom is the underpinning of the academy. Even for those of us with tenure rights and responsibilities, we should be mindful of how longstanding standard academic freedom contract language is now made vulnerable by new campus civility codes, such as the Human Resources Guidelines on Civil Conduct (University of Toronto). Academic freedom contract language can include directives to exercise academic freedom in a responsible way, with reasonable exercise of civil liberties, in the proper tradition, within norms of civil discourse, and consistent with the objectives and purposes of the university. The question is who defines "respect", "reason" and "norm"? In 2008, for example, the Brandon University Faculty Association (BUFA) "won language ensuring protection of academic freedom in the application of any employer workplace policy with disciplinary provisions. In addition, the employer agreed to submit its "Respectful Environment Policy" to the Manitoba Human Rights Commission for review." And BUFA was "able to negotiate language that protects BUFA members from potential employer harassment in the application of workplace policies." (Accessed 12 November 2010. "Brandon University faculty ratifies new contract." http://www.caut.ca/news_details.asp?nid=1191&page=490).

On this important foundation, I developed a crisper understanding of collegiality and its distinction from civility. CAUT's [Policy Statement on Collegiality clearly states](#): "Collegiality refers to the participation of academic staff in academic governance structures. Collegiality does not mean congeniality or civility. To be collegial, academic governance must: (a) allow for the expression of a diversity of views and opinions, (b) protect participants so that no individual is given inappropriate advantage (for example, due to power differentials) with respect to decisions, and (c) ensure inclusiveness so that all who should be participating are provided the opportunity to do so. Collegial governance depends on participants being given and delivering their share of the service workload." (Accessed 12 November 2010. CAUT's *Policy Statement on Collegiality* <http://www.caut.ca/pages.asp?page=456&lang=1>) Taking this in, I could begin to recognize how, often on campus, collegiality and civility are mistakenly (and sometimes dangerously) conflated.

Academic librarians, with their ethic of intellectual freedom and their relevant education and experience, should be understood to be key academics on campus to consult about both the relationships between civility, academic freedom, and intellectual freedom, as well as about records management, privacy, confidentiality, and access to information. It is highly ironic that our campus librarians should be devalued just at the time when these issues are rising to the surface of university life and labour. The 2009 CAUT Librarians Conference and subsequent CAUT President's Column exposed the issue. In her column titled "Academic Librarians Are Under Attack", Penni Stewart wrote: "As the role of librarians becomes narrower and more managed, academic freedom is being whittled away. At some institutions librarians are reporting that management is seeking to supervise curriculum and course preparation, control access to governance activities and scholarly and professional conferences, and supervise librarians' scholarly work by reviewing papers and grant applications prior to presentation or publication." (Accessed 12 November 2010. Penni Stewart. "Academic Librarians are Under Attack". CAUT Bulletin. Vol 56. No. 10. 2009. http://www.cautbulletin.ca/en_article.asp?articleid=2958; Also see "Librarians Confront Threat to Profession in Vol. 56. No. 9. 2009. http://www.cautbulletin.ca/en_article.asp?SectionID=1201&SectionName=News&VolID=290&VolumeName=No9&VolumeStartDate=11/10/2009&EditionID=30&EditionName=Vol56&EditionStartDate=1/9/2009&ArticleID=2944)

I rely on intellectual freedom principles in my own campus library system in order to properly function as an information ethics scholar. I rely the free flow of people and ideas. Indeed, I began my immersion into these particular matters in the circumstance of the North American library and information studies curriculum.

In the academic year 2000-2001 I developed a graduate course titled Intellectual Freedom and Social Responsibility in Librarianship. Teaching this course was my entrée into teaching information ethics. The course has a place as an elective in the MLIS curriculum, which falls under our faculties of graduate studies and research in the university setting, a teaching and learning space where the study of philosophy, ideology, and rhetoric should be as welcome as that of applied ethics. In 2010, I added a new unit on academic freedom for academic librarians. This unit is designed to speak to the importance of a free flow of information in the global academic enterprise and to reinforce the American Association of University Professor's (AAUP) assertion that "College and university librarians share the professional concerns of faculty members. Academic freedom, for example, is indispensable to librarians, because they are trustees of knowledge with the responsibility of ensuring the availability of information and ideas, no matter how controversial, so that teachers may freely teach and students may freely learn. Moreover, as members of the academic community, librarians should have latitude in the exercise of their professional judgment within the library, a share in shaping policy within the institution, and adequate opportunities for professional development and appropriate reward." This important work covers maximum access to information and ideas through diverse collections, technology licensing agreements, open Internet access, library exhibits, library meeting rooms, research carrels, exhibit spaces and other facilities.

The course runs annually, most recently in eClass format. Student contributions have examined such topics as 3M RFID contracted library services in the nuclear free city of Berkeley, California; deliberate destruction of cultural and intellectual property during war-time (including in Bosnia and Iraq); international debate of access to information in Cuban library/librarian context; and, information poverty, digital divide, and women's access to information about HIV in Sub-Saharan Africa. Teaching information ethics takes into account how I, my colleagues, and our students rely on freedoms. "Around the world today, scholars are attacked because of their words, their ideas and their place in

society. Those seeking power and control work to limit access to information and new ideas by targeting scholars, restricting academic freedom and repressing research, publication, teaching and learning. Scholars at Risk (SAR) is a growing international network of over 220 universities and colleges in 29 countries committed to promoting academic freedom and defending threatened scholars worldwide. SAR works to assist scholars and other intellectuals who experience persecution in their home country because of their research, teaching and writing. SAR's work is rooted in the principle of academic freedom -- the freedom to pursue scholarship and research without discrimination, censorship, intimidation, or violence. Scholars at Risk aims to bring scholars facing severe human rights abuses in their home region to positions at universities, colleges and research centers in any safe country." (Accessed 14 November 2010. Scholars at Risk. http://en.wikipedia.org/wiki/Scholars_at_Risk)

The notion of scholars at risk has been on my mind especially since I began teaching online. Those of us teaching in the 21st century academy are very likely to be engaged in some form of distance education today or in the future. Both teachers and students involved in distance education may at times reside full-time or part-time in countries where information aspects of human rights (e.g. Article 19) are not enforced and protected as much as some of us have been accustomed to. These teachers and students have the right to know how secure eClasses actually are when it comes to privacy and confidentiality with respect to, for example, their discussion posts. How secure are their posts? Have we properly addressed this question with our administrations? Whose jurisdiction would a breach of security fall into? These questions have fuelled my interest in internationalization of higher education. Coupled with the contingent worker model, it has its problems.

The International Association of Universities Internationalization (<http://www.iau-aiu.net/index.html>) asserts that the internationalization of higher education, at its best, involves universities and higher education institutions and organizations from countries around the world in debate, reflection, and action on common concerns and of policy development. This includes the intercultural exchange of information, experience and ideas, as well as the ethical mobility of students and staff. But at its lowest operational level, competitive internationalization of higher education is simply about the act or process of buying and selling education as product to international markets. And while CAUT "is dedicated to the removal of barriers that traditionally

restrict access to and success in university-level studies and to increasing equality and equity of educational opportunity", it is also the case that "University employers may nonetheless misuse distance education techniques to increase managerial control over academic staff and/or as an innovative way to save money." (Accessed. 12 November 2010. CAUT Policy Statement on Distance Education. <http://www.caut.ca/pages.asp?page=263&lang=1>).

Because of what is at play on campuses, we should pay attention to the many ethical issues arising from the interplay that information and communication technologies have on the world's cultures and how these were coming into local, national and global discussions. We can draw on the work of scholars interested in these interplays who are introducing intercultural information ethics discussions about "where the cultural presuppositions of the world's cultures are seen as an important factor in consideration of ethical theorization and the search for ethical guide-lines." (International Review of Information Ethics Call for Papers. (Accessed 1 June 2010. http://www.i-r-i-e.net/call_for_papers.htm). And we can use this work to support the International Association of Universities' internationalization recommendations, which can blend with teaching information ethics. For example, we can support the recommendation that "the curriculum of the university reflect the preparation of international citizens, through facilitating language competence; and understanding of global, international, and regional issues; preparation of experts in areas needed for such fields as information technology and science, peace and conflict resolution, and sustainable development, as well as the special curricular needs of international students." (Accessed 10 November 2010. IAU Statement on Internationalization: Towards a Century of Cooperation: Internationalization of Higher Education http://www.iau-aiu.net/internationalization/i_statement.html)

My first conscious experimentation with teaching intercultural information ethics is in a new course I developed and am now teaching for the first time in fall 2010. It examines the central concepts of diversity and inclusion and a range of related issues and contributions with respect to traditionally underrepresented groups, and their support systems, in library and information settings - including the politics of documentation therein. Attention is given to the history, philosophy, research, policy, and resources on these topics within a framework of fundamental questions about the theory and practice of outreach services and community development in relation to professional library and infor-

mation institutional roles. The course encourages innovative approaches to serving traditionally underrepresented communities by exploring the idea of universal access to information. Some of the course objectives are that students should be able to: identify and analyze multiple meanings of diversity and inclusion and discuss them in relation to multiculturalism, race, ethnicity, class, gender, cultural diversity, the transversal character of cultural rights, globalization, global migration, global citizenship, universal access to information; understand theoretical and practical service-oriented issues and concerns regarding library and information use by a range of populations and traditionally underrepresented groups, such as indigenous peoples, cultural minorities, religious groups, migrant workers, women, children, youth, elders, people with human exceptionalities, poor people and people living on fixed income, homeless and street people, veterans, LGBTQ individuals and groups, and people living behind bars; problematize the affirmation of the dignity of people and recognize how an acceptance of differences can place individual and collective values in conflict; and, communicate effectively, through both oral and written means, library and information professionals' roles in promoting and advocating diversity and inclusion, tolerance and understanding, and the value of people accessing and enjoying library and information services free from any attempt by others to impose values, customs or beliefs. Upcoming student presentations include explorations of mobile library services to rural and indigenous communities, critical treatments of traditional cultural expressions, and roles of library and information workers in global citizenship education.

In some respects this teaching and learning is designed to explore self-determination for all peoples in the face of global market fundamentalism. Examination of the importance of considering the inherent relationships between the Universal Declaration of Human Rights and related covenants, library diversity and inclusion statements, and other positions taken by library and information organizations as sets and super-sets of persuasion and consensus building is central. Students are encouraged to explore how these ideological assertions reflect the inevitable tensions that exist between individual rights and community traditions, standards, and values. Discussions bring us to the idea that the most viable and authentic solutions to the cultural problems we face now will come in time and through multiple human engagements and interruptions, not as quick fixes or techno-managerial efficiencies. Together, we are probing the taxonomies

of special groups (e.g., homeless, fixed income, low income, no income) and prodding at reductive, negating, and racialized treatments of "minority", marginalized, and underrepresented parties, with special attention to newcomers to Canada (including refugees and asylum seekers). We are raising our awareness of how the liberalization of and de-territorialization of markets that have grown with globalization can result in the ongoing lack of understanding about orality and literacy and about status quo and dominant cultures of information exchange that serve to perpetuate misunderstandings about various contributors to traditional knowledge and knowledge activism, including within MLIS teachings.

A final thought is that in addition to our best efforts teaching information ethics in the classroom, quality education demands that we complement that act by also teaching outside the traditional classroom. For example, a few days ago, on November 10, 2010 I co-presented with David G. Smith (University of Alberta) and John Willinsky (Stanford University; University of British Columbia) on a panel chaired by Kent den Heyer (University of Alberta) on the multiple pressures on and dimensions of intellectual and academic freedom in the contexts of teaching, collegiality, and publishing. David G. Smith examined intellectual freedom in the post-9/11 world, indeed what may be unspeakable about 9/11 itself. I explored contemporary tensions between academic freedom and new campus behavior and civility codes being adopted or considered across campuses today. John Willinsky drew from his work founding the Public Knowledge Project to explore what is and could be 'public' about knowledge in contemporary economies of scholarly publication and intellectual exchange more broadly considered.

Our panel in the Faculty of Education at the University of Alberta occurred in a significant moment in time. Right now in the USA, academic freedom is under scrutiny in service learning in law school

clinics. AAUP reports that "As universities increasingly seek to educate students through service-learning courses, law school clinics may be the bellwether for determining whether the faculty's academic freedom in teaching will transcend the traditional classroom or be left at the classroom door. Recent legislative and corporate efforts to interfere in the operations of law clinics indicate that academic freedom is at risk when hands-on student learning bumps up against "real-world" disputes. In spring 2010, a law-clinic lawsuit against a \$4 billion poultry company triggered a legislative effort to withhold state funds from the University of Maryland unless its law school provided the legislature with sensitive information about clinic clients and case activities. While the threat of cuts was finally withdrawn, one legislator boasted that the university now knows "we'll be watching" if it takes on other business interests favored by politicians. And in Louisiana, when Tulane University this spring refused to drop an academic program that sometimes represents citizens challenging petrochemical-industry environmental permits, the industry developed an eleven-point plan, in the words of its spokesperson, to "kneecap" the university financially. The attack plan included the introduction of legislation that would forfeit all state funding if a university offered certain types of law-clinic courses." (Accessed 14 November 2010. Robert R. Kuehn and Peter A. Joy. "Kneecapping" Academic Freedom" *Academe Online*. <http://www.aaup.org/AAUP/pubsres/academe/2010/ND/feat/kueh.htm>).

In my view, those of us who teach information ethics, including academic librarians, should fully engage in this historical moment. The stakes are high. In many instances information literacy has been co-opted by the state. I suggest we try to save information ethics from the same fate – a fate that ultimately closes down rather than opens up new possibilities for effectively understanding human trajectories in the economy of ideas, commodification, monopolization, and war.

David J. Saab

Teaching Information Ethics in an iSchool

Abstract

The iSchool movement is an academic endeavor focusing on the information sciences and characterized by a number of features: concern with society-wide information problems, flexibility and adaptability of curricula, repositioning of research towards interdisciplinary and multidisciplinary exchange (Harmon, 2006). Teaching information ethics in an iSchool would seem to be a requisite for students who will have an enormous impact on the information technologies that increasingly permeate our lives. The case for studying ethics in a college of information science and technology, as opposed to the liberal arts and humanities, has been regarded only marginally, however. In this paper I explore how I developed and delivered an information ethics course, paying attention to student receptivity and learning, course structure and assignments, as well as its connection to the wider curriculum and its efficacy.

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iSchool Context

The iSchool movement is an academic endeavor that focuses on the information sciences. It is characterized by a number of features: concern with society-wide information problems and their concomitant problem focus, flexibility and adaptability of curricula, repositioning of research towards interdisciplinary and multidisciplinary exchange (Harmon, 2006). It consists of about 20 colleges and universities, including Penn State, Syracuse, UC Irvine, Michigan, Washington, UC Berkeley, UCLA, Drexel, Florida State, Georgia Tech, Illinois Urbana-Champaign, Indiana, Wisconsin, Maryland, North Carolina, Pittsburgh, Rutgers, and Texas at Austin. They have established the yearly *iConference*¹ that reflects the diverse nature of the iSchools' research, ranging from the computational to the sociocultural to the philosophical.

IST

The development of the iSchools at each university has its own heritage. Some developed out of the library science tradition, such as UC Berkeley. Others had their roots in computer science, communication, or business departments and schools. At Penn State, the College of Information Sciences and Technology (IST) was unique in that it was created independently of any department or school within the university in 1999. IST has no departments, by design, to foster collaborative interdisciplinary research among its scholars, who often develop grant proposals that incorporate elements of social science and engineering disciplines into cohesive research projects.

IST Undergraduate Curriculum

IST undergraduates are trained as interdisciplinary professionals and hired by organizations to help develop, manage and integrate information in a variety of contexts. The IST curriculum² is built around the concept of an ITP triangle (information-technology-people) and that any understanding of one point of the triangle must also include an understanding of the other two points. The curriculum is interdisciplinary, with three focal options for its

undergraduates: design and development of information systems (ISDEV); integration and application of information technology (ITINT); and, informational context of people, organizations and society (ISPP). ISDEV focuses on software development and its production cycle, user-centric design and development, software development on distributed platforms, and software development tools. ITINT focuses on value chains, process modelling, workflow analysis, change management, enterprise systems and middleware solutions. ISPP focuses on how people influence the design, development, diffusion, use, and management of IT, implications for social change affecting individuals, communities, organizations, economies, nations, and global environments.

The lack of a course focused solely on ethics in an interdisciplinary field such as IST is understandable in some ways. Unlike traditional disciplines with an established academic canon, IST is new and interdisciplinary without an established academic canon. The faculty often have experience in the applied ethics of their particular discipline, but translating ethical precepts across social science and engineering disciplines presents a challenge. IST deals with new and emerging technologies, for which ethical analyses have yet to be conducted. IST often works in the "vacuum space" that information technology creates (Moor, 2008). The policy-focused courses are heavily based in law studies, and as such present a legal framework rather than an ethical framework from which to assess information issues. Technology-focused courses, (e.g., on information privacy and security) are approached from an engineering perspective and the ethics of privacy, security, hacking, etc. are not addressed. Courses that address cross-cultural or intercultural issues assume a political ethics of inclusion, only rarely exploring the ethics of technology transfer across cultural boundaries. Exploration of the issues of legality and inclusion are assumed to be sufficient in developing an understanding of ethics for IST undergraduates.

Motivation for an Ethics Course

The decision to create an Information Ethics course in IST arose from my experience teaching *IST 301: Information and Organizations*³ in Spring 2009. It is a core course within the IST curriculum and required for IST majors. The primary goal of the course is to

¹ <http://www.ischools.org/site/conference/>

² <http://ist.psu.edu/currentstudents/undergraduate/bachelors/options/>

³ http://bulletins.psu.edu/bulletins/bluebook/university_course_description?letter=I&course=IST%7c301%7c200203S1

provide students an understanding of the variety of organizational structures, conduct an array of analyses and examine the information flows among information systems in a variety of organizational structural contexts. It is a writing-intensive course in which IST undergraduates are challenged to write extensively (often for the first time) and articulate their understanding with several papers over the semester. One of the modules of the course focused on organizational culture, in which ethics was considered. The module did not include formal frameworks for considering the ethical behavior of organizations. Students, when challenged, had no means of assessing the ethics of a situation other than an implicit understanding of their cultural values that privileged privacy of personal information but public sharing of non-private information. They had an implicit sense of fairness, but could not articulate the basis for it, the boundaries of its application, or describe why their ideas of fairness resulted in different outcomes. Based on what they felt, they could often make a rational case for why they believed something was ethical or unethical, but they couldn't recognize the reasoning at its foundation. Following this discovery, I found that the only exposure to ethics in the curriculum was in a small module of two courses—the *Information and Organizations* course and the *IST Integration* course⁴ taken by seniors.

In response to this lack of a formally structured ethics course, I developed one I believed would be helpful to IST students and would allow them to analyze the ethical dimensions of new and emerging technologies in a variety of personal, organizational and societal contexts. The course was designated as an *IST 402: Emerging Issues in Technology* course, which covers a range of special topics but which is also required for undergraduates. "Hot issues" (i.e., information privacy in social networking sites, violence in video games, cyber-bullying, etc.) may engender lots of discussion and debate, but what issues become "hot" changes quickly, in label if not in substance. Rather, the goal for this course was to provide students with an enduring ability to assess the ethics of a variety of emerging technologies using traditional normative ethics frameworks, i.e., virtue, consequentialist, deontological and feminist/care. Because information is a central focus of the IST curriculum, the newly developed information ethics framework (Floridi, 1998, 2008a,

2008b) took a primary role and was used as a contrast to the other frameworks.

Structuring the Course

IST students, who study programming languages, systems integration, interface design, and organizational and human information behavior, are accustomed to problem-based learning (PBL; Evensen & Hmelo-Silver, 2000; Schmidt, 1993) and this course needed to provide the basic structure of each philosophical framework while allowing them to discover on their own or in teams how many of the pieces fit together practically.

Materials and Course Structure

The students' lack of experience with complex philosophical texts posed a challenge that was addressed in several ways. Many of the texts available focused specifically on "hot topics" and were divided into sections such as privacy, security, risk assessment, access and inclusion, censorship, corporate responsibility, environmental ethics, genetic modification, nanotechnology, etc. (e.g., Budinger & Budinger, 2006; Himma & Tavani, 2008; Moor, 2008; van den Hoven & Weckert, 2008). While they had individual chapters that provided good examples of the application of traditional and emerging ethical frameworks in informational contexts, they did not provide a comprehensive solution to the approach devised for this course. The solution was to excerpt chapters from such texts, include journal articles that spoke to application of normative ethics to informational technologies (e.g., Vallor, 2009 is a good example of this), and to use accessible text and video resources available via the web.

This needed to be an IST course, not a philosophy course, but focused on normative ethics primarily and applied ethics secondarily. Because the study of normative ethics was unfamiliar to most IST students, structuring the course in a way that kept them engaged in the learning process was significant consideration and a challenge. As information science students, a normative framework focused on Information Ethics (IE) was critical for their education and needed to be central to the course. We also needed to cover virtue, consequentialist, deontological, and feminist/care ethics frameworks. Rather than cover the material in historical chronological order, I decided to make IE the first framework covered. The traditional frameworks could

⁴http://bulletins.psu.edu/bulletins/bluebook/university_course_descriptions.cfm?letter=I&courselong=IST%7c440w%7c200203FA

then be covered in a comparative way to IE. Table 1 delineates the course progression.

Table 1. Original IST 402 Course Topics by Week

Week 1	Introduction to the Course
Week 2	Meta-ethics
Weeks 3-6	Information Ethics
Weeks 7-8	Virtue Ethics
Weeks 9-10	Deontological Ethics
Weeks 11-12	Consequentialist Ethics
Weeks 13-14	Feminist/Care Ethics
Week 15	Team Project Presentations

As the course progressed, it became clearer as to the level of reading difficulty the students could handle. They weren't responsible for the details of each assigned reading or video since they weren't given formal tests. Rather, they were tasked with grasping the basic and essential elements of each framework in order to compose short essays on topics that required them to explore and/or apply the frameworks on IST-related issues. The final paper reflected their learning over the semester, their understanding of the frameworks, what were their preferred frameworks and how they manifested in their lives.

The original selection of readings was too numerous and too vast (33 assigned and 49 recommended readings and videos). In class, I often made a conscious choice to follow the discussions wherever they led, at the expense of some readings. I felt that active discussion was not only more important than written material but also essential to the PBL methodology with which IST students were familiar. Allowing them to struggle with the essential elements of each framework as part of an active discussion, along with guiding questions on important topics and elements as necessary, fostered ownership of their own learning in a way in which they'd become accustomed with PBL.

Facilitating Participation

In order to involve the students in philosophical discussions for which they had little experience, I used some of the videos in the *Justice* series (Sandel, 2009) available on the web as a vehicle for discussion during the first week of class. Using established ethical dilemmas, e.g., the trolley problem (Foot, 1978; Jarvis Thomson, 1976), to springboard discussion, and subsequently seeing their

responses mirrored by students in the web video, reinforced for the students that they had the ability to engage in philosophical debate despite their lack of philosophy background.

Participation in class discussion was also a challenge that also needed to be addressed. To overcome the reluctance of students to express themselves verbally, I created other avenues for expression. The first was a requirement for *daily feedback*—a simple online textbox where the students could indicate what it was they learned that day, what activities they thought worked or didn't work, vent their frustrations, or simply reflect on the readings or discussion, etc. This feedback mechanism allowed less vocal students to express themselves and participate in a way that was comfortable, and I selected several daily feedback entries that seemed to reflect shared understandings or common concerns to review at the start of the class each day. Through daily feedback, several students expressed how much they liked hearing the opinions of their classmates, that it was stimulating and engaged them in the subject matter:

Today's class was one of my favorites...I actually wanted to be following along and listening to everyone's opinions.

...interesting to hear the various arguments brought up by the challenging ethical situations presented. I liked hearing the class opinions and the varied responses.

Some of the questions and concepts are really hard to comprehend and therefore it helps to hear other opinions.

I provided this feedback to the class during the first few weeks of class and reinforced the idea that they liked hearing their fellow students' insights, arguments, and opinions. Learning that their classmates liked and wanted to hear what they had to say facilitated greater involvement in class discussions, especially among those who were normally reluctant to speak openly:

It's reassuring to know students are becoming more interested in voicing their opinions.

I feel that some of these topics are finally engaging the students not just because we have to but because we do have justified opinions on the ethical situations we discuss.

The course management software allowed students to use a discussion forum, pose questions, and rate

the contributions of their classmates. It was enthusiastically endorsed by our tech-savvy students:

I felt really willing to share my opinions and discuss different topics in the forum today—much more willing than I usually feel in class when I don't always know how to interpret my ideas to wrap around what we're discussing.

The forums exploded with ethical problems and concepts. ...it was effective because the people who felt that they didn't want to talk in front of the class had a chance to voice their opinions and insights.

I really enjoyed class today because it allowed us to see what all of our classmates were thinking. Usually during class discussions not everyone expresses their thoughts opinions or questions for whatever reasons. The forums are a great way to bypass this problem.

PBL through Team Projects

Finally, the challenge of PBL was addressed in both classroom activities and as part of the team project. One of the goals for this course was to ground complex, abstract frameworks in real-world technological contexts. This required two things: 1) that the students be able to connect the variety of elements of each framework in a way that made sense to them conceptually, and 2) that the students be able to implement those conceptual frameworks in a practical way. To accomplish the first, we engaged in a variety of classroom activities that ranged from straightforward discussion to concept mapping to creating and presenting visual representations of the normative frameworks. The second was embodied in their team project, which initially caused extreme anxiety among the students. The teams were given two guidelines for their information organism (or "inforg" as Floridi refers to it) creation project: 1) the inforg be able to assess the ethical framework(s) of a user in an online, virtual, or gaming environment, and 2) the inforg offer advice to the user based on that framework. They were told that they could take their inspiration from the *Oracle at Delphi* and the *experience of supplicants*⁵. Their assignment was not to recreate the Oracle, per se, but to be creative in developing their inforg. The lack of specification, combined with the unfamiliar territory of philosophy and ethics, created significant anxiety

among the students for several weeks, which was voiced in class, in one-on-one meetings, and in daily feedback.

As they began to outline their ideas and tackle the implementation of the ethical frameworks in the development of their inforg, enthusiasm supplanted their anxiety. In their final assessments they expressed a desire to see the anxiety-producing project remain unchanged for future classes and an appreciation of the project in helping them ground these abstract philosophical frameworks in ways that truly facilitated their learning.

One of the outstanding projects was based on the MMO (massive multiplayer online game), *Bioshock*. The team isolated 17 decision points where the player is forced to decide upon a course of action—acquiring resources, saving or killing, selling or destroying, enhancing their physiology, etc. At each point, their inforg offered a choice using explanatory scenarios that reflected the reasoning of each framework. The player could make any choice they normally would make. The scenarios were used to track the reasoning behind their choices and provided implicit advice based on the frameworks naturally employed by the player. Upon reaching the end of the game, the player was provided a complex assessment of which normative framework they primarily used to make ethical decisions, including where they tended to diverge from the framework. The team presented their inforg design using a comic book motif with artwork from the video game, and included a detailed flow chart of the decision-making paths that facilitated the assessment.

Reflections

By the end of the course, I learned a lot about how IST students assimilated the various ethical topics and frameworks. IE is an *ontocentric* and patient-centered framework, which is difficult to understand, especially without a foundation in ethical discourse. It advocates a view that moves beyond anthropocentric or biocentric perspectives to one in which all entities are considered informational and worthy of respect and attributed an inherent dignity. Entropy, considered as destruction or denigration of informational entities, is the significant evil in this framework and needs to be removed from the Infosphere. It is a complex framework and it became clear as we worked through the remaining normative frameworks that understanding many of its ideas depend on an understanding of the elements of those traditional frameworks, as well as

⁵http://en.wikipedia.org/wiki/Oracle_at_Delphi#The_experience_of_suppliants

the meta process of the evolution of ethical thought and discourse, if the students were to fully grasp IE's significance in assessing ethical behaviors and choices, from multiple cultural and informational perspectives. The critical perspectives of IE (e.g., Capurro, 2007; Capurro, 2008; Ess, 2008) were also difficult for students to assimilate because of their unfamiliarity with Heideggerian discourse in particular and ethical discourse in general.

Restructuring the Course

Upon reflection, it also became clear that there was too much time spent on some topics (e.g., meta-ethics), and not enough on others (e.g., using instructional tools, deontological ethics), while complex topics could have been better structured (e.g., information ethics, feminist/care ethics). Future versions of the course will spend more time on understanding and using instructional tools like collaborative concept mapping⁶ in the first few weeks and devote more time to team presentations in the last few weeks.

Assigned readings and videos have been streamlined so that those more readily assimilated by learners and which evoked more lively discussion are kept, while those that seemed too difficult to read or engendered very little discussion have been removed. The course has been reworked into seven modules, with a variable number of topics or spheres of application in each. There is a maximum of two text articles and/or three videos required for each topic. Woven into the IE module are four class sessions devoted to team project time. The number of essay assignments has increased to four, and students now write essays concerning (1) virtue or consequentialist ethics, (2) deontological or feminist/care ethics, (3) information ethics, and (4) a final reflection paper. The restructured progression is illustrated in Table 2.

Table 2. Revised IST 402 Course Structure

Weeks	Module	Topics
1-2	Introduction	Introduction & Expectations Meta-ethics Concept Mapping practice & Team project introduction

⁶ We used Cmaps: <http://cmap.ihmc.us/>

Reality and Virtuality		
3	Virtue Ethics (VE)	VE Introduction VE in Social Networking
4-5	Consequentialist Ethics (CE)	CE Introduction CE in Computing and Gaming Review VE & CE
5-6	Deontological Ethics (DE)	DE Introduction DE Supreme Principles DE in Robotics
7-8	Feminist/Care Ethics (F/C)	F/C Introduction F/C Gender and Virtue Review DE & F/C
8-13	Information Ethics (IE)	IE Intro IE Framework IE Global & Intercultural IE Critiques IE Machines & Things IE Pervasive Technology
14-15	Inforg Design	Team Presentations Course Reflections and Wrap-up

Concluding Remarks

Overall, the course was successful, and its assessment by the students, positive:

The growing I did from the class is immeasurable....I think everyone should be required to take one ethics class in college because it helps open your mind and takes you outside your comfort zone.

...I've gained much new insight about ethics and the way I look at situations.

...We were able to have some great discussion in this class and we were able to approach concepts that needed to be learned in a variety of ways. The ethical frameworks we studied will be stuck in my mind for years to come.

The students were able to grasp the abstract nature of core ethical frameworks and apply their principles to a variety of informational and technological

contexts. The students came to understand the complexity of their own ethical behaviour and decision-making. And perhaps most significantly, the course enabled the students to use information technologies to provide answers to ethical analyses in creative and lasting ways.

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Michael Zimmer:

Innovations and Challenges in Teaching Information Ethics Across Educational Contexts

Abstract:

Renewed attention to integrating information ethics within graduate library and information science (LIS) programs has forced LIS educators to ensure that future information professionals – and the users they interact with – participate appropriately and ethically in our contemporary information society. Along with focusing on graduate LIS curricula, information ethics must become infused in multiple and varied educational contexts, ranging from elementary and secondary education, technical degrees and undergraduate programs, public libraries, through popular media, and within the home.

Teaching information ethics in these diverse settings and contexts brings numerous challenges and requires new understandings and innovative approaches. In keeping with the 2011 Association for Library and Information Science Education (ALISE) conference theme of “Competitiveness and Innovation,” a diverse panel of educators and researchers were convened to foster a discussion in how to best incorporate information ethics education across diverse contexts, and how to develop innovative educational methods to overcome the challenges these contexts inevitably present. This article reports on that panel discussion and offers recommendations towards achieving success in information ethics education.

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Introduction

The field of information ethics is dedicated to the critical reflection on the ethical values and practices related to the production, storage, and distribution of information, as well as the ethical implications of the information systems, infrastructures, and policies increasingly embedded in modern culture and society.¹ The scope of information ethics encompasses the broad relationship between information and human rights and responsibility, including ethical issues related to information production, information collection and classification, information storage, access and dissemination, and information law and policy. Thus, information ethics has become a central concern among information professionals, and features prominently both in the American Library Association's statement of Core Competencies of Librarianship (American Library Association, 2009), as well as its standards used to accredit graduate programs in library and information studies (American Library Association, 2008).

Despite the recognition of information ethics by professional organizations and accrediting authorities, coupled with calls for the integration of information ethics courses in library science programs (Carbo & Almagno, 2001), recent studies have shown that less than half of the American Library Association's accredited programs offered such courses, and only a few of these program required students to take a course on information ethics (Buchanan, 2004).

To help refocus the need for information ethics within library and information studies curricula, the Association for Library and Information Science Education (ALISE) ratified a position statement on Information Ethics in LIS Education, which called for inclusion of information ethics within foundational courses, the creation of courses devoted specifically to information ethics, and an ongoing engagement with information ethics across the curriculum (ALISE Information Ethics Special Interest Group, 2007).

Since the statement's drafting in 2007, much substantive work has focused on ensuring infor-

mation ethics is properly integrated in LIS graduate curricula (see, for example, Fallis, 2007; Fleischmann, Robbins, & Wallace, 2009; Smith, 2010), culminating in a special session at the 2010 ALISE conference on "Integrating Ethics across the Curriculum in Library and Information Science".²

While this renewed attention on integrating information ethics within graduate LIS programs is both welcome and necessary, it is only a partial solution to ensuring that future information professionals -- and the users they interact with -- participate appropriately and ethically in our contemporary information society. Along with focusing on graduate LIS curricula, information ethics must become infused in multiple and varied educational contexts, ranging from elementary and secondary education, technical degrees and undergraduate programs, public libraries, through popular media, and within the home.

Teaching information ethics in these diverse settings and contexts brings numerous challenges and requires new understandings and innovative approaches. In keeping with the 2011 ALISE conference theme of "Competitiveness and Innovation," a diverse panel of educators and researchers were convened to foster a discussion in how to best incorporate information ethics education across diverse contexts, and how to develop innovative educational methods to overcome the challenges these contexts inevitably present.

The panellists were:

- Toni Carbo, Drexel University Center for Graduate Studies
- Richard Cox, School of Information Sciences, University of Pittsburgh
- Kimberly Black, School of Information Science, University of Tennessee, Knoxville
- Ann Curry, Faculty of Education, University of Alberta
- Raina Bloom, School of Information Studies, University of Wisconsin – Milwaukee

¹ For a brief history and introduction to information ethics, see (Froehlich, 2005) and (Florida, 2006).

² Details at <http://www.alise.org/mc/page.do?sitePageId=101955#6>

- Toni Samek, School of Library & Information Studies, University of Alberta

The particular experiences and insights shared by each panelist are summarized below. Taken together, these diverse – yet intertwined – set of reflections can help guide our efforts for incorporating information ethics education in a range of educational contexts and domains of everyday life.

Carbo: Lessons Learned

Dr. Toni Carbo, while at the University of Pittsburgh, developed and co-taught one of the first courses on Information Ethics in an LIS graduate program, and remains one of the field's leading educators.

Carbo shared her experiences and lessons learned from her involvement in the teaching, research and development of codes of ethics for organizations like ALISE and the Special Library Association (SLA), and how those experiences can be incorporated into teaching information ethics across contexts.

A key factor in Carbo's experiences was to ensure a diversity of specializations, levels of expertise, and cultural backgrounds among participants. As an educator, we must incorporate different cultural views and global perspectives. While it takes considerable effort to foster the right dialogue among a diverse set of students, the payoff comes in rich conversations, balanced deliberations, and collaborative analyses of ethical problems.

To achieve success in information ethics education, Carbo urged a continued emphasis on the careful use of language, as well as the focus on imparting critical thinking skills. As educators, she warned, we must avoid "simplistic dichotomies" when discussing complex ethical issues and consider all possible perspectives. Further, we must convey attitudes of openness and understanding of diverse perspectives, but at the same time question assumptions and critically interrogate longstanding attitudes and positions. Through these strategies, we can help our students to think critically, and not just react with expected responses, leading to students better armed to address complex ethical dilemmas when they leave our classrooms.

Cox: Teaching Archival Ethics

Dr. Richard Cox is a leading researcher and teacher in the area of archives and records management, focusing largely on the ethical dimensions of archival work. During the panel discussion he shared the evolution of his experiences "teaching archival ethics" which, he stressed, must take place both in the classroom and through research and publications.

Cox discussed the widening role that archival records play in society. As opposed to most writings in the discipline of archives and records management which view records from cultural, historical, and economical efficiency dimensions, his scholarship highlights that one of the most salient features of records is the role they play as sources of accountability -- a component that often brings them into daily headlines and into courtrooms. Struggles over control, access, preservation, destruction, authenticity, accuracy, and other issues demonstrate time and again that records are not mute observers and recordings of activity. Rather, they are frequently struggled over as objects of memory formation and erasure.

Thus, an increasing number of ethical issues confront today's archivists, which Cox suggests leads to a kind of "archival anxiety:"

A substantial portion of the archival profession is anxious about a variety of issues. The challenges archivists face are the result of a growing recognition of the importance of records in our society and its organizations, although these challenges are pushing archivists to think well beyond the cultural mission so many archivists have chosen to emphasize. The days of archivists sitting quietly in their stacks and waiting for the occasional researcher to appear are long gone (if they ever really existed). Archival anxiety may be the result of this community being shaken out of its complacency.

To help address this new anxiety within the archival profession, Cox has developed a robust course on Archival Access, Advocacy, and Ethics, which introduces the contentious and controversial issues confronting archivists to students who are just discovering the archival field and who are often more concerned with practical skills than philosophical and political quagmires, or who bring false and uninformed notions of the archival mission and work with no room (at least initially)

for ethical concerns. To ensure critical engagement with emerging ethical issues, Cox designed the course to produce articles co-authored with students that have appeared in *First Monday* and special issues of *Library and Archival Security* (Spring 2009) and the *Journal of Information Ethics* (Spring 2010).

Through these modes of teaching with archival students, Cox hopes to move the discussion and deliberation on archival ethics into the public sphere, shifting the focus away from the inner workings of the professional community, towards an intellectual engagement with the general public to gain a fuller understanding of the relevant ethical problems and possible solutions.

Black: Teaching Information Ethics as Human Rights

Dr. Kimberly Black argued that information ethics should be considered a dimension of human rights, and revealed how the Universal Declaration of Human Rights, and its related Covenants, provides educators – as well as advocates – a helpful framework to approach information ethics within the broader human rights discourse.

According to Black, Article 15 of the International Covenant on Economic, Social and Cultural Rights (ICESCR)³ is particularly important for proponents of information ethics. This section requires signing governments to recognize the right of everyone to “enjoy the benefits of scientific progress and its applications” and to take the necessary steps to help people realize this right, including “those necessary for the conservation, the development and the diffusion of science and culture.” In the language of information ethics, these requirements correspond with concerns over information access, intellectual property, intellectual freedom, and the ethical development of information technologies as well as ethical information practices.

Black urged LIS educators to join with other academic organizations – such as the American Association for the Advancement of Science – in the pursuit of clarifying and applying the language of Article 15 to ensure these information-based rights are fully enjoyed by all. Specifically, the LIS community should work to help infuse “rights talk”

within information ethics courses and discussions, and build new conceptual frameworks that include rights and ethics that cut across areas of practice.

Curry: Teaching Values: An LIS Responsibility?

Dr. Ann Curry, whose research focuses on the role of intellectual freedom in maintaining human rights and democracy, spoke on the responsibility librarians have to promote intellectual freedom and equity of access to information across educational levels and contexts.

While the latest research studies reveal how personal values develop in children as they mature and early exposure to ethical discussions benefit that development, Curry warned of a growing trend away from engaging in discussions of values and ethics in the classroom, due to fears of being controversial, causing conflicts with parents or administrators, and general discomfort with the need to confront complicated moral and ethical debates. Her informal review of primary and secondary school curricula across Canada revealed no specific mention of intellectual freedom or the right of individuals to read what they choose, no mention of connection between and “informed electorate” and democracy, and no mention of the role of libraries in supporting these values.

Curry argued that if we really believe that intellectual freedom is important and crucial to democratic societies, and if we believe that intellectual is an important LIS value, we must lobby for more presence of information ethics and its related values in primary and secondary school curricula. Specifically, she called for:

- We, LIS instructors and professionals, must be more “upfront” about intellectual freedom as a library value
- We must promote intellectual freedom more vigorously in the public sphere
- We must lobby for a greater presence of intellectual freedom related democratic values in the K-12 school curriculum
- We must promote more vigorously in schools and in libraries the importance of informed, respectful discussion of our differences of opinion

³ <http://www2.ohchr.org/english/law/cescr.htm>

- We must promote to government and to the general public the role of libraries in providing both the forums and the background materials for such discussions

In short, if we hold intellectual freedom as one of our core LIS values, and if we believe that intellectual freedom is the foundation of democracy, we have a responsibility to promote the teaching of intellectual freedom values, not only in LIS graduate programs, but also in the K-12 curriculum.

Bloom: Introducing Information Ethics to New Undergraduates

Raina Bloom, who coordinates undergraduate information literacy courses at the University of Wisconsin-Milwaukee, argued that information ethics is a necessary part of undergraduate information literacy education, particularly at the introductory level. Many research practices taught at this level are, at their base, ethical considerations – proper citation, for example – and the ethical dimensions of these skills should be made explicit. Even the simplest bibliographic research, Bloom has found, is deeply entangled in the increasingly complex realities of the information society.

Bloom relayed a story of a student from her information literacy course who, when told that a Wikipedia article was not a suitable source for research, appealed with the remark “What if it’s a *really good* Wikipedia entry?”. Suddenly, issues of information ethics moved to the forefront of this particular lesson in information literacy: what makes Wikipedia “good” or “bad”? According to whom? And why? Students are familiar with popular information objects like Wikipedia, and we must make use of such moments, Bloom argued, to ask important ethical questions about that information source’s relative reliability, authenticity, neutrality, and so on. Through such ethical interrogation, we can lead students towards a more critical engagement with their informational surroundings.

Similarly, Bloom drew from critical literacy theorists, such as Paulo Freire, Henry Giroux, and Maxine Green, to compel us to follow Carbo’s advice (above) and build from our students’ diverse backgrounds and experiences to help them gain better insights into the problematics of information ethics and information literacy. As educa-

tors, we should use our students’ lived experiences – as well as our own – to better relate the nuances of novel ethical dilemmas and what it means to be truly information literate.

Samek: Teaching Information Ethics and the Free Flow of Information

Toni Samek writes and teaches on topics in critical librarianship, intellectual freedom, and routinely urges librarians to take social action in order to advance human rights. Samek spoke of her graduate course titled Intellectual Freedom and Social Responsibility in Librarianship, which engages students in a range of ethical issues, such as intellectual freedom, free flow of information, the public good, and democratic frameworks, as well as counter pressures, such as capitalist efficiency.

Samek noted that to properly engage with information ethics instruction from a critical stance, you must extend your framework into emergent information ethics terrains such as knowledge economy, indigenous knowledge, cybernetic pluralism, and global tightening of information and border controls. In her experience, she would find herself immersed in rhetoric and reality contestations over internationalization of higher education, the contingent worker model, the meaning of global citizenship education and research, and academic freedom in the 21st century.

The necessity of critically reflecting on how we teach information ethics was made clear to Samek when a student who lives part-time in another country, where the free flow of information is not tolerated, asked: “is the online class website secure?” The answer was “no”, which prompted Samek to recognize the need for broader contemplation and conversation about the relationships between teaching information ethics, the importance of a free flow of information in the global academic enterprise, and aggressive marketization and internationalization of higher education.

For a more detailed discussion of these concerns, see Samek’s contribution in this issue.

Concluding Thoughts

As we consider the vital importance of teaching information ethics within our LIS graduate pro-

grams, this panel discussion sparked various challenges – and opportunities – to integrate information ethics across diverse educational contexts, to frame information ethics within multiple discourses, and to critically reflect on the ethical implications of our pedagogical methods and environments themselves.

To answer these calls to action, the LIS community of educators and professionals will need to explore new ways to encourage and capitalize on a diversity of perspectives within the information ethics classroom; we will need to provoke critical thinking and push students into new intellectual terrain; and we will also need to critically interrogate our own language and positioning when we teach information ethics.

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Miguel Angel Pérez Alvarez:

Teaching Information Ethics

Abstract:

The emergence of social networking is closely related with the new technologies improving user interface experience thus making the interaction between users more natural and intuitive. Before, the first online communities of interest were user lists and asynchronous discussion groups resembling more the form of mass mailings than informal discussions in a cafe or in a classroom. The impact of web 2.0 on scientific practices has become evident in establishing more and more epistemic communities as virtual communities and vice versa. With respect to the role of the paradigm in the constitution and operations of an epistemic community, the framework of values and the ethical reflection of that become its own form of binding and guiding principle of the theoretical action. Thus any individual who joins an online community with the ambition of an epistemic effect must develop the morals and ethics necessary to enable him/her to understand the relevant forms of their theoretical practice.

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 - "Teaching Information Ethics" En *Ética Da Informacao: Conceitos, Abordagens, oes*. E-Book Do I Simposio Brasileiro Da Etica Da Informacao, Isbn: 978-85-7539-542-0.
 - "Indigenous Media" En *Liberating Voices* (Pattern Language, Number 55), Mit Press, Isbn-10: 0-262-69366-6; Isbn-13:978-0-262-69366-0 (Accesible: [Http://Trout.Cpsr.Org/Program/Sphere/Patterns/Pattern-Table-Of-Contents.Php](http://Trout.Cpsr.Org/Program/Sphere/Patterns/Pattern-Table-Of-Contents.Php), [Http://Mitpress.Mit.Edu/Catalog/Item/Default.Asp?Ttype=2&Tid=11601](http://Mitpress.Mit.Edu/Catalog/Item/Default.Asp?Ttype=2&Tid=11601))
 - "Educación Y Accesibilidad De Los Sitios Web Educativos Y Relacionados Con Tareas Educativas" En *Análisis De La Convención De La Onu Sobre Los Derechos De Las Personas Con Discapacidad Y Armonización Con Las Leyes Mexicanas*, Consejo Nacional Para Prevenir La Discapacidad, México, 2007, Pp. 218-223
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Antecedentes

La llegada de primero las "salas" de chat, y más tarde de los blogs, wikis y del microblogging, sentaron las bases del intercambio y colaboración en tiempo real. En la actualidad herramientas como Facebook, Twitter, así como Ning o Google Wave, por citar ejemplos relevantes, generan oportunidades de trabajo colectivo de manera sincrónica y, por ende, posibilitan la ubicuidad en la colaboración más allá de las fronteras espaciales.

Esta revolución técnica que parece interminable trae aparejada una vasta cantidad de situaciones que tienen un impacto de manera directa en la manera en la que se producen las experiencias de aprendizaje. Más allá de la visión corta o larga de los profesores, los estudiantes colaboran y trabajan en línea sin importar si sus maestros aprueban esas formas de intercambio y trabajo en grupo. Ello trae como consecuencia dos niveles de reflexión: aquel que corresponde a las implicaciones para el ambiente de aprendizaje y aquel que tiene que ver con el ejercicio del control y del poder dentro del aula por parte del maestro, y su consiguiente impacto en el primer nivel, el del aprendizaje. En el primer nivel debemos analizar cuál es el efecto que produce en los profesores, en los estudiantes y en las experiencias cotidianas dentro del aula la existencia de fenómenos en los que intervienen nuevas tecnologías y el acceso a Internet.

En nuestra experiencia de los últimos años con niños y adolescentes que cuentan con computadoras y conexión a Internet de manera ilimitada durante la jornada escolar y en sus domicilios, las oportunidades para vivir experiencias de aprendizaje es notable¹. La pura presencia de estas tecnologías no resulta de manera inmediata en experiencias educativas significativas. En algunos casos, la falta de preparación de docentes y administradores genera experiencias muy nocivas para los jóvenes. La carencia de instrumentos de comprensión de los fenómenos cognitivos, sociales y emocionales que están en juego en aulas tecnologizadas "full time" provocan en los docen-

tes la sensación de que el joven no aprende. Por primera vez el centro de la atención dentro del aula no es el docente "dicente", "busto parlante" o expositor sino la el alumno y su experiencia misma de aprendizaje, y el contacto "virtual" con la realidad. La pantalla (y en general todos los dispositivos electrónicos) no es percibida por el docente como ventana al conjunto de las experiencias de la realidad (que el maestro pretende presentar sintetizadas en su decir, en su exposición) sino como un "distractor" inútil que resta atención, "desconcentra" e inhibe el aprendizaje. Es evidente que el primer problema que el uso "full time" de nuevas tecnologías y el acceso ilimitado a Internet trae aparejado es el de cuál es la naturaleza de las experiencias que derivan (o dan lugar) en el aula en nuevos aprendizajes, es decir cómo se percibe el docente en el acto o la experiencia del aprender de sus alumnos.

Un reciente estudio² detectó que muchos docentes consideran que sus estudiantes les ponen atención en el aula porque "saben", porque "contienen saber". Esta percepción deriva inconscientemente de anhelos de poder y autoridad e ignora que el dicente es escuchado porque la institucionalización escolar del saber le dota de una autoridad relativa y temporal. Es, en cierta forma, sólo el soporte o sustento de una relación de poder.

Las teorías más recientes en torno a cómo aprendemos se centran principalmente en el desarrollo de habilidades cognitivas y metacognitivas. Se trata de transformaciones no sólo en la conducta observable sino de manera más profunda y relevante en las estructuras intelectuales que nos permiten conocer. Aprender es no sólo construir nuevos conocimientos sino construirnos como seres que conocen. Es aprender, pero también aprender cómo aprender.

En este contexto la revolución tecnológica tomó por sorpresa a los educadores y a los administradores de lo educativo pues aunque escuchaban a su alrededor las advertencias sobre la revolución cultural que se avecinaba sólo atinaron a pensar de manera tibia, poco informada y limitada a tratar de adaptar las nuevas tecnologías a sus anquilosadas prácticas docentes centradas en el

1 Con una plataforma de administración del aprendizaje, los estudiantes y profesores con los que se realizó la experiencia que se describe en este trabajo desarrollaron más de 800 actividades y tuvieron más de 20000 accesos a los recursos educativos dispuestos a lo largo del ciclo escolar 2009-2010

2 Araujo G. y Pardo C., "El Psicoanálisis para (en) la Institución Escolar" en: <http://grupos.geomundos.com/salud.psicosocial/mensaje-elpsicoanalisisparaenlainstitucionescolarporqabrielaraujoycarmenpardo.html>

"magister dixit" e ignorantes de la revolución cognitiva que las nuevas tecnologías habrían de posibilitar. La realidad de las redes sociales y de la existencia de espacios de trabajo colectivo remoto sincrónico -por mencionar sólo uno de los fenómenos culturales de nuestro tiempo- genera un espacio-tiempo distinto en el aula.

La dimensión ética implícita en el uso de la Internet entre los jóvenes durante y alrededor de las experiencias educativas mediadas por nuevas tecnologías, se presenta al terminar la primera década de este siglo XXI en un contexto de desconocimiento por parte de una inmensa mayoría de docentes latinoamericanos de la realidad de las redes sociales y de su potencial para la construcción de nuevos conocimientos y en el desarrollo de nuevas habilidades cognitivas y metacognitivas -en especial de la de aprender cómo aprender. Por ende, sólo genera ansiedad para el docente que asume actitudes de temor frente a los "peligros de Internet" y es incapaz de realizar un análisis del potencial educativo con el que cuenta cotidianamente.

La dimensión ética y las redes epistémicas en Internet

La educación pública por competencias en México se caracteriza entre otros criterios por buscar la formación de ciudadanos, es decir, la formación:

*"Del juicio ético y moral de los niños y jóvenes, vinculado con el aprecio y el respeto de las personas bajo los principios y valores de la sustentabilidad (sic), la democracia, los derechos humanos, la equidad de género, la práctica de la tolerancia, de las libertades, la diversidad y el pluralismo, cuestiones que formarán a las nuevas generaciones como ciudadanos comprometidos con su entorno político, social y ecológico para consolidar una cultura cívica que dé contenido y sustancia a nuestras instituciones incluyentes (sic)"*³

Esta visión propia del Estado mexicano refleja el interés creciente en transformar la educación pública en una que garantice el desarrollo del

criterio moral en sus ciudadanos. Se trata de favorecer un proceso de desarrollo de la ciudadanía.

Hablar de la enseñanza de la ética de la información en la educación latinoamericana contemporánea, implica necesariamente revisar la forma en la que es concebido el aprendizaje, la forma en la que los docentes identifican las experiencias relevantes para el desarrollo de habilidades intelectuales en ambientes mediados por nuevas tecnologías, y la forma en la que en la práctica docente cotidiana los profesores diseñan y aplican experiencias de aprendizaje en ambientes mediados por nuevas tecnologías. Estos indicadores sólo pueden ser observados y evaluados en la práctica en el aula y no en los currículos oficiales, pues es en esa cotidianidad del aula en la que se realiza lo educativo y no en el discurso de los diseñadores "instruccionales" y administradores.

Sólo en la medida en la que los educadores puedan evaluar las oportunidades que las nuevas tecnologías ofrecen a los procesos de aprendizaje y sólo en la medida en la que puedan diseñar experiencias de aprendizaje que contribuyan al desarrollo de nuevas habilidades intelectuales, podremos comprender cómo debe ser practicada una educación que permita a los estudiantes aprender cómo aprender en el contexto de ambientes basados en tecnología de la información y comunicación.

Comunidades epistémicas

Esclarecer la forma en la que las comunidades epistémicas entrenan a los nuevos miembros en la adopción de un paradigma, entendido en una de sus acepciones como la adopción de un marco axiológico de una práctica científica, es fundamental para comprender el sentido del marco axiológico en la producción de nuevos conocimientos. La adopción de un marco axiológico por parte de una comunidad constituye, implica, una forma práctica de la ética y una expresión característica de la práctica científica en un periodo de ciencia normal. Es fundamental preguntarnos si cualquier comunidad epistémica sigue los mismos patrones de comportamiento pues ello nos será útil en el proceso de la adopción de nuevas tecnologías de la información, acceso ilimitado a Internet y uso de las redes sociales en un aula. Especialmente si hablamos de colaboración remota vía Internet. Los protocolos

3 Curso Básico de Formación Continua para Maestros en Servicio. El Enfoque por Competencias en la Educación Básica, Dirección General de Formación Continua de Maestros en Servicio, Secretaría de Educación Pública, México, 2009

de inserción, los códigos de conducta que todo miembro de una comunidad epistémica debe asumir para aprender una práctica científica, son un modelo que se aplica cuando un grupo de estudiantes colaboran en una red social y aprenden cómo construir conocimientos nuevos⁴.

El marco axiológico que constituye uno de los núcleos de las prácticas científicas fue extensamente explicado desde el siglo pasado por Kuhn. Thomas S. Kuhn, el filósofo de la ciencia inglés, describió en sus obras, especialmente en la Estructura de las Revoluciones Científicas⁵, el papel que tiene en la construcción de un paradigma científico el código de ética de una comunidad epistémica. Este, el paradigma, establece qué problemas es pertinente plantear a la comunidad epistémica como dificultades a resolver, y qué prácticas epistémicas es pertinente realizar, desde que se genera o expresa una teoría, hasta que se dispone o despliega un experimento mental para confirmarla o se hace público para el resto de la comunidad a través de una comunicación científica. Es un marco axiológico para la práctica científica y un medio para que una comunidad epistémica se consolide en su práctica en los periodos más estables.

Ambientes de aprendizaje como comunidades epistémicas

El ambiente de aprendizaje en línea o en el ciberespacio es más que un ecosistema. Es en términos metafóricos, un entorno distinto del natural pues las leyes que regulan su entropía o su equilibrio distan de parecerse a aquellas que los biólogos y ecólogos identifican como propios de un sistema ambiental. Por esta razón la organización, gestión e higiene de las relaciones que se gestan administran, construyen y evalúan en un ambiente de aprendizaje en línea o ciberambiente de aprendizaje requieren de un nuevo modelado, concepción, legalidad, y categorías de análisis.

4 Recientemente, Danah Boyd, senior researcher en Microsoft Research, ha señalado que es pertinente evaluar la manera en la que se generan los códigos de conducta propios de las redes sociales. Esta génesis es un tema fundamental para evaluar la mejor manera de utilizar esas redes como espacios para el desarrollo del criterio moral de los niños y jóvenes. Ver <http://www.technologyreview.com/video/?vid=599>

5 Kuhn, Thomas, S., La Estructura de las Revoluciones Científicas, México, Fondo de Cultura Económica, 2007.

Más allá de ser concebidos exclusivamente como repositorios de información, los ciberambientes de aprendizaje exigen ser concebidos como espacios y tiempos de experiencias de aprendizaje significativas. Quienes se acercan a través de Internet a una experiencia de aprendizaje, experimentarán en algunas ocasiones una sensación similar a la de un monje que en silencio absoluto toma sus alimentos en la compañía de otros monjes. Como en los refectorios de los monasterios benedictinos, aparecerá a cualquier testigo que lo observe en una actitud hipnótica frente a una oferta variada de sabores y olores. El actual estudiante que se adentra en una educación basada en ciberespacios de aprendizaje se muestra muchas veces frente al testigo imparcial como un ser hipnotizado frente a una pantalla⁶. La simple mirada de un grupo de estudiantes dispersos por una aula contemplando un monitor en silencio, se asemeja más a un grupo de seres dedicados a meditar más que a aprender. Su experiencia de aprendizaje suele ser, sin embargo, de carácter más intenso y significativo que el de los alumnos que escuchan aletargados a un profesor disertar en un tono parejo para sus alumnos.

La Vida en la pantalla⁷

de S. Turkle nos recuerda que este proceso aparente de abismarse frente a una pantalla constituye una revolución cultural. Pero mientras que para el simple espectador los procesos intelectuales más trascendentes del que se abisma frente a la pantalla son sólo en apariencia un acto de hipnosis o éxtasis, para el protagonista constituyen un rico y variado conjunto de experiencias educativas. Los procesos vividos al realizar actividades desplegadas mediante una computadora pueden transformar su visión del mundo, su habilidad para representar la realidad en la mente, y contribuyen al desarrollo de las aptitudes que este actor pone en juego en todo proceso intelectual.

El acto personalísimo de interacción con las actividades intelectuales que se realizan con ayuda de una computadora conectada a la red de redes, implica también un nivel de interacción social que aparentemente desaparece cuando la relación está

6 Turkle, Sherry, La vida en la pantalla, Barcelona, Paidós transiciones, 1995.

7 Ibidem

mediada por una pantalla y un teclado. Quienes desarrollan actividades en red colaboran de manera silenciosa con otros cibernautas, pero ello implica una actividad que contribuye a la transformación de estructuras intelectuales de todos los participantes de la misma manera que cuando se da de manera presencial. En ocasiones están frente a frente físicamente, pero el correo electrónico, el chat o el acto de colaboración instantáneo (como el Google Wave) que podría suponerse los hace distantes o mantenerlos incomunicados, en realidad los hace estar hiperconectados. Una interacción académica sincrónica que permite escribir un paper de manera colectiva (o un artículo en una enciclopedia como ocurre con la Wikipedia u otro sistema de producción intelectual o científica en línea) se constituye en un espacio privilegiado para el desarrollo de habilidades intelectuales. Cuando esa forma de colaboración se utiliza en la escuela, los estudiantes pueden desarrollar nuevas habilidades y competencias intelectuales de una manera totalmente nueva, pues los protagonistas pertenecen a diferentes latitudes, instancias e incluso culturas o idiosincrasias.

La experiencia de colaboración en redes informáticas que se produce desde mediados de los noventa, nos ha permitido analizar el papel que juegan los valores compartidos (la "ética" en sentido lato) en este tipo de comunidades y que surgen alrededor de un interés común en Internet. Que un estudiante con acceso a los instrumentos de la producción de nuevos conocimientos, en un ciberentorno de colaboración (sea un blog, un wiki, una red social o un ambiente de exploración de procesos intelectuales), y que tenga la oportunidad de ser guiado por un profesor sobre las formas en las que se asumen paradigmas en una comunidad epistémica, constituye una nueva forma de acto educativo que estaba reservado a quienes como aprendices se incorporan a una comunidad científica. El estudiante podrá experimentar en un "laboratorio virtual" un conjunto de situaciones educativas relevantes para el desarrollo de su criterio moral pues pone en juego sus concepciones previas respecto a las diferencias culturales de todo tipo, su visión de lo que significa la verdad en la aceptación de una teoría científica en una comunidad de aprendizaje o sobre la trascendencia de la multiculturalidad como un factor a considerar en el progreso de una visión científica determinada.

Ya Piaget⁸ y Kohlberg⁹ sentaron las bases para comprender el desarrollo del criterio moral en niños y jóvenes. Sus trabajos, en especial El desarrollo del criterio moral y Moral Stages and Moralizations contribuyen a comprender los distintos estadios por los que un niño o joven pueden atravesar a lo largo de su vida y cómo las experiencias individuales y sociales que cada individuo experimenta sientan las bases sobre las que se desarrolla el criterio moral. Este proceso humano fundamental se produce en nuestros días en el marco de nuevas formas de convivencia e interacción social, pero son, en cierto sentido, idénticas a las que experimentaron otros seres humanos en épocas en las que la vida frente a la pantalla era impensable. Tanto Piaget como Kohlberg coinciden en que un niño desarrolla el criterio moral merced a la interacción individual y social. Los estadios identificados por Kohlberg (preconvencional, convencional y postconvencional) pueden ser transitados en virtud de experiencias significativas que favorecen el desarrollo moral del niño o joven. Pasar de una etapa egocéntrica a una de solidaridad y conciencia social es resultado de un proceso de maduración personal que en no pocas ocasiones nunca se alcanza. De esta manera la necesidad de disponer de experiencias educativas que favorezcan el desarrollo de esta dimensión humana es fundamental.

De ahí que, tanto en el uso de robots¹⁰ como en la participación activa en redes sociales protegidas por educadores, los estudiantes tienen ocasión de utilizar herramientas que contribuyen a la educación ética en el contexto de la producción de conocimientos nuevos, tal y como ocurre en la asunción de paradigmas en las comunidades epistémicas, y al desarrollo del criterio moral de niños y jóvenes. Desarrollo del criterio moral en condiciones muy similares a las que un científico profesional enfrenta cotidianamente.

8 Piaget, J. El criterio moral del niño, Fontanella, 1971.

9 Kohlberg L. "Moral Stages and moralizations" en Lickona, T. Moral development and behavior, New York, Holt, 1971. Y The development of modes moral thing and choice years ten to sixteen, University of Chicago, 1974.

10 Sobre el uso de robótica en el desarrollo del criterio moral puede verse mi trabajo "Robótica y desarrollo de habilidades intelectuales" en http://www.i-r-i-e.net/inhalt/006/006_full.pdf

El caso de la escuela privada

Dispusimos una red en NING (un sistema de redes cuyo uso es de bajo precio) para que 125 estudiantes del primer nivel de educación secundaria, entre 13 y 14 años de edad, participaran de un espacio de aprendizaje y colaboración on-line. El objetivo de la red era que los participantes interactuaran socialmente intercambiando información, compartiendo el resultado de sus investigaciones, y utilizaran la red para contactarse y realizar investigaciones escolares de manera "colaborativa". Durante ocho meses estos jóvenes estudiantes generaron grupos de trabajo en temas tan disímolos como la protección del medio ambiente o como "*la palabra Google puede utilizarse como verbo en lengua española*". La conciencia del papel que cumplen los principios o normas de conducta en esa red constituye un elemento fundamental para ser empleado como recurso didáctico y como espacio de aprendizaje para la ciudadanía digital, así como para la adopción del marco axiológico la incipiente práctica científica de los adolescentes.

El hecho de asumir un marco axiológico por la necesidad de pertenecer a un grupo de colaboración, permite desarrollar el criterio moral en los jóvenes, por oposición a las formas tradicionales de educación ética y ciudadana basadas en la moralización, el adoctrinamiento y otras ineficaces formas de educación moral. El aparente juego de pertenecer a un grupo o red permite a niños y jóvenes desarrollar la conciencia del otro, a hacerse conscientes de sus necesidades y, por lo tanto, a despertar su empatía o al menos su simpatía hacia las necesidades y expectativas del otro. Que una red social que opera mediante Internet posibilite el despertar de esta sensibilidad en niños y jóvenes la convierte en algo más que un simple recurso didáctico: es quizá una nueva forma de contribuir a formar ciudadanos digitales o simplemente a formar ciudadanos.

Conclusiones

La relevancia de contar con una comunidad virtual de aprendizaje que devenga en una comunidad epistémica virtual deriva de su capacidad para garantizar y, al mismo tiempo, para posibilitar un espacio *ad hoc* para el desarrollo del criterio moral. Cada miembro adscrito debe desarrollar como condición *sine qua non* una capacidad para respetar y observar un código de conducta y un

conjunto de valores. Sin un nivel ético es imposible que ninguna comunidad epistémica sobreviva: toda práctica científica se desarrolla a través y a partir de ese elemento fundamental de un paradigma científico.

Acercar a los jóvenes a las redes sociales, crear espacios virtuales para experimentar en un ambiente seguro y libre de riesgos con los códigos de conducta de las comunidades científicas profesionales, y permitirles desarrollar el criterio moral y la reflexión ética en la práctica científica, es una tarea educativa fundamental que los educadores deben considerar y sobre la que vale la pena desarrollar aun más investigaciones.

Stephen M. Mutula:

A Framework for Integrating Information Ethics (IE) in the Curricula for Africa

Abstract:

The debate about embedding information ethics (IE) in the curriculum in Africa is gaining momentum as scholars from developed and developing world engage on the subject. Some research publications are starting to emerge on information ethics in Africa but so far they have been confined to addressing the extent to which information ethics is necessary, who should offer information ethics and why, who should be taught and at what levels, the duration of offering the course/program and the content that should be included in the curriculum. Little attention has been placed on the theoretical framework that should underpin IE curriculum for Africa as well as the sources of IE content for the curriculum. This paper therefore addresses the following issues: rationale for integrating information ethics in the curricula in Africa; theoretical and institutional framework for IE curriculum; potential sources of content for information ethics curricula, challenges of integrating information ethics into the curricula in Africa and prospects for integrating IE into the curricula in Africa.

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Introduction

The debate about embedding information ethics in the curriculum in Africa is gaining momentum as scholars from developed and developing world engage on the subject. Ocholla (2009) in an empirical study on the state of information ethics integration in the curricula of LIS schools in Africa investigated several perspectives such as the extent to which information ethics was necessary, who should offer information ethics and why, who should be taught and at what levels, how long should be the duration of the course/program and what should be included in the curriculum?. This paper builds on Ocholla's work and proposes a framework for information ethics curricula for tertiary education in Africa. Besides, the paper explores the sources that would provide theory, corpora of knowledge and philosophical underpinning for the development of information ethics for Africa.

Understanding the subject of information ethics is important in order to appreciate the dynamics and implications of its integration in the curricula for Africa. Britz & Buchanan (2009) outlined the scope of information ethics as focusing on the moral questions relating to the life cycle of information as it pertains to its generation, gathering, organization, storage, retrieval and use. They point out that as a field, information ethics broadly examines issues related to privacy, security, access to information, intellectual freedom, quality and integrity of information as well as intellectual property rights. Additionally, they state that the broader domain of professional ethics is of great import, encompassing the ways professionals engage with, respond and react to those ethical issues. Furthermore, they identified stakeholders of information ethics as creators and/or distributors of information products and services, information mediators including librarians and information users. Finally, they see ICT as an important tool for completing the broader domain of information ethics as it supports the different information life cycle activities and plays the important role of shaping the understanding of the information ethics field.

As debate and dialogue on information ethics integration in the curriculum for Africa gathers pace, the continent and its people faces various challenges that stand in the way of attaining an information society for all. These challenges include but are not limited to inadequate or complete lack of an enabling policy & legal environment for digital inclusion, information illiteracy, paucity of local content, bad

governance and lack of democratic institutions. Ocholla (2009) adds to these challenges rapid technological development and its use at home and cybercafés; limited knowledge of information ethics among information workers; lack of qualified staff to teach the subject of information ethics; government censorship of information; poor ICT infrastructure; digital divide, etcetera. Besides, Britz et al. (2008) and Britz & Buchanan (2009) content that information ethics integration in education is affected by non-neutrality of ICTs; lack of clear responsibility for information generation and dissemination; issues of privacy and accuracy; the dominance of western model of intellectual property; bio-piracy; cultural diversity; globalization; gender inequality; information imperialism including, control and distribution of patents, technical knowledge and scholarly publications.

This paper therefore addresses four areas on information ethics that have implications for Africa's tertiary education and scholarship. These areas include:

1. Rationale for integrating information ethics in the curricula in Africa
2. Theoretical and institutional framework for IE integration in the curricula
3. Potential sources of content for information ethics curricula
4. Challenges of integrating information ethics into the curricula in Africa.

Rationale for Integrating Information Ethics in the Curricula

Since 2007, there has been concerted efforts through the partnership of information science scholars from southern African library schools (University of Botswana, University of Pretoria & University of Zululand), supported by their counterpart at the University of Wisconsin Milwaukee (USA), to develop information ethics curriculum for Africa. The first initiative to discuss integration of information ethics into Africa's curricula brought together academics, government representatives and scholars from the international community at a conference that was held at the University of Pretoria (Tshwane) in South Africa in February 2007. The outcome from this conference was the '*Tshwane declaration on information ethics in Africa*' which called for the mobilization of academic research on

information ethics within the scholarly community. This was followed by two years later workshop on e-government and information ethics in February 2009 that was Held at Mount Resort Magaliesburg, South Africa. These two events culminated in the information ethics conference for Africa that would be held at the University of Botswana in September 2010 to illuminate the unique problems and solutions of integrating information ethics in the curricula of African tertiary education. Britz, Mutula & Ocholla (2009) in their strategic plan for information ethics integration in Africa's tertiary education envisaged creating a long term partnership between the University of Wisconsin-Milwaukee (USA), the University of Botswana & the University of Zululand (South Africa). The partnership would facilitate curriculum development and faculty training for library and information science schools in Africa. The partnership would also focus on information ethics as an interdisciplinary field dedicated to critical reflection on moral values and practices related to production, storage, and distribution of information, as well as the related information systems, infrastructures, and policies that are embedded in modern culture and society.

The importance of integrating information ethics into the curricula for Africa cannot be over emphasised. Information ethics would enable information professionals to engage in ethical reasoning by determining what is wrong or right in a dilemma situation. Capurro (2010) states that information ethics opens up space of critical reflection for all stakeholders on established moral norms and values. It also serves as a catalyst for a social process and is a space for retrieving the rich African cultural memory necessary to our field. This cultural memory permits reshaping African identities and contribute to the world's information and communication cultures. Mutula & Raseroka (2006) noted that in most parts of sub-Saharan Africa and more so in Southern Africa, children up to the ages of 15 are left out when information services and programs are designed or provided. The children in Africa often graduate into adulthood without acquiring the necessary information seeking skills. This is exacerbated by the fact that there is a general lack of reading culture in Africa (excluding reading for passing examinations) and the threat that this poses could be costly particularly with regard to the inability for the African society to fully harness the emerging information society whose component is independent access and use of information for socio-economic development. The lack of a culture of reading has a negative impact on the exploitation of available accurate information that influences per-

sonal attitudes and behaviors towards life issues such as the HIV/AIDS pandemic. Yet, young people in the whole of Africa have the potential to become the engine that helps create the information society and catalyse the attainment of Millennium Development Goals (MDGs).

Ocholla (2009) is of the view that information ethics integration in the curriculum would support information professionals in their understanding and development of ethical values and morals with regard to protection (privacy & confidentiality). This would also create professional identity built upon information value systems, allow professionals to understand today's information and knowledge driven society, enable them understand the intricacies of access to information, etcetera. It is also expected that once information ethics is integrated into the curricula, information professionals in Africa would be better prepared to participate in debates surrounding information ethics thus, allowing their fuller engagement in Africa's economic, social and political development. Britz & Buchanan (2009) are of the view that as information professionals, we have a responsibility to provide unfettered access to information thus, promoting intellectual freedom and rights to information. Besides, information retrieval systems, digital libraries, web 2.0, and other have democratized creation, storage and dissemination of information using technology that lack neutrality but biased by culture, ideology, and temporality. They conclude that understanding cultural ethics is important because intercultural ethics allows us to consider the global nature of information work. Furthermore, equipping information workers with information ethics would enable information mediators in verifying quality, and accuracy of information to clients.

Information ethics integration in the curriculum has become more important than before because of transformative government that are being implemented the world over, using ICTs. Through e-government implementation, many jurisdictions expect to advance democracy, good governance, transparency and accountability (United Nations, 2008). Most governments are now enacting ICT policies that put the people at the centre of state operations to enhance socio-economic and political development. With increasing implementation of e-government across the world, moral issues relating to this phenomenon must be addressed because e-government implementation raises several ethical issues such as usability of system/service; system security; systems interoperability; intellectual property rights; freedom of information; universal ac-

cess; privacy and more. Carbo (2007) observes that these issues arise because governments collect and store a lot of information on citizens and private enterprises such as corporate filing, tax and regulatory information. However, little attention is being paid to these ethical aspects and others such as whether people trust e-government or how the cultural differences affect individuals' trust in government and their perceptions of how government affect their human dignity.

Ethical violations in governance have been of concern for proponents of good governance and advocates of respect for human rights. In developing countries, cases of poor governance, limited press freedom & free speech, regulated economic environments, poor accountability and service delivery are often reported. Neumayer (2006) notes that good governance encompasses political legitimacy, administrative accountability, financial accountability, transparency, openness, and the rule of law. Transparency as a major component of governance means that decisions taken and their enforcement are executed based on clearly stipulated rules and regulations that are known to all stakeholders. Democracy another important aspect of good governance entails free and fair elections, protection of minorities, the rule of law, separation of powers, and protection of civil liberties (Raafflaub et al., 2007). In a democracy the supreme power is vested in the people and exercised by them directly or indirectly through a system of representation. Taken further, modern democracy is founded on the principle of Universal Human Rights where the will of the people is the basis of the authority of government (Hamelink, 2003). The tenets of good governance such as accountability, transparency and respect for human rights therefore need to be promoted in the curriculum as ethical values in order to ensure that human dignity and fundamental human rights are appreciated and practiced by the populace. The government as the major actor in the governance process must create an enabling environment for citizen participation in the decision making process and service delivery systems. When principles of democratic governance are not exercised legitimately or transparently by the authorities as often happen in most African countries, ethical values are violated. Ethical values in e-government would also include promoting principles that espouse creative multilingual content and universal access to information and communication technologies in order to address the problem of information poverty in Africa (Mutula, 2008).

E-government environment needs a legal oriented framework necessary to cater for cyber laws, consumer protection, and the security of transactions (Department of IT eTechnology Group -India, 2003). A consumer protection framework would deal with uncompetitive behaviour in the market and create a level playing field for all businesses. OECD countries have developed guidelines for consumer protection in the context of e-commerce that provide a solid base for consumers to receive the same level of protection when they shop online as they would if they bought from a local store. Besides, OECD, the European Union member states have on their part taken measures to ban the sale of inaccessible technology products while enhancing the growth of assistive technology. National strategies of member states emphasise interoperability of products, universal service policies for electronic communications, affordable pricing of network, and interactive content. In 1999, the European Commission launched the eEurope initiative which among other things recognized accessibility for disabled users such as the blind, deaf people or people with learning impairments. Governments in the EU member states are encouraged to cater for disabled people when they launch national initiatives in the framework of eEurope (European Commission, 2005).

Koren (1997) in a published study, *Tell Me! The Right of the Child to Information* concludes that the right to information is a fundamental human right, which is crucial to human development and...important for...every human being. UNESCO (2008) is explicit about commitment to the free flow of information and access to knowledge sources ... for "*the wide diffusion of culture, and the education of humanity for justice and liberty and peace...*" Mason (1986) is of the view that information forms the intellectual capital from which human beings craft their lives and secure dignity. Consequently, people's intellectual capital is impaired whenever they lose their personal information without being compensated for it, when they are precluded access to information which is of value to them, when they have revealed information they hold intimate, or when they find out that the information upon which their living depends is in error.

Britz et al. (2009) note that information ethics provides the appropriate lens for dealing with a wide range of ethical problems and challenges facing Africa. The integration of information ethics in the curricula of African education could help address the onslaught of western cultural cinematography and international intellectual property models. The

current information society dispensation that is information driven requires ability to sieve through plethora of information resources to identify what is accurate, appropriate and relevant. Besides, digital divide in Africa is pervasive and creates many other inequalities that infringe on the rights of individuals. Through access to information, citizens can be equipped to participate in democratic governance through effective participation in elections, engaging their governments and participating in economic development. Lack of access to information creates poverty and social inequality.

Theoretical Framework for IE Integration in the Curricula

The concept of information ethics is yet to be understood and appreciated in African scholarship as reflected by the lack of research and publications on the subject. This fact is reiterated by Capurro (2010) who notes that information ethics in Africa is a young academic field and not much has been published on the role that African philosophy can play in thinking about the challenges arising from the impact of ICT on Africa societies and cultures. Yet, in developed world especially, in North America and Asia, information ethics integration in the curricula has been embraced (Buchanan, 2004; Ocholla, 2008; Vagaan, 2003). Froehlich (2005) describes information ethics as an interdisciplinary field of study dedicated to the critical reflection on the ethical values and practices related to the production, storage and distribution of information as well as the related information systems, infrastructures, and policies embedded in modern culture and society. Capurro and such other scholars as Luciano Floridi, Stephen Almagno and Robert Hauptman (Ocholla, 2008) are credited for playing a leading role in anchoring information ethics discourse in library and information science discipline. Capurro (1998) however, acknowledges that information ethics has grown and extended into other disciplines such as computer science, management information systems, mass media, journalism and law. To him, information ethics embraces relationship between information and human rights and responsibility, including ethical issues of information production, information collection and classification, information access, information dissemination, information law and policy.

Despite its pioneering place in LIS, information ethics epistemology resides in applied ethics which provides the basic theoretical framework on which

the pedagogical foundation and practice of the subject can be constructed and applied. Information ethics pervade systems where information or any other form of content is generated, stored, communicated, applied and owned. In this context, Ocholla (2009) citing (Fallis, 2007) identifies some of the theories underpinning information ethics as: consequence-based and rights based theories. Consequence-based theories are founded on utilitarianism and posit that 'what distinguishes right actions from wrong actions is that they actions have better consequences. In contrast, rights-based theories operate on the premise that 'the right thing to do is determined by the rights that human being has'. Besides, duty-based theories also called deontological theories are relevant in understanding the subject of ethics. The word Deon is Greek which basically means duty or obligation. The main proponent of this ethical theory was the German philosopher Immanuel Kant (1724–1804). Kant believed that there are higher principles that are good in every time, every culture, and every situation. When faced with an ethical dilemma, he believes we should ask ourselves: "To whom do I owe a duty and what duty do I owe them?" To answer these questions, Kant proposed that we use reason to identify the higher principles we should live and act by. He named two principles, or categorical imperatives, that would guide all our actions in this ethical framework: Universal applicability & respectful of others. He observed that we should not act one way in some situations or with some people and another way in others. Our actions should be consistent across the board. With regard to respectful of others Kant's view is that, the fact that human beings can reason gives us greater value than anything else. Never treat people as a means to an end, even if you believe the ends are positive.

The other underpinning theory in information ethics is Utilitarianism which promotes the idea that actions are judged right or wrong according to the amount of happiness that comes from those decisions (Moore, 1988). Consequently, an individual makes decisions according to which one would provide the greatest good for the greatest number of people. Utilitarian theory believes the end justifies the means. The ethics theory (Fallis, 2007) distinguishes right actions from wrong actions. It posits that there are ethical duties that human beings must obey regardless of the consequence. Besides, the right thing to do is determined by the rights that human beings have, as enunciated by UN Declaration of Human Rights (Carbo, 2007) such as love, affection, kindness, gentleness, warm-heartedness, and human dignity. Egoism is another theory that

could be used to explain information. It posits that right and wrong is based on the consequences to self. Choice is for purpose of putting self interest ahead of anything else. Weakness of this theory is that it can lead to unethical behaviour as long as it satisfies one's ego. It may promote infringing on the rights of others for selfish ends. Collectively, these theories discussed here and others should be interrogated by scholars to determine perspectives of information ethics integration in Africa's tertiary education.

Ocholla (2009) observes that the problem with most of theories of ethics is the difficulties faced in their applications particularly because of what he perceives as the contradictions one encounters when attempting comparisons. He argues for example, that the interpretation and implementation of rights across communities around the world is not uniform. For instance, marginalized groups such as children, women, people with disabilities, and others discriminated against on account of race, creed, religion, social status, age, etc may not necessarily benefit from human rights that others enjoy. These challenges may be even more pronounced when applied to the African environment with many cultures, tribes and ethnic groups. In this case African philosophy of *ubuntu* may need to be explored in the context of how it can inform the information ethics curricula for Africa. *Ubuntu* is a concept widely used among bantu speaking groups in east and southern Africa which translated means 'we are people because of other people' and 'I am who I am because of who we all are' (Ocholla, 2008). Ramose (2002) adds that *ubuntu* is a central concept of social and political organization in African philosophy and emphasizes sharing and caring for one another. Brannigan (2005) refers to it as 'to be is to belong'.

Potential Sources of Information Ethics Content

As dialogue about integrating information ethics in the curricula in Africa among scholars intensifies, the issue of content need addressing. The issue of content for information ethics curricula has not been systematically addressed. Ocholla (2009) in a study of information ethics education and training identified lack of well defined content as a major challenge. The African philosophy along with the ethics theories discussed above may provide a good starting point for developing content for the information ethics curricula. Capurro (2010) observes that there is a long history of information ethics in Africa

especially, with regard to oral and written traditions. In this regard, further interrogation of the *ubuntu* philosophy may provide a framework for developing information ethics curricula that is relevant for Africa. From the international perspective, the World Summit on Information Society (WSIS) Principles of Declarations expect nations to take specific actions toward improving access through, encouraging linguistic diversity, multiculturalism, promoting development of local content; preservation of cultural collections and documentary records; harnessing indigenous knowledge; connecting public libraries, cultural centres, museums, and adapting all primary and secondary school curricula to the needs of information society (WSIS, 2003, 2005). These perspectives on WSIS provide a framework for developing information ethics content.

Besides WSIS, Millennium Development Goals provide another framework for designing information ethics curricula from the development perspective. Lack of development leads to poverty or vice versa and this infringes on the basic rights of the people. *UN Secretary-General Ban Ki-moon says in the foreword to Millennium Development Goals Report 2010 that 'It is clear that improvements in the lives of the poor have been unacceptably slow, and some hard-won gains are being eroded by the climate, food and economic crises'* (United Nations, 2010). The Millennium Development Goals (MDGs) are the most broadly supported and specific development goals worldwide. The eight time-bound goals provide benchmarks for tackling extreme poverty in its many dimensions. The goals include targets on income poverty, hunger, maternal and child mortality, disease, inadequate shelter, gender inequality, environmental degradation and the Global Partnership for Development. The MDGs are both global and local, and provide a framework for the entire international community to work together towards a common end – making sure that human development reaches everyone, everywhere. If these goals are achieved, world poverty will be cut by half, tens of millions of lives will be saved, and billions more people will have the opportunity to benefit from the global economy.

Capurro (2005) observes that information ethics is both descriptive and emancipator approach. As a descriptive theory it explores the power structures influencing information attitudes and policies in different cultures and contexts and reveals information harms that emerge as a consequence. As an emancipator, it develops normative criticisms of attitudes and practices in the information field at an individual and collective level and provides norma-

tive guidelines to help mitigate the concerns identified in the descriptive stage. Capurro further states that information ethics can reveal the power structures that intertwine information professionals, knowledge workers and consumers in the African context thus, exposing the obligations and challenges faced by all members of the African information society. Information ethics can also provide normative guidelines to address and reduce the information harms and create a framework to protect the politics, culture, industry and economy of African nations, and support the development of a morally or ethically sensitive, sound and responsible information society within Africa. The Tshwane Declaration code of ethics for the information society referred to earlier, as well as, the African network for Information ethics platform and the African reader on information ethics can also serve as important sources of content as are principles of good governance and democracy.

Mason (1986) identifies four main ethical issues in an electronic age that may be desirable to cover in an information ethics curricula. These include: privacy (What information about one's self or one's associations must a person reveal to others, under what conditions and with what safeguards? What things can people keep to themselves and not be forced to reveal to others?); accuracy (Who is responsible for the authenticity, fidelity and accuracy of information?); accountability (Who is to be held accountable for errors in information and how is the injured party to be made whole?); property (Who owns information? What are the just and fair prices for its exchange? Who owns the channels, especially the airways, through which information is transmitted? How should access to this scarce resource be allocated?) and accessibility (What information does a person or an organization have a right or a privilege to obtain, under what conditions and with what safeguards?).

Challenges of Integrating IE into the Curricula in Africa

Several challenges stand in the way in developing an information ethics curriculum for Africa. With respect to access to information and communication technology, interoperability is technical issue that needs addressing because in the information age, access to systems is critical to enhance access to content. Interoperability of systems therefore becomes critical. It refers to the ability of information and communication technology systems and that of

the business processes they support to exchange data and to enable sharing of information and knowledge (European Commission, 2004).

Country reports presented at the e-government and information ethics conference held in Magaliesburg South Africa in 2009 revealed several challenges that must be addressed if integration and subsequent teaching of IE has to be successful. These challenges relate to lack of enabling policies, poor ICT infrastructure, and bad governance. For example in a country such as Eritrea which emerged from war with Ethiopia, the government is cautious about releasing information lest it falls into wrong hands. To get information in the custody of the relevant government ministry is not easy as Eritrea has yet to enact freedom of information law. Even when permission is granted, the information storage and retrieval systems are dysfunctional. Eritrea also has no private press thus, negating freedom of speech and press. Eritrea also suffers from poor roads, health, energy and education facilities (with literacy level estimated at 50%) necessary for promoting democratic practices. Eritrea also suffers from rampant poverty (E-Government Workshop, 2009).

Swaziland like Eritrea suffers from information related challenges that are of ethical nature. The country lacks cyber law to enhance transacting business online. Besides, as a kingdom, information about the state is highly regulated and freedom of speech and press is not guaranteed. Swaziland has also banned political party activities and freedom of assembly is confined to constituencies where political parties have a presence. Swaziland also faces poor infrastructure especially, in the rural areas where majority of the people live. These people remain largely unconnected from the rest of society due to the digital divide. Citizens are also generally not aware of their rights and obligations consequently, they have inadequate capacity to bring their governments to account. Both Eritrea and Swaziland suffer from rampant corruption in government (E-Government Workshop, 2009). Like Eritrea and Swaziland, Egypt scores poorly on freedom of expression. Government officials beat Ahmed Maher Ibrahim, a 27-year-old civil engineer for using Facebook to support calls for a general strike on May 4, 2008-President Mubarak's 80th birthday. The lack of democracy infringes on the rights of the people many countries fail to involve the public in electronically-enabled decision-making processes because politicians fear that e-democracy may result in a loss of power (Mahrer and Krimmer, 2005).

In contrast to Eritrea and Swaziland, Botswana enjoys relative freedom of speech and free press. Besides, the government practices by and large democratic principles. However, the country faces some challenges that may border on infringement of ethical principles. Government has proposed a bill that aims to regulate the media. Additionally, government set up intelligence service agency in 2007 which citizens complain, it spies on people's privacy. Botswana also lacks community radios that would help effectively harness local content. In South Africa the government enacted freedom of information act which makes it possible for citizens to request and access information in custody of government. Government however, suffers poor reputation because of corruption, reported cases of censorship of public broadcaster, poor service delivery, low literacy levels, poverty of majority of its citizens, and interoperability challenges of different IT platforms making sharing of information cumbersome. The rest of African countries fall in the extremes of Eritrea and Swaziland or the progressive ones such as Botswana and South Africa.

Rotberg (2007) observes that E-government in Africa is unlikely to score highly on citizen trust. This is because by and large, e-government is still in the confines of government enclaves. While information on the "who is who" in the ministry, its organizational structure and mission will often be abundantly available, the average website will not have public service information, for instance on how to go about applying for a particular service, who the right office/ person to approach is, and where on the website to download and even electronically submit these application forms. The Ibrahim Index on African Governance reported the difficulties that were faced in collecting secondary data from government websites saying 'not all African countries have websites and where they do, they may not post useful data' (Rotberg, 2007:20). Often one finds that most e-government websites are designed on the basis of one-size-fits-all. This often creates a situation where some information may be perceived as offensive to some groups of people thus, creating distrust. Ocholla (2009) identified the following challenges of integrating information ethics in the curriculum in Africa including but not limited to: lack of capacity, the already bloated curriculum to accommodate new programmes or courses, and lack of awareness of the importance of information ethics by scholars.

In integrating information ethics in the curricula the other challenges that must be overcome include access and accessibility –digital divide and the

ethical consequences of social exclusion. Furthermore, technology offers opportunity for wrong doing i.e. hacking, viruses, high cost of access, restrictive intellectual property rights, limited freedom of expression and censorship; lack of FOI; policy vacuums; intrusiveness of information; rapid technological development and danger of social exclusion. Despite these challenges, Africa has the potential to embrace information ethics and integrate it in the education curricula. Most countries are practicing some form of democratic governance with free press and freedom of assembly. Various technologies such as radio, TV, cordless telephones (Eritrea), VSATs, solar panels, etc are being applied to overcome digital divide. Efforts are being made to implement e-government (in most countries), establish data protection legal framework (South Africa) and introduce freedom of information (South Africa, Uganda, Zimbabwe, Kenya, etc). Scholars must continue on researching on issues of information ethics and pointing out where corrective measures are needed.

Conclusion

The author sought to demonstrate the growing importance for information ethics curricula in Africa. The efforts being made by scholars in Africa and abroad to mainstream information ethics in the curricula were outlined. This was followed by rationalizing why information ethics deserves to be mainstreamed into the curricula in Africa. Theoretical underpinning for IE was explored and the challenges for integrating in the curricula elucidated. The author noted that despite efforts being made to grow IE in Africa, the continent was trailing its counterparts especially Europe and North America with regard to the level of IE integration in the curriculum. Africa's IE content would be drawn from *ubuntu* philosophy, IE theories, WSIS principles of declaration, MDGs, UN Declaration of Human Rights, the African network for Information ethics platform, and the African reader on information ethics. For IE to be successfully mainstreamed into the curriculum, a number of challenges would have to be overcome such as: digital divide; interoperability of systems issues; lack of enabling policies, poor ICT infrastructure, and bad governance. Despite these challenges, Africa has the potential to integrate information ethics into the curricula as most countries are moving toward democratic governance with free press and freedom of assembly. Besides, various appropriate technologies such as radio, TV, cordless telephones, VSATs, solar panels and others are being applied to overcome digital divide. Moreover,

efforts are being made to implement e-government in most countries and establish data protection legal framework. Scholars must however, continue researching on issues of information ethics in order to identify and point out where corrective measures are needed.

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Coetzee Bester:

Reflections On 2011 ANIE Activities Towards Teaching Information Ethics in Africa

Abstract:

This short report on the 2011 ANIE activities towards Teaching Information Ethics in Africa reflects the work that has been done by many dedicated academics and officials.

Agenda:

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Progress in the ANIE activities	40

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Background

ANIE met in Botswana towards the end of 2010 and decided on a number of important steps to enhance the level of awareness about Information Ethics on the African continent. These steps would include research and teaching by various academic colleagues on Information Ethics on the African continent. The major factor for ANIE in this regard is probably the decision to focus on the immediate research on a standardized curriculum to teach Information Ethics at various universities in Africa. A list of 12 participating universities has been compiled and our colleagues at these Universities are now waiting for guidance from ANIE.

Resources for the ANIE activities

For the purpose of this short report it is important to take note that the work that ANIE envisage during the next 36 months will have a huge cost implication that the participating Universities will not be able to pay. It was therefore decided that ANIE will formally approach a number of funding partners to assist in this regard. During the past few years ANIE built a good relationship with UNESCO and the South African Government via the Department of Communications (DoC). We therefore again approached these institution for financial assistance. UNESCO already indicated their positive involvement in specific projects. The feedback from the DoC was also positive and they indicated that a formal Memorandum of Agreement (MoA) should be signed by all role players. Based on the ANIE decisions in this regard the MoA will be signed between the University of Pretoria and the Department of Communications in South Africa. This agreement will bring the necessary resources to the ANIE table and ensure sustainability in the objectives for the next 3 years. The final documentation is negotiated at the moment and the signing of the MoA is expected to take place before the end of February 2011.

Progress in the ANIE activities

ANIE can report on a number of 2011 activities. These include:

- The University of Pretoria appointed an Extra Ordinary Lecturer who will (as the Executive Di-

rector) coordinate the ANIE activities. The University also allocated offices on campus for the ANIE activities.

- The mentioned Memorandum of Agreement will allocate sustainable resources to the ANIE activities for a period of 3 years.
- A Yale Law School workshop on Access to Knowledge (A2K) took place during January 2011 at the University of Cape Town in South Africa. ANIE participated in this workshop and reported on the objectives towards teaching Information Ethics in Africa.
- An African Multi Stakeholder Forum meeting will take place on 24 and 25 February 2011 in Johannesburg. This event is organised by the South African Government and will reflect on various matters of e-Governance, ICT and Information Ethics on the African continent. During this event ANIE will table the detail of the mentioned MoA as well as the objectives towards Information Ethics in Africa for the next 3 years.
- A research workshop on Information Ethics will take place at the University of Pretoria between 4 and 8 July 2011. This workshop is devoted to a high-level academic interdisciplinary research and discussion on curriculum development on ethical issues dealing with the impact of ICT on African societies. It will elaborate an Africa-oriented teaching structure and content as well as a research agenda on information ethics based on the needs of African societies with special regard of developing issues.
- UNESCO already allocated critical funding for the July research workshop.

Based on the outcome of the mentioned MoA and following on the results of the July 2011 research workshop the detail of the curriculum development process will be available. The curriculum development process will then focus on the content and research towards the curriculum for teaching Information Ethics in Africa. ANIE hopes to be able to report soon thereafter on the role-out plan to implement the teaching of Information Ethics at the identified 12 universities in Africa.

Bernardo Sorj and Mauricio Lissovsky:

Internet in Brazilian Public Schools: Policies beyond Politics¹

Abstract:

This article examines the use of computers and the internet in Brazilian Public Schools. It observes the broad use of the new technologies and argues that the mainly political decision to do so must now be translated into responsible policies in both the use of resources and the goals they are meant to support, maximizing benefits and minimizing waste.

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Introduction

Computer distribution programs are now present in the school systems of virtually every country, including the poorest. If there is a rationale behind these programs, it is certainly not to be found in studies or impact assessments of how computers and the Internet might be used as tools to improve instruction. In most developing countries, systematic impact assessments are nonexistent, while studies carried out in developed countries are contradictory: in some, the outcomes are found to be positive; in others, neutral; and in some, negative.¹ Even when a positive impact is found, it cannot be separated from the educational context in which the study was performed, with properly trained teachers, the use of monitored software, and adequate maintenance and support systems for school computer labs.

Our intention is not to denigrate computer distribution programs, but simply to observe that they are politically motivated, products of the Zeitgeist, which leads low-income families to make sacrifices so their children can study in private schools, schools that claim to practice “advanced teaching

methods” that include the use of computers. The fact is that the “computers for all” platform is a vote winner, as was the case during the latest elections in Uruguay, or this year in Argentina, where the Conectar (Connect) program has been widely publicized through a typically election-centered marketing campaign.

We still know little, very little, about how the cognitive abilities of current and future generations will be shaped by new information technologies, whose impact includes, but greatly exceeds, the school system.² There may be cognitive gains as well as losses, as when previous revolutions reshaped the technologies we use to store and share knowledge. In the short term, new technologies pose great challenges to our education systems, compounding a state of crisis that predates the Internet and involves the relation of authority between teachers and students, as well as the growing demand made by families that each student receive individualized attention—not to mention “civilizing” transformations around values such as discipline or hard work.

The issue to consider, then, is not whether computers should or should not be adopted; that decision has already been made. Politics must now be translated into responsible policies in both the use of resources and the goals they are meant to support, maximizing benefits and minimizing waste.

Computers, for What?

In the 1990s, the first government programs for school computers were aimed primarily, though not always explicitly, at digital inclusion, under-

¹ Learning Point Associates provides a number of studies online: <http://www2.learningpt.org/catalog/>. For a good summary of evaluations carried out through 2005, see “Critical Issue: Using Technology to Improve Student Achievement.” <http://www.ncrel.org/sdrs/areas/issues/methods/technology/te800.htm> (retrieved March 6, 2011). The major studies carried out in the 1990s were summarized by John Schacter in “The Impact of Education Technology on Student Achievement: What the Most Current Research Has to Say.” http://www.waynecountyschools.org/150820127152538360/lib/150820127152538360/impact_on_student_achievement.pdf (retrieved March 6, 2011). The argument that new technologies require a radical change in teaching methods in order to be effective is proposed by Clayton Christensen, Curtis W. Johnson, and Michael B. Horn, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*. New York: McGraw-Hill, 2008.² There are countless studies on the impact of the Internet on young people. See, for example, John Palfrey and Urs Gasser, *Born digital: Understanding the First Generation of Digital Natives*. New York: Basic Books, 2008. And for Latin America, see Fundación Telefónica, *La Generación Interactiva en Iberoamérica — Niños y adolescentes ante las pantallas*. Madrid: Editora Ariel, 2008. Regarding the broader impact of the Internet on society, opposing perspectives can be found in equal number. See, for example, from the “optimists” camp, Manuel Castells, *Communication Power*. Oxford/New York: Oxford University Press. And also, Yochai Benkler, *The Wealth of Networks*. http://cyber.law.harvard.edu/wealth_of_networks/Download_PDFs_of_the_book (retrieved March 6, 2011). A more critical perspective can be found in David Singh Grewal, *Network Power*. New Haven, CT: Yale University Press, 2008. Jonathan Zittrain, *The Future of the Internet and How to Stop It*. New Haven, CT: Yale University Press, 2008. And Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains*. New York: W. W. Norton, 2010.

² There are countless studies on the impact of the Internet on young people. See, for example, John Palfrey and Urs Gasser, *Born digital: Understanding the First Generation of Digital Natives*. New York: Basic Books, 2008. And for Latin America, see Fundación Telefónica, *La Generación Interactiva en Iberoamérica — Niños y adolescentes ante las pantallas*. Madrid: Editora Ariel, 2008. Regarding the broader impact of the Internet on society, opposing perspectives can be found in equal number. See, for example, from the “optimists” camp, Manuel Castells, *Communication Power*. Oxford/New York: Oxford University Press. And also, Yochai Benkler, *The Wealth of Networks*. http://cyber.law.harvard.edu/wealth_of_networks/Download_PDFs_of_the_book (retrieved March 6, 2011). A more critical perspective can be found in David Singh Grewal, *Network Power*. New Haven, CT: Yale University Press, 2008. Jonathan Zittrain, *The Future of the Internet and How to Stop It*. New Haven, CT: Yale University Press, 2008. And Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains*. New York: W. W. Norton, 2010.

stood as "teaching children without home access how to use computers." The assumption was that a digital divide was developing between children who had computers at home and those who did not. The goal was to offer children access to computers at school, where they could practice and develop the ability to use them as a tool.³

Although access to computers and the Internet has increased tremendously in recent years, a significant number of low-income children still do not have a computer at home. Despite the growth of Internet cafes (*LAN houses*), which are also present in low-income neighborhoods, and despite the current generation's ability to develop digital literacy by "osmosis," the argument that a percentage of low-income youth have little or no access to the Internet continues to be valid. But if "digital inclusion" is the objective, we should think carefully about the best way to achieve it. Certainly a project like Uruguay's Ceibal Plan,⁴ which distributes one computer per school-age child (beginning with the country's inland regions), is the best way to achieve the goal of universal inclusion.

The focus of computer distribution in public schools has shifted, however, from digital inclusion to improved instruction. Beyond digital inclusion, school computer programs can actually serve five different functions that are interrelated to a certain extent: 1) as a means of improving the administrative structure of the school system, facilitating contact among superintendents, principals, and teachers; 2) as a tool for teachers to complete in-service training and continuing education programs; 3) as a way for schools, teachers, and parents to communicate, as well as a means of enrollment; 4) as a way for teachers and students to communicate; 5) as a teaching and learning tool both inside and outside the classroom.

Each of these five facets calls for constant assessment, although the handful of existing impact studies has tended to focus only on the last one. The assumption is that these programs will boost school system quality, making it possible to overcome the problems faced by public education in

Brazil. Rather than speculating about it, this assumption should be properly monitored so that the necessary measures can be adopted to achieve the desired results. The issue to consider is how to evaluate the impact of these programs.

How to Evaluate?

Studies that analyze the impact of computers in the classroom usually compare groups that use computers with those that do not. Although a necessary aspect of any evaluation, this is clearly insufficient. The primary reason is that, in addition to the difficulty of eliminating other variables (for example, teachers who are willing to use new technologies usually have a higher level of personal motivation), the mere introduction of computers is seen as the main condition for success, without considering the presence of technical support and teachers who are adequately trained to use the new equipment. As confirmed by both the limited literature on the topic and our own research, this is not the case. The introduction of computers is simply a link, and usually the least difficult and burdensome to implement, in the chain need to ensure that the outcomes of computer use are positive. This chain includes:

- a) A system of technical support to ensure that computers are properly maintained, constantly updated, and supplied with peripheral material such as paper and ink for printers (and the money needed to make such purchases).
- b) Ongoing teacher training in the use of educational programs and software.
- c) Websites with constantly updated material, educational programs, and online support for teachers and students.
- d) Adequate communication among superintendents, principals, and teachers.
- e) A new course on "How to Use the Internet Critically" added to the curriculum, or at least incorporated as a theme across the curriculum.

If one of these links malfunctions, as in any production line, the pace of the operation as a whole will be affected. As demonstrated by a recent World Bank study in Colombia, disappointing outcomes in school computer programs may be the results, in large part, of earlier links in the chain rather than the classroom itself.

³ This was judged to be the initial impact, for example, of the Enlaces (Links) program of the Chilean Education Ministry (personal interview by the coauthor [BS] with team members). According to the interviewees, even in 2006, 60% of students had Internet access only at school.

⁴ <http://www.ceibal.edu.uy>

Table 1: Schools by Region

	N	%
Barra	95	20.0
Center	87	18.3
North	129	27.2
West	105	22.1
South	59	12.4
Total	475	100

This article represents an initial attempt to analyze the current situation in Brazil's public school system, focusing on Rio de Janeiro as a case study. It points to significant shortcomings in all the essentials of a properly functioning system. The Brazilian school system faces a long period during which its teaching staff will operate at two different speeds: those who are interested and willing to experiment with new technologies and those who feel threatened by them to the point of boycotting any form of innovation. This issue will be explored in the article's conclusion.

Methodology

The study focused on the practices and opinions of teachers in order to map current patterns of Internet usage in the Rio de Janeiro school system.⁵ A particular effort was made to identify obstacles and dead ends that would hinder the productive pedagogical use of this tool for information and communication. Over the course of 2009, three distinct research approaches were developed: a) an online survey on the website of the Municipal Secretariat of Education (Secretaria Municipal de Educação—SME), answered by a statistically controlled sample of teachers from the district; b)

two focus groups, one with teachers and another with administrators (coordinators and principals); c) observation of the daily routine of computer labs in four city schools. The results presented here summarize and attempt to tie together the conclusions drawn from the intersection of these three approaches.

The online survey was answered by 475 teachers from a group that was preselected through a random sample that accounted for the size of the school and its location in the city. The distribution is shown in Tables 1 and 2.⁶

The observation of computer labs was carried out in four schools in different regions of the city. Selection was based on lists provided by the SME in which labs were classified according to their level of use: high, average, or low (one, two, and one, respectively).⁷ The researcher spent one week in each lab, observing the behavior of teachers and students.

Regarding the focus group meetings, whose participants were also selected by the SME, the group of teachers was very homogeneous, consisting of 10 teachers (three men, seven women) with experience using computers at school. Several had earned graduate-level specializations in "educational computing," and all had completed one or more training courses through the secretariat. Some had even served as course "facilitators."⁸ Among the participants, only one was a classroom teacher (*professora regente*). The others were teachers who oversaw school reading rooms or computer labs, or who had been placed in "Education for Work" centers (Pólos de Educação para o Trabalho—PET). Two of the participants also held the position of Technology Adviser (Orientador Tecnológico—OT) in the state school network.⁹ One of them possessed advanced technical skills and was responsible for compiling software for school use. The group members agreed that their

⁵ We would like to thank the Overview Pesquisa company for its assistance in the gathering and cross tabulation of data.

⁶ We are aware that this study, which employed an online survey, runs the risk of teachers who are more familiar with the Internet and/or more motivated imposing their views on their "silent" colleagues. Notwithstanding, we believe that this concern, although relevant, did not significantly affect our results, since the criteria of regional representativeness and school profiling were satisfied.

⁷ The schools have been assigned the letters A, B, C, and D.

⁸ During the focus group, we were informed that the city had just over 100 teacher-trainers.

⁹ A support role assisting the adoption of information technology in state schools.

knowledge of computing and the Internet did not reflect a typical sample of teachers within the school system; still, they felt valued for being "heard," since they possessed extensive experience in the area.

For its part, the group of administrators (eight principals and coordinators, only one male) was much more heterogeneous. Some had been in leadership positions for more than a decade, whereas others had less than a year of administrative experience. Their familiarity with computers also varied considerably. Some coordinators maintained blogs and discussion lists, while there were principals who (apparently) preferred to delegate the use of administrative computers to a "subordinate" who "was better at it."¹⁰

Table 2: Schools by Size

	N	%
Large	112	23.6
Medium	255	53.7
Small	108	22.7
Total	475	100

For methodological reasons, these steps were carried out in the following order. First, the school laboratories were observed. The data collected during this stage were used to formulate the agenda of the focus groups. Finally, the evidence gathered during these stages was used to structure the questionnaire that was administered to teachers. This report takes a quantitative approach, using the focus groups and laboratory observation to illustrate, nuance, or attempt to better understand the research results.

¹⁰ In one of the laboratories that was observed, a teacher blamed the principal himself for the underdeveloped use of computers at the school: "[The principal] doesn't use computers, he writes everything by hand and asks them to type it for him"; he also posed the question, "How can a lab work well if the institution's own principal doesn't see how valuable computers can be?"

Respondent Profile

The group of teachers that responded to the survey was overwhelmingly female (90%) due to the predominance of first-segment teachers in our sample (those responsible for teaching first to fifth grade, referred to here as T2). They represented 63% of the total sample, while second-segment teachers (responsible for sixth to ninth grade, referred to as T1) represented 37%. Among T2 teachers, the predominance of female teachers is absolute (99%). Although there are fewer female T1 teachers, they still represent a significant majority at 73%. T2 teachers are concentrated in small schools (83.5%) and are a minority in large schools (40%). The number of male teachers in small schools is miniscule (4%), limited to physical education instructors.

Age was another relevant feature of the respondent group: 66% of teachers were 41 or older, with the largest contingent (43%) ranging from 41 to 50 years old. This age profile is significant because it indicates that the vast majority of these teachers had virtually no contact with personal computers during their childhood or adolescence. At the same time, 79% of respondents had children, half of whom were between 10 and 25 years old, meaning that they had daily contact with potentially frequent Internet users.¹¹

Of the teachers interviewed, 84% had earned a teaching degree, 25% had completed a graduate-level specialization, 4% had earned a master's degree, and 0.5%, a PhD. Regarding the area of study in which these degrees were obtained, however, 44% of the total were in education or related areas.¹² Of the entire sample, only 1.7% had earned a degree related to computing. Half of the respondents had only one municipal teaching license (*matrícula*) and no other form of employment. Of the remainder, 32% held a second municipal license; 13% worked in the state school system, which is responsible for secondary education; and 4% worked in the federal or private school system.

¹¹ The survey revealed that teachers who had children were more likely to have broadband Internet access at home (81% vs. 71%).

¹² This was an open-ended question. As responses related to teaching, we included administration, management, school planning and supervision, higher education pedagogy, education itself, early childhood education, special education, psychology, psychomotricity, and educational psychology.

Skills and Practices of Teachers vis-à-vis Computers and the Internet

Computer access was nearly universal: 98% of respondents stated that they owned a home computer, and 79% indicated that they had a broadband Internet connection. Only 16% used a dial-up connection, and only 5% did not access the Internet from home.¹³

Although the simple presence of a home computer does not guarantee its use, 93% of respondents were computer users, with widely varying levels of skill. Nearly all those who described themselves as users were familiar with word processing software (99%). The second most familiar resource involved the creation of slide shows (with software such as PowerPoint), used by 44.3% of respondents. About a third of the teachers also used image processing programs such as Photoshop (a surprising 33.9%), spreadsheets (31.4%), and image and sound editors (an even more surprising 30.3%). Skills such as website creation and online editing occurred in significantly smaller percentages (4.6% and 2.5%, respectively). Although the number of men in our sample was small, men were more likely than women to indicate proficiency in some of the tools just mentioned: PowerPoint (62% vs. 42%) and spreadsheets (45% vs. 30%). In general, the results indicate that the vast majority of

teachers are familiar with computers and related resources. The most relevant variable for this group was that of age: younger teachers (21 to 30 years old) were proportionally more likely to be technologically proficient, as shown in Figure 1:¹⁴

Access to and Personal Use of the Internet

More than half of the teachers (53%) accessed the Internet on a daily basis, with younger teachers (21 to 30 years old) doing so more frequently than the rest (76%). Only 9% accessed the Internet less than once a week, and only 2.8% stated that they never used the Internet. We can safely say that the older the teacher, the greater the chance of being a sporadic user or of never using the Internet. The percentage of men who accessed the Web daily was greater than that of women (62.5% vs. 52%).

Almost all who accessed the Internet did so from home (94.6%), but the

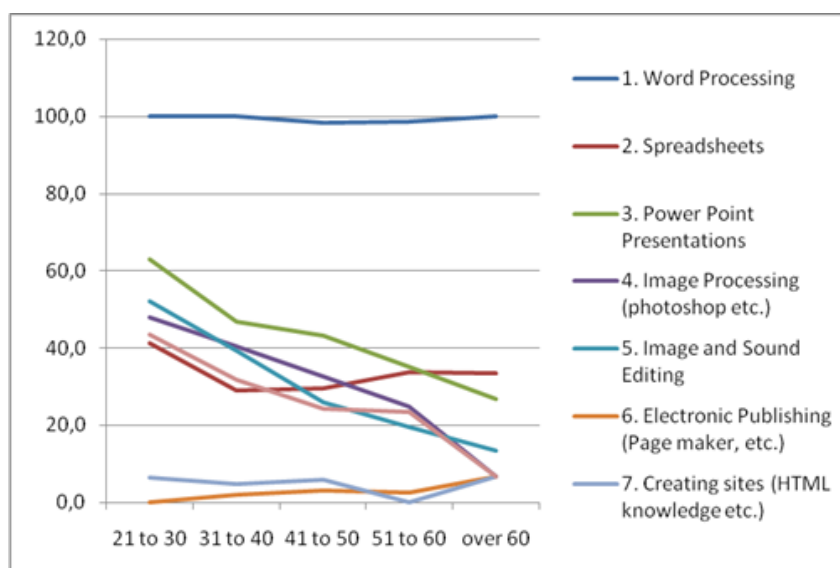


Figure 1: Computing Proficiency among Teachers (by Age)

school was also a frequent place of access for 37.6% of respondents. Teachers in small schools were more likely to access the Internet on a daily basis (58.3%), and they were also the group most likely to do so from school. Significantly, the more often a teacher accesses the Internet, the more likely he or she is to do so from the school in which he or she works, as shown in Figure 2:

¹³ It is possible that part of the explanation for the widespread dissemination of computers may be attributed to the Municipal Secretariat of Education's 2008 laptop distribution program for all teachers in the school system. At the same time, according to some research participants, the program was not fully able to meet its goals: some teachers chose not to claim their computer, whether because they feared it would be stolen or because they thought it would be used as a form of control.

¹⁴ Some surprising results may come from overestimating one's own knowledge. Yet although there are image processing programs that are quite simple, it would be hard to say the same for image and sound editing programs. However, regarding the question of "authoring CDs and DVDs," which was answered affirmatively by 27.3%, it is likely that the majority of these responses were based on the ability to copy CDs and/or DVDs, not exactly the ability to "author" them—i.e., creating menu pages, defining selection paths, etc. At any rate, the teachers' general familiarity with computers cannot be denied.

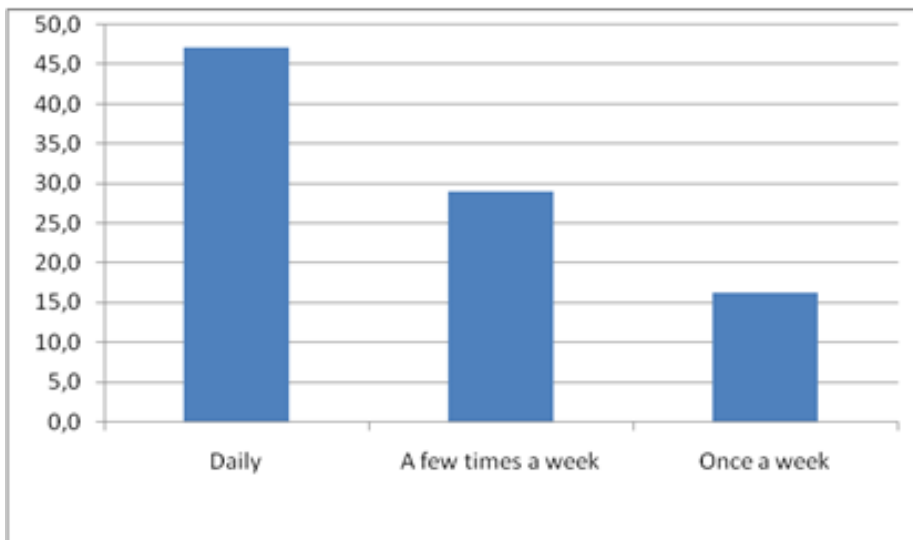


Figure 2 Teachers Who Access the Internet from school (by Frequency of Use)

Internet Usage Patterns among Teachers

Electronic mail and research were activities that more than 90% of respondents carried out online,

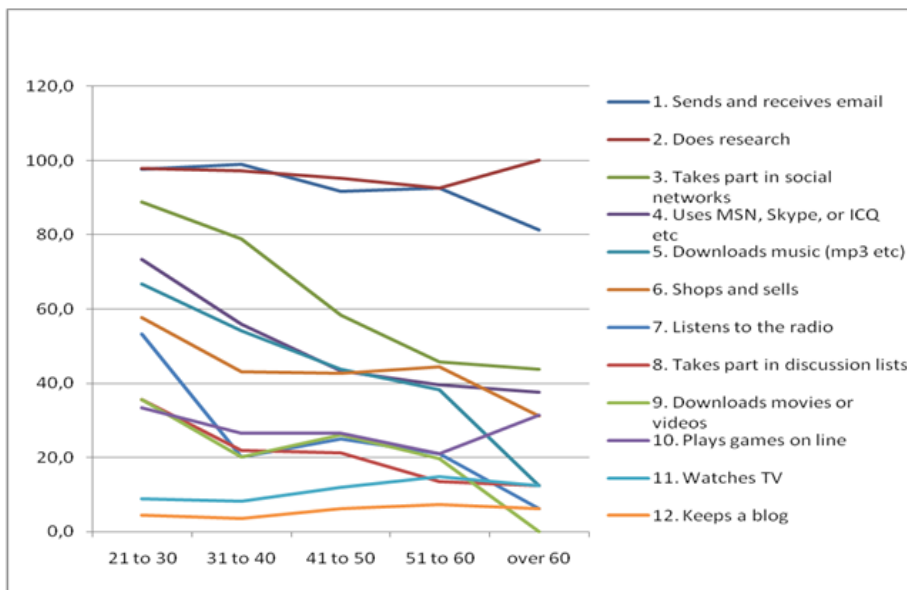


Figure 3 Internet Usage Patterns among Teachers (by Age)

and 60% participated in social networks. Communication tools such as MSN and Skype were used by nearly 50%, slightly more than those who made purchases or downloaded music. One in four teachers played online games or listened to the radio, and one in five downloaded movies or videos and participated in discussion lists. Only one in 10 watched television online, and one in twenty maintained a blog. Overall, the teachers appeared to be very familiar with the basics of the Internet (communication and information, social networks, etc.) and indicated in very significant numbers that they possessed advanced skills, although this decreased according to age.¹⁵

There is virtually no gender difference regarding basic Internet proficiency. Only two distinctions stand out: women participated in social networks more intensively than men (67% vs. 53%), while men downloaded more videos and movies (36% vs. 21%). A comparison by age is more revealing. Although activities such as email and research remained basically stable, almost all other activities decreased as the teacher's age increased (the exceptions were "games"

¹⁵ As of the focus group meetings, teachers and coordinators had been prohibited from keeping blogs or sites with their school's name. Efforts such as these, even ones that had been approved by the principal, had been "cut." According to some, the decision had been made by the Regional Education Office. This left many teachers frustrated because during their training sessions, they had been encouraged to create blogs with their students. Not even the reading room teachers were authorized to keep blogs as part of their teaching repertoire.

and "watching TV"), as can be seen in Figure 3:

A significant majority of teachers stated that they made use of the Internet for lesson planning (72%). Here as well the age of the teacher is greatly influential. The younger the teacher, the more likely he or she is to make use of the Inter-

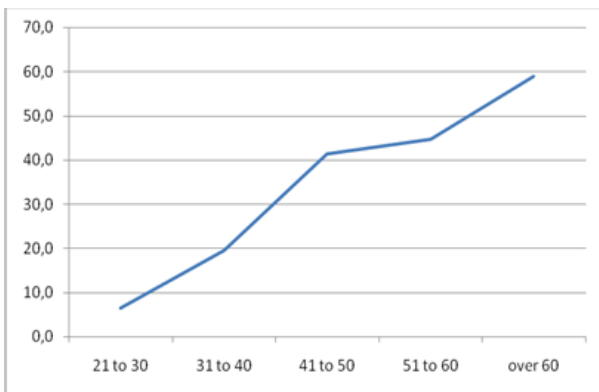


Figure 4 Teachers Who Make Use of the Internet for Lesson Planning (by Age)

net for lesson planning, as shown in Figure 4:

Impact of Educational Computing Courses

The teaching profession shows the same tendency as the majority of the population, in which the youngest age group uses computer technology more skillfully and frequently. Since 2000, however, the city of Rio has invested in programs to train its teachers in "educational computing." In the first two years, teachers received a bonus to participate in training courses, and training facilitators were also paid. In the teachers' focus group, the comment was made that "the majority" took the course just "for the money." After the attendance bonus was eliminat-

ed, the number of participants declined and, according to some, the quality of the course improved.¹⁶ Yet another reason was suggested to explain why the interest in computer training had declined: many teachers took the courses because they expected to be made responsible for the computer labs that had begun to be installed in schools. When this failed to happen, interest fell off, and those who had enrolled in the courses hoping to be promoted were left frustrated.

Of the teachers who were surveyed, one-third had already participated in training courses, with a higher ratio of T2 to T1 teachers (37% to 28%). Among those who had enrolled, the most common reason reported was "interest in gaining expertise" (96.7%), as shown in Figure 5:

Figure 6 shows that the percentage of teachers who enrolled in training courses increases considerably by age. This trend can be explained in part by the smaller class sizes resulting from the end of the attendance bonus in 2002, but the slope of the incline suggests that older teachers, with less computing proficiency, may have enrolled in the course to increase their personal skill level (and not only to qualify for a new position), while the youngest felt less need to do so.

As will be seen, participation in training courses

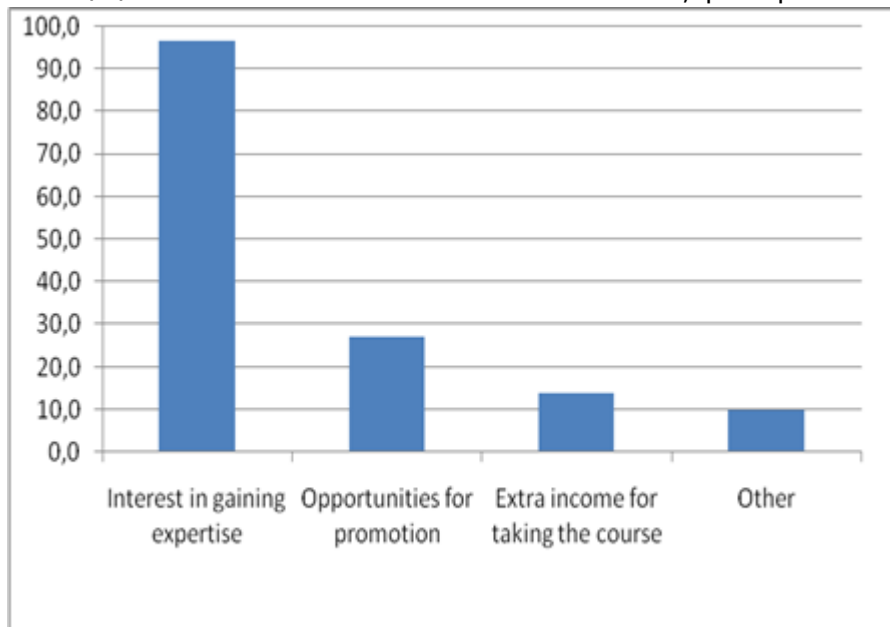


Figure 5 Reason for Attending Educational Computing Course

has a significant impact on the use of computer labs, particularly among T2 teachers, those responsible for the first segment. In the focus group, a mathematics teacher stated that the training sessions had helped her find ways to better develop her stu-

¹⁶ It was said that the system had been modified at the request of the teacher-trainers themselves, since those who were there "just for the money" hindered class performance.

dents' abstract reasoning skills, which had been her greatest difficulty. She recalled the example of a game, adapted by a local teacher, that simulated a bombing run. Instead of dropping "bombs," however, it drops "problems." As the students' performance improves, she increases the speed of the game.

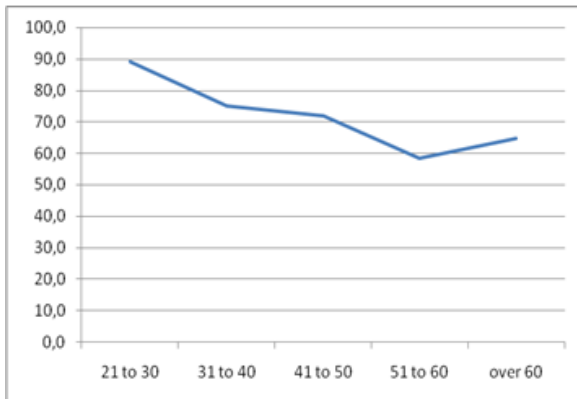


Figure 6 Teacher Participation in SME Computing Courses (by Age)

A similar story was told by a teacher working on a "project" with students who had started sixth grade without basic literacy skills (and who had "gone through the whole range of literacy approaches," she made sure to add). She also uses software with bombs—"they love bombs," she said. The game drops a series of letters, and if the student fails to hit the corresponding key, the "bombs" wreak havoc on the city below. The teacher observed that she had achieved good results with the "project" and that many students been able to move on to the next grade.

Despite these positive reports, one teacher/facilitator pointed out that one of the primary obstacles to integrating computers into the school system was the disparity in available resources between the training courses and the schools. The courses take place in comfortable classrooms, each with 10 functional computers, whereas this is not always the case at school. A common complaint expressed by the teachers was that "I wasn't able to apply what I learned in the course." Once, this same teacher recalled, she had led a course with teachers from a variety of locations. The laboratory of the school where the course was being given used Windows, but some of the teachers worked at schools where Linux was used: "Their schools didn't have many of the programs I was trying to teach them, which made for a frustrating experi-

ence." To avoid this kind of situation, she argued that teachers should be trained at their own schools. This perspective was embraced by the entire group of teachers, who then manifested a preference for unpaid training held during work hours at the teachers' own schools.¹⁷

In the group of administrators, the word "frustration" also was used several times when this topic came up. One coordinator, who had also served as a training facilitator, when describing the teachers who had been trained but had not had the opportunity to apply what they had learned, put it this way: "They feel their knowledge is going to waste, because the school system invested in these training sessions, and they feel frustrated by not being able to apply things, whether because the computers don't work, or the Internet doesn't work, or because they can't teach what they learned in the courses because of the school." The greatest "frustration," according to one of the principals, is felt by those who "applied themselves" because they "hoped to be promoted, since five years ago 200 computer labs were opened, and they hoped to work in them."

Computers and the Internet at School

Computer Lab Operating Conditions

Among the respondent group, 59% indicated that they worked in schools with computer labs. The size of the school makes a difference in this regard. While 82% of teachers in large schools indicated that their institution had a computer lab, only 40% of teachers in small schools did so (Figure 7).

¹⁷ They are currently held on Saturdays and during "alternative" time slots.

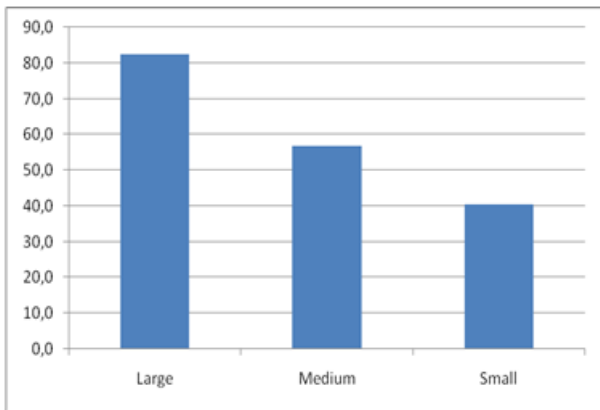


Figure 7 Presence of Computer Labs by School Size

The number of available computers varies greatly (from three to 30), but the most frequently cited number was 10 (present in 58% of schools with labs); however, 27% of teachers indicated that they worked in schools whose labs had fewer than 10 computers. Although the size of a computer lab tends to vary according to school size, operating conditions are better in small schools than in large ones (Figure 8).

Laboratory observation revealed that maintenance conditions varied greatly from one school to another. In School A the laboratory contained 10 computers; all were in perfect working condition, and the most popular software was available. According to the teacher responsible for the lab,

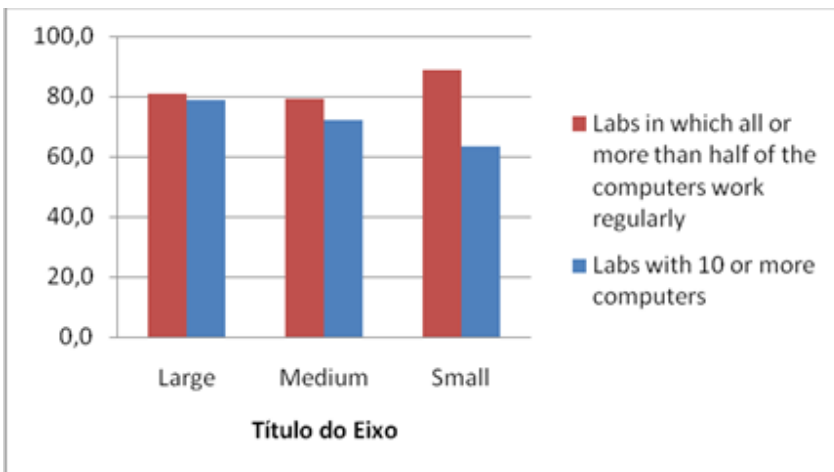


Figure 8 Quantity and Operation of Equipment (by School Size)

maintenance issues were addressed by the Help Desk of the Regional Education Office (Coordenadoria Regional de Educação—CRE) in a period ranging from two to three weeks.¹⁸ In School C, the lab contained 19 computers and, at the time of observation, another four were awaiting disposal and not being used. Software resources were also broad and diverse. Despite its favorable infrastructure, however, the laboratory was much idler than that of School A. The alleged reason was the absence of a “teacher responsible for the lab.” At this school, when equipment malfunctioned, the CRE Help Desk usually resolved it in two to three days. The biggest complaints about the Help Desk were heard at School D, whose lab contained 20 computers: requests were backlogged or never resolved and there was a “bureaucratic” approach in which nothing was done unless it was “asked for.” Like School A, School B had a laboratory with only 10 computers, which vary greatly, since some are quite old. Even so, its lab received much more use than the larger ones of Schools C and D. However, its equipment required constant repair because it was very

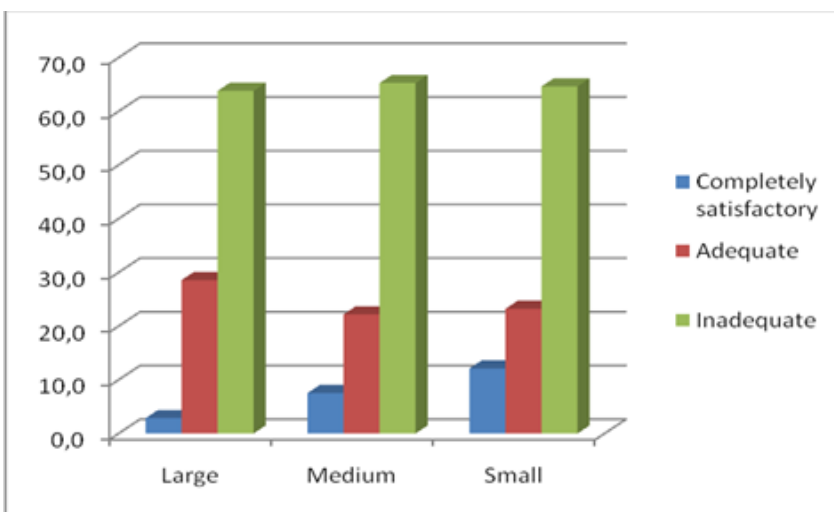


Figure 9 Teacher Opinion regarding School IT Resources

¹⁸ The CREs are responsible for curricular decisions and administrative and financial oversight of the schools located in each region. The city of Rio de Janeiro is divided into 10 regional offices. Among CRE responsibilities is providing computer support to schools.

outdated. On the other hand, according to the teacher responsible for the lab, maintenance was done quickly because it was "easy to get spare parts."

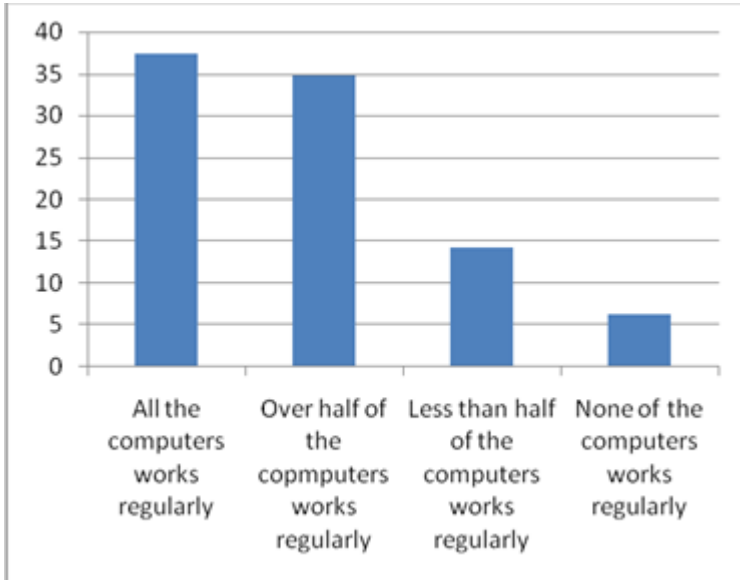


Figure 10 Teachers Who Use the Lab Once a Month or More, by Operating Conditions

In the focus groups, the comment was made that machines were often cannibalized for spare parts, mainly due to the age of some of the equipment. Although the computers in the four laboratories that were visited were all in working order, the survey revealed that in 19% of schools, less than half of the computers worked consistently. One teacher responsible for the reading room at an "Education for Work" center stated that the center's laboratory used to be "hopping," but that, over time, the machines stopped working as their warranties expired; currently, the center has only four working computers and no Internet access. She stated that this was "very discouraging," especially for science teachers, who used the laboratory frequently to work on projects with their students.

The differences among schools begin with the source of the equipment: federal (from the *ProInfo* program), municipal, and the "4 + 2" project (which provided four computers for educational activities and two for administrative use). According to teachers and administrators, the amount of equipment, as well as the "municipal" part of the schools' maintenance funding, does not vary according to the number of students. Schools with 1,200 students have the same resources for computing purposes as schools with fewer than 200

students. One principal summed up the situation in the following way:

Federal funding depends on the number of students, but municipal funding doesn't: with those eight thousand, her school might sparkle, but mine won't, because I have to clean the water tank, fix the bathroom, install equipment for deaf students—and all this has to come out of the same budget as the eight hundred reais for computers.

The perception that larger schools lack sufficient resources for information technology goes beyond the issue of funding, however. Laboratories with 10 computers were the norm in 50% to 60% of schools, regardless of size, and many teachers underscored the difficulty of working with classes of "40 or more students" in a laboratory with only 10 computers. In one teacher's opinion, however, the number of students is not the problem. The problem is that teachers are trained to use certain tools, but not to use information technology and the Internet as a way to make their classes more "dynamic." In addition, they are faced with yet another problem: if laboratory rooms were somewhat larger, it would be possible to "set up workstations of four students working cooperatively," but some laboratories are mere "hallways" with barely enough room for one person sitting in front of a computer.

Due to this combination of factors, only 7% of teachers considered their school's resources "com-

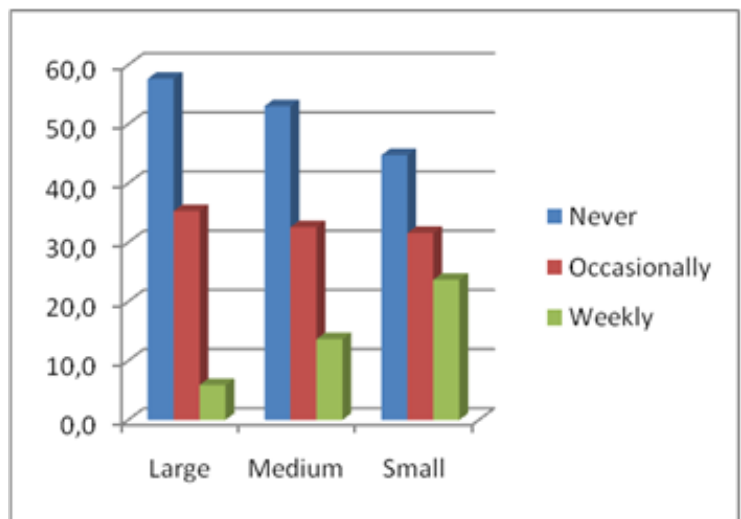


Figure 11 Frequency of Lab Use (Once a Month or More), by Internet Access

pletely satisfactory." For 24% these resources were merely adequate, and for 65% they were inadequate. School size tends to have a somewhat greater influence in this regard. Although the proportion of teachers who chose "inadequate" is roughly the same, there were more teachers in small schools who considered their computer labs to be completely satisfactory for their teaching needs (Figure 9).¹⁹

In point of fact, the foremost shortcoming, indicated by 73% of respondents, was the amount of equipment, although other factors, related to human resources, also stood out: the lack of a laboratory supervisor (61%) or of teacher training (60%), for example. Additional factors that were mentioned included poor connectivity (51%), lack of money for peripherals (32%), and lack of maintenance (25%). Large schools registered the highest level of complaint regarding lack of maintenance (36%), obsolete equipment (22%), and lack of money for peripherals (43%).

All available computers worked regularly in only half of the laboratories (51%); in another 30%, more than half of the equipment worked regularly; and in 19%, none or less than half of the computers worked adequately. Regarding Internet access, 18% of teachers stated that their laboratories did not have access to the Internet; 30% responded that access was limited; and 50% indicated full access. However, when we attempted to specify what kind of limitation the teachers were referring to, it became clear that they had interpreted the question differently: for 43%, it was a matter of a "slow or unstable connection," whereas for 45% it concerned restricted access to certain sites.

Teachers' Use of Laboratories

Among teachers whose schools have labs, 53% never used them, whereas 12.5% did so weekly. As would be expected, much depends on computer lab operating conditions. When a majority of equipment was in good working order, 35% of teachers tended to use the lab at least once a month. When conditions were less reliable, frequent use did not exceed 15%, as shown in Figure 10.

¹⁹Similarly, full satisfaction was greater among T2 teachers than T1 (9% vs. 4%).

Furthermore, Figure 11 shows that the better its Internet connection, the more teachers made use of the laboratory.

School size also has an impact on frequency of use: the larger the school, the less often teachers use its lab; the smaller the school, the more likely they are to use it on a weekly basis (Figure 12).

Similarly, more T2 teachers (responsible for the first segment of elementary school) than T1 teachers used the computer lab on a regular basis: 39% vs. 18%. At the same time, when correlating teacher characteristics and frequency of lab use, proficiency in using the Internet and participation in training courses have a real impact: they are more significant, for example, than the simple ability to use software tools (word processing, creating tables) and the size of the school in which the teacher works (as shown in Table 3):

Although labs are more likely to see intensive use in small schools, the interest level of a particular teacher is determined by his or his Internet proficiency or by having participated in a training course offered by the secretariat. In this regard, training programs may have helped empower certain teachers, in particular T2 teachers, providing them with knowledge of the local tools that would allow them to use the laboratory, even when not connected to the Internet.²⁰

Regarding the activities that teachers assigned their students, the most common was composition (67.6%).²¹ Guided study and exercises were also common (53.4%). Graphic design and research/reading activities also stood out, assigned by 20% of teachers. It is no surprise that 15% of teachers assigned activities involving the creation of newspapers and magazines, but it is surprising that 12% encouraged the creation of cartoons.²² In the four schools that were observed, the primary lab activity was "Internet research."

²⁰ For this reason, the most frequent lab users (once or more per month), second to computing instructors, were those with an educational degree (28.6%).

²¹At School D, where there was no Internet connection and the lab was rarely used, this was the only activity that teachers occasionally performed with students.

²²This could be a skill to be developed as part of continuing education programs in educational computing. One teacher who participated in the focus group completed a specialization in "computing applied to education" and works with animation at an Education for Work center.

Table 3 Correlation between Teacher Characteristics and Frequency of Lab Use (Once a Month or More)

	Beta	Sig.
Constant		0.214
• Participation in computer training courses offered by the Municipal Secretariat of Education	0.1256	0.006
• School size	-0.008	0.857
• Activities that are usually performed online	0.1657	0.005
• Tasks that are performed regularly, or that are able to be performed	-0.039	0.505

F = 4.874

Among the four schools that were observed, School A was the one that used its laboratory most intensively. The teacher in charge was present at the school three times a week, during both shifts, but the entire weekly schedule was covered by monitors, who were mostly upper-level students. Both the teacher and the student monitors had the skill and knowledge to handle the programs and resources available in the lab (including processing and editing photos and multimedia files).

Because the laboratory had only 10 computers, average use during class time consisted of two to three students per computer. In most cases, the student seen as being the most "skilled" controlled the mouse, but everyone participated. During the observation period, the laboratory was used primarily for Portuguese, English, history, and geography, although it was also observed being used for math and art. The following lab assignments were observed: searching for expressions in English (English); searching Google Earth to find specific locations (geography); using Excel to solve math problems, create tables, and insert functions (math); searching for images to illustrate a newspaper (art). During class time, teachers supervised students' computer use in order to keep them on task. Activities that were off-limits included MSN and Skype.

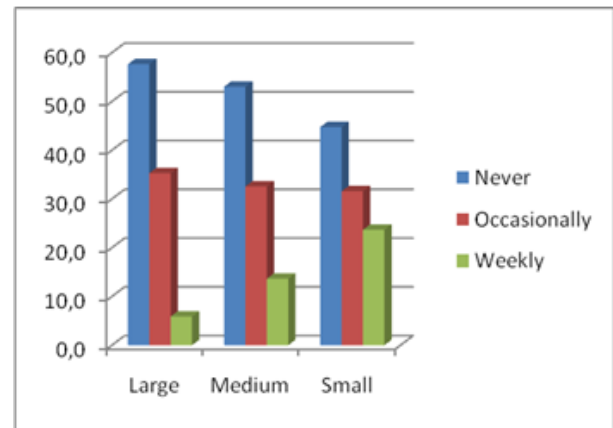


Figure 12 Teachers' Use of Laboratories (by School Size)

At this school, students were allowed to use the lab during "free time" (when it had not been reserved for a class) under the supervision of monitors. They were able to use the Internet freely, and the monitors never attempted to censor their peers, although filters had been installed to restrict access to certain sites (pornography and pedophilia, according to the teacher in charge of the lab). During free time, there were always computers available, and they were used by teachers and staff in addition to students, whether for personal use or for teaching purposes (research, for example). During recess, however, the laboratory remained closed.

Although School C had twice as many computers and much more in terms of resources than School A, its laboratory was rarely used. Nothing resembling a regular schedule had been posted, either inside or outside the laboratory. Because the school lacked a teacher to oversee the reading room, attending to the computer lab was claimed to be unfeasible. According to reports, this school had been a "model" in adopting the use of computers, with monitors who were capable of developing multimedia products.²³ The lab was not

²³ One young teacher who had specialized in educational computing and had worked as a laboratory coordinator provided the researcher with a description of this "golden age." Supervising students to serve as monitors and organizing practical workshops, she had succeeded in forming teams of student-monitors who not only "took care of the lab, but answered questions and passed what they had learned on to other students." Coming to the school from the private sector, she had invited employees from her former company to lead workshops in robotics and animation—"incredible experiences" in her words. "The students were so excited about the animation that they decided to do something similar in class." This "something similar" was what guided the production of three animated documentaries sent to the Anima Mundi Festival in 2007 and 2008. "The students were able to edit voice, sound, photos, videos." As she put it, the school was training ex-

allowed to be used during “free time,” since there were no monitors (once again, because of the lack of a teacher responsible for “supervising” them). The lab’s only regular activity was an Internet research project involving the centenary of the school’s patron. The sum of its activity was limited to the use of search engines. At this school, in addition to the filters mentioned previously, access to MSN, Orkut, and “sites showing dead people” was also restricted.

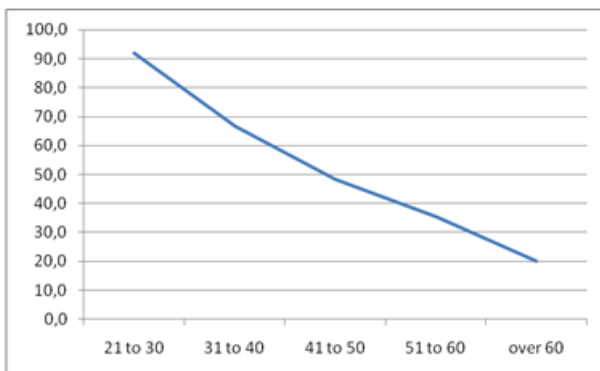


Figure 13 Percentage of Teachers Who Assist Students in Computer Use (by Age)

At School D, the laboratory was equally large (20 computers in perfect working condition) and equally unused. In this case, the alleged reason was the lack of an Internet connection, since the school had a teacher to oversee the reading room and computer lab. Without the Internet, the school’s teachers felt little incentive to use the lab, and they rarely used the available software for any kind of activity. The school’s educational coordinator commented that the teachers were unaware of alternative games and programs for offline use and that this contributed to the lab’s present state. As in School C, School D did not maintain a visible schedule for lab use, even though teachers were expected to schedule their use of the lab ahead of time. The laboratory also lacked student-monitors.

cellent student-monitors who, in turn, would go on to win prizes in competitions promoted on the Web. Once, “a student who had worked on the animation project, before a microphone and audience during an awards ceremony, just like a grownup, put his hand on his heart and said that before, when he was younger, he used to be in awe of what he saw on TV; but now he himself was doing it. . . .” These students would also teach younger students what they had learned: “It was very exciting to see an older student teaching a much younger child how to use the multimedia editing software. And everyone got along!”

In School B, lab use was somewhat more frequent, but still subject to long periods of downtime. During the week of observation, for instance, there were no teachers who used the lab for their subjects, but the teacher in charge of the reading room was working on two projects with students (“Year of France in Brazil” and “Swine Flu”). Because there were only 10 computers available, the lab supervisor, who was only present during three shifts per week, had to split the classes whenever a teacher wished to use the lab with his or her students. Half the students remained with their teacher in the classroom, while the other half worked on the lab assignment under the supervision of the lab instructor. According to her, the laboratory was used most for the subjects of science, history, geography, and Portuguese. The predominant activity consisted of Internet research. This school also lacked monitors. However, when the lab instructor was not present, the lab remained accessible to any teacher who requested the key. Unlike the other three schools, students were permitted to stay in the lab unattended once it had been opened. In practice, there were no restrictions on the use of communication tools or access to games and social networks.²⁴

Across the schools, one of the most widespread restrictions seemed to be that students were not permitted to print their work. In the administrators’ group, many were in favor of students copying the results of their Internet research by hand because that way they would absorb something (rather than simply cutting and pasting). In School A, prior teacher authorization was required before anything could be printed. The teacher responsible for the reading room put it this way: “It’s impossible to check the *authenticity* of their work, but the requirement of writing it out by hand really helps to make sure they grasp what they’ve been taught.” The same restriction occurred at School C. At School A, it was unclear how students stored their work (if they did so) because flash drives, disks, or CDs were not available. At School C, some students were in the habit of sending a copy of their work to their own email as a way to save it. At School B, where lab use was more open, students had subfolders on the computers for saving their work.

According to the survey responses, the teacher who assigned the work was the one who provided

²⁴ This kind of use tended to occur during off-shifts and, as in other schools, it never took place during recess.

students with the most support as they finished it (53%).²⁵ Support coming from other teachers was notable (38%), but only in 8% of cases were students supported by peer monitors. In this regard, teacher age is once again the determining factor. Figure 13 shows that the younger the teacher, the greater the likelihood that he or she will be the one to support his or her students as they work with computers. Training received by older teachers does not have an impact in this regard.

This "other teacher" helping the student tended to be, as was observed at School B, the one in charge of the reading room, who, according to colleagues, was "overburdened." The position is generally filled by a teacher with a 16-hour workload, unable to spend the whole day at school.²⁶ In addition, this teacher ends up filling in as a substitute teacher whenever the need arises. According to one principal, the reading-room teacher "has to catalog all the books; keep the reading room and computer lab open, making sure everyone is reading; develop the reading incentive program; develop the computer program; and substituting for absent teachers." At some schools, the lab is next to the reading room, and the supervising teacher is able to oversee both of them closely, but at others the two may be located on separate floors. According to the teachers who participated in the focus groups, this is used as a justification for keeping the laboratories "basically closed," or greatly underused, as observed at School C. Both focus groups viewed the merger of reading room and computer lab as unfeasible, since to make matters worse, the teacher in charge often lacks the necessary qualifications. This seemed to be the case at School D, where the teacher in charge devoted almost all her time to the reading room and kept the laboratory virtually closed. Although this teacher was familiar with several educational applications, it was clear that, as a computer user, she had little real knowledge of basic programs and processes.

Some teachers used the expression "there's the key" to describe the conditions under which lab access was permitted, although this was not true in practice, since the principal had made it difficult

to "release" said key. The administrators' group also agreed that there were those who "would not release" the key, but none of the participants stated that they were among them (although not everyone denied it categorically). One principal summed up the situation by providing a clarifying explanation of the key policy. Any teacher who wishes to use the lab may have the key if they have scheduled a time beforehand: "Everyone knows that the lab key is hanging there; the teacher just schedules a time and gets the key." During free time at her school, if no teacher is scheduled to use the lab, only monitors may use it.

To emphasize the risk of leaving the laboratory open without a teacher to supervise it, one principal stated that "even the mouse balls have been stolen before." Another principal added that even while she was present in the lab, "they opened the cabinet" and stole the software installation CDs. The vast majority of principals argued that monitors could not be left alone with other students because they did not have "that type of training." One principal reported that at his school, the monitors had been threatened by their peers and forced to turn a "blind eye." Because of this, he banned lab use during recess.

Both teachers and principals stated that in large schools lab use tended to be more closely controlled. In small schools with fewer than 300 students, labs are supervised by student monitors and can even be used during recess. Other schools do not allow lab use during recess—because demand would be too great—but do allow it during "downtime" (that is, when a teacher is absent). Principals at small schools, whose policies are more lenient, stated that their laboratories had never been stolen from.

Several principals insisted that students needed to recognize that the lab was "not an Internet cafe." How could they allow the use of Orkut, for example, if it explicitly states "that you have to be at least 18?" asked one principal.²⁷ For her, students think that "the Internet is only MSN and Orkut." Everyone agreed that it was wonderful when students perceived the research value of the Internet. Yet there are no specific classes that teach "how to do Internet research."

²⁵ After those teachers who have computing degrees, mathematics teachers are the ones most likely to assume this role (67%).

²⁶ To keep the reading room open every day during both shifts, it would take three teachers.

²⁷ At two of the schools whose laboratories were observed, students were allowed to access Orkut, despite having "filters" that restricted access to certain sites.

School Internet Use

Although "Internet research" was the primary activity carried out in the laboratories observed during the research period, the comment was made in the administrators' group that only a small percentage of teachers actually use the Internet for research. For the majority of teachers, just as for students, the Internet is equivalent to MSN and Orkut. One principal mentioned that out of a teaching staff of 37, four to six would actually be able to guide students in their research. At the same time, 72% of teachers who answered the survey stated that they used the Internet when planning their lessons.

Despite its heavy use as part of their personal lives, teachers are less likely to use the Internet in professional communication: 74.5% of teachers used the Internet to keep in touch with fellow teachers, but contact was much more limited with their school's principal and/or coordinator (37.5%) or with the central office/CRE (23%). The predominance of the Internet as a tool for horizontal communication also limits its use between teachers and students, cited by only 23% of respondents.

There is a slight tendency for younger teachers to make more use of the Internet as a means of

communicating with colleagues and students, although hierarchical thinking (in which "seniority rules") seems to outweigh this characteristic. For example, Figure 14

compares, by year of entry, teachers' level of contact with students, Regional Education Offices (CREs), and the central office of the secretariat.

When we look at the group of teachers as a whole, including those whose schools do not have a computer lab, we see that 30% frequently as-

signed their students exercises that required the use of computers; 40% also did so, though less frequently; and only 30% never did so.²⁸ The vast majority of teachers also stated that they assigned their students exercises that required Internet access (66.3%). In doing so, 71% of teachers suggested sites for students to use when completing these assignments. The most frequently recommended site, as expected, was not a site with content, but a search engine, Google (51%); in second place were sites for general searching and research (19%), followed by "educational sites" (13,2%). When asked whether they knew of websites that were helpful for "educational activities, providing exercises, educational tools, or student activities," responses tended to vary somewhat more, with first place going to "educational sites" (26%), followed by sites for general research (19%) and Google (12%). Sites such as Nova Escola (New School) or Clube do Professor (Teachers' Club) and "children's channels" (such as Smart Kids, Discovery Kids, etc.) were mentioned in the range of only 8% to 10%.

In the focus group, one teacher mentioned that she used a site hosted by the Federal University of Rio Grande do Sul (UFRGS), which offers puzzles for tutoring students with learning disabilities in

reading and writing (during remedial sessions outside of regular class time). She remarked that some teachers disapproved of the idea, but she argued that when they used these games, students were "reading and writing." One teacher stated that what students "see outside of school is much

more interesting," commenting that he asks himself why students can learn to sing funk songs like

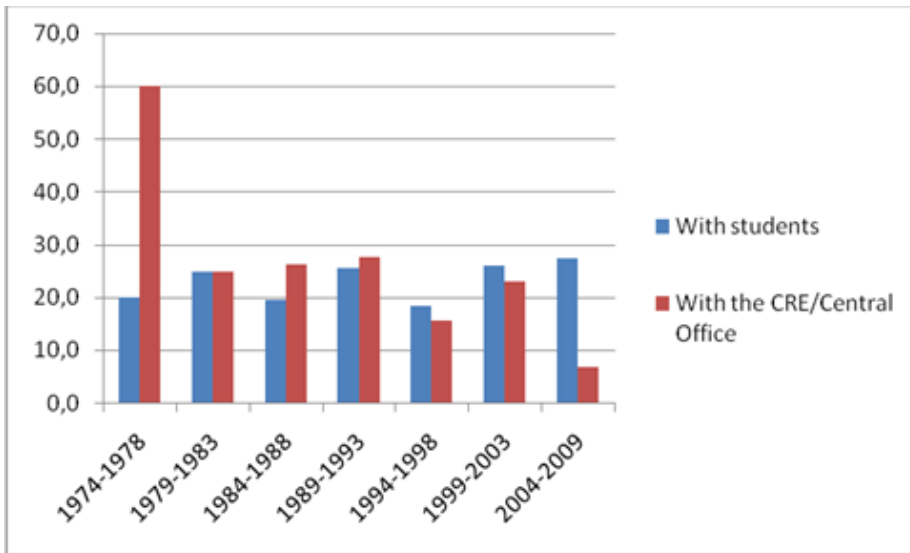


Figure 14 Teachers' Internet Use for Professional Communication (by Year of Entry into the SME)

²⁸ This contrasts, for example, with the use of video, which has been adopted by virtually all teachers (92% stated that they used videos or DVDs for educational purposes).

“Eguinha Pocotó” but not “learn to write [the word] ‘ball.’”

Teachers’ Opinions regarding the Internet and Education

When responding to the survey, teachers were invited to rank the importance of certain topics related to the Internet. All told, 97% of teachers viewed the risks posed by the Internet for children and adolescents as being a “very important” issue; virtually the same percentage (94%) gave the same rating to the Internet’s use for educational purposes. The issue of copyright on the Internet was seen as very important for a significant, albeit smaller, number of teachers (80%). Teachers had received frequent information regarding the possible pedagogical uses of the Internet, whether from the school principal’s or coordinator’s office or from the Municipal Secretariat: 70% of teachers recalled receiving information about on the topic. Regarding Internet “risks,” however, only 26% recalled receiving guidance about them. On the issue of “copyright,” a meager 4% claimed to have received any information.

A high degree of consensus among teachers can also be observed regarding other issues:

- a) 88% agreed that learning how to become proficient computer and Internet users should be part of the school curriculum. But beneath this apparent unanimity lies a certain divergence. Younger teachers tended to embrace the idea somewhat less than their older peers, in what is likely a sign of the “naturalization” of these resources in their daily lives, as shown in Figure 15.
- b) and 84% agreed that students’ Internet use at school should be controlled in light of the risks to which they are exposed online.

Presence or Absence of a Specialized Teacher at Each School

With respect to an issue that was debated intensely in the focus groups, 85% agreed with the idea that if there were an educational computing specialist at each school, teachers would adopt this

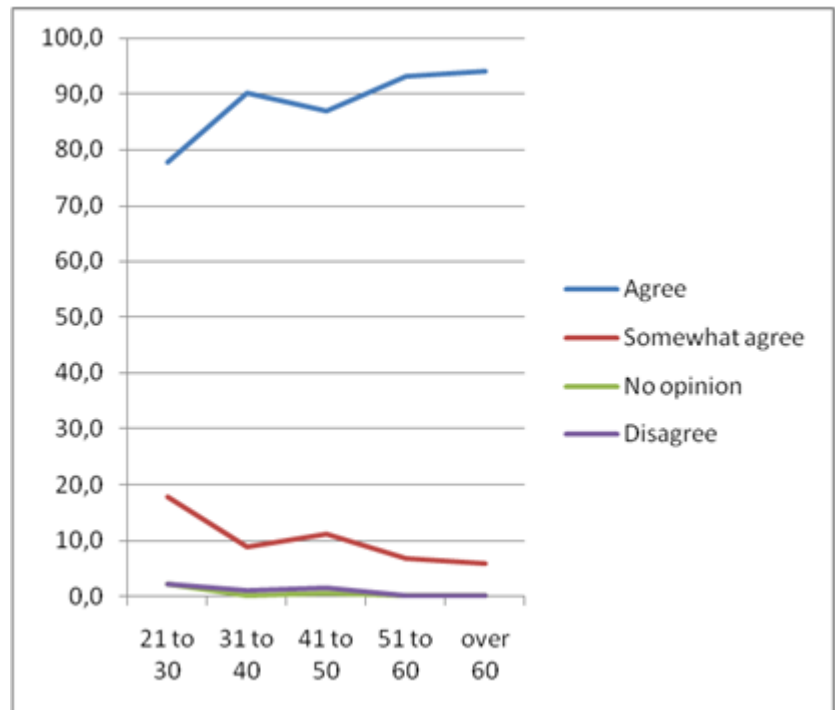


Figure 15 “Learning how to use computers and the Internet should be part of the school curriculum.” (Agreement by Age Group)

resource more quickly. At the same time, when presented with the opposite view—that having this kind of specialist at school would lead the majority of teachers to no longer concern themselves with learning how to use technology—only 70% disagreed.

The debate around this issue is driven by teachers who have had experience with the state school system, which has a position for a teacher who provides support and guidance to others in the use of information technology, referred to as the Technological Advisor (Orientador Tecnológico—OT). One of the OT teachers, who works in the city in another position, stated that this is a “watershed” between the two systems: “The municipal system believes that it’s enough to set up a computer, while the state system believes that you need to have an intermediary.” Another OT teacher, however, praised the municipal approach, which opts to train teachers so that each of them

can become qualified to use information technology.

For the last 10 years, one teacher commented, the city has insisted that there is no need for someone to serve as a “catalyzer,” but she disagreed: it is not a matter of “catalyzing,” but of having someone who can lead the process of bringing IT to the school, directly assisting the other teachers. Another teacher in the group used the word “manager” to define this position. This position would involve managing the process of bringing IT to the school as a whole, in the context of an educational program. The task could be assigned to the school’s educational coordinator if he or she has “adopted” these media, but this is not what usually happens.

At the same time, one teacher argued that if the OT position had made such a great difference, the state network would be better off than that of the city, which according to him was not the case. The majority of the group, however, affirmed that as long as a school lacked a “computer instructor,” real ownership of information technology was not going to occur. This was also the prevailing opinion among the administrators’ group.

Does a school’s adoption of new media depend on the motivation level of its teachers?

The statement that “a school’s adoption of new media depends, above all, on the motivation level of its teachers” was not as unanimously supported. Teachers tended to agree “somewhat” with this assertion (56%), while 33% strongly agreed and 11% disagreed. Interestingly, agreement among teachers increased with age, as shown in Figure 16—which may be the result of older teachers’ long “experience” in the school system.

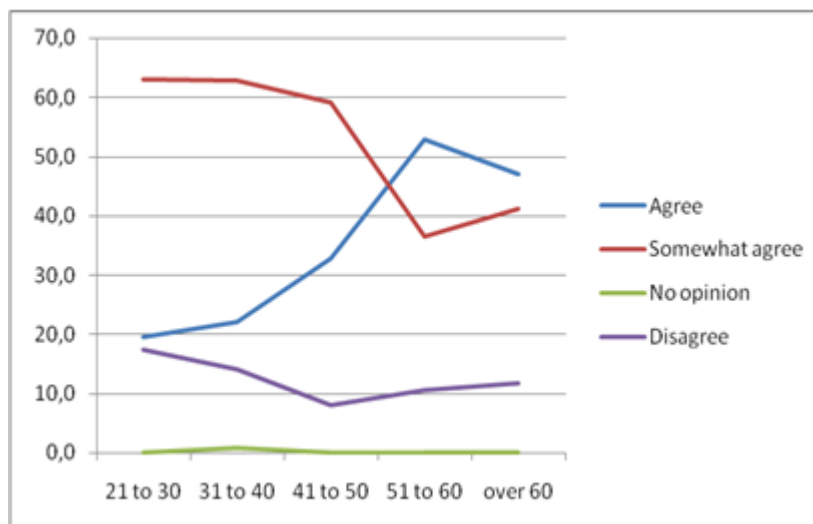


Figure 16 “A school’s adoption of new media depends, above all, on the motivation level of its teachers.”

In the groups, a “paradigm crisis” was spoken of, since many teachers still believe in “traditional methods.” This tendency was seen as “historical” in nature. In this view, the system has always struggled to adopt new media/technologies (the same thing occurred with overhead projectors and video). The “burden” of this shortcoming tends to fall on teachers—as they themselves protest—because of their supposed conformity or conservatism. One longtime teacher—who began teaching in 1973—stated that this view dated back to “the Brizola years” (Brizola was governor of Rio de Janeiro from 1982 to 1986 and 1990 to 1994), when teachers were accused of being “barriers to social transformation.”

In fact, some argue, there are simply no good programs or policies in place for “new media” adoption, nor have investments been made in universal training. One teacher, however, maintained that “it’s impossible to ignore” the lack of willingness shown by many colleagues. In the end, it was more or less agreed that IT adoption depends on a teacher’s personal desire to learn to use technology. Whether or not a teacher prefers to maintain the “status quo” ends up being a “personal matter.”²⁹

But there are also teachers who point to the student’s role: it is one thing to work with “projects” or Education for Work centers, where students are “interested,” but it is another thing to teach regular classes, which are very heterogene-

²⁹ One teacher in the group complained that she was viewed as a “dinosaur” because she writes information on the board for students to copy. She was incensed that asking students to “copy” from the board was no longer seen as acceptable. She stated, “The day will come when students won’t even be allowed to pick up a pen,” commenting that she encounters students who make it to the sixth grade without knowing how to copy something from the board in their notebook. Accordingly, she argued that computers were by no means the “savior.”

ous, with students who attend because of the “Bolsa Família” program, or who do not even know why they are there. One teacher who works at an Education for Work center objected, stating that her experience had not been any easier, since her students were not “captives” and must still be “won over” from class to class—forcing teachers to be more innovative.

Despite these differences, the consensus was that schools were “overburdened.” Further difficulties stem from how schools are “managed,” “administered,” and operated (in terms of time and space): the same practices have been in place for decades, standing in the way of change.³⁰ One teacher pointed to the curriculum as an example. Students are encouraged to use new media and the Internet, but the curriculum, which defines what students should or should not learn is not affected by this: “Here we are in the twenty-first century, able to use the most amazing technologies,” which permit “the production of knowledge,” but students are still not “able to interact in terms of the curriculum, to raise questions that might spark some kind of interest or curiosity for them.” Students are still seen as “unable to think for themselves.”

In both groups, the consensus was that the school system was very large and diverse and that different schools faced different issues, making it difficult to implement certain policies. Teachers expressed difficulty in understanding the intentions of the Secretariat of Education—especially regarding changes in teaching methods. One of them referred to the secretariat as a “sphinx” that he kept trying to “decipher.” Teachers bemoaned the

fact that the “project” approach had been eliminated and that now “targets are everything.” They also complained of “eternal” principals who behaved as if they owned the job. The “perpetuation” of principals runs counter to the changes that need to be made, creating a “gap” between teachers and principals. Principals, for their part, complained that each CRE maintained a different policy for computers and the Internet: one might permit Wi-Fi, for example, while another might not.³¹

Student Access to the Internet

Regarding other issues related to school Internet use, there was less agreement among teachers. Even so, 48% agreed that “students should not be permitted to make personal use of school computers,” while 37% agreed only “in part” with the idea, and 13% disagreed. In the focus group, one teacher described the process of bringing the Internet to schools as “conservative modernization,” since access to site such as Orkut, for example, was prohibited, a prohibition that, as we have seen, is actually ignored in some schools.

Although everyone agreed that there were risks to children and adolescents on the Internet, they acknowledged the absence of a more in-depth procedural discussion. One teacher in the group argued that the goal should not be to enforce limits but to guide and discuss students’ Web use. Although Orkut is banned in the majority of schools, principals are often called to mediate problems that occur among students in the lab. Principals recounted cases of bullying, identity theft, and slander (including against teachers and coordinators).

Computers: Do Teachers Feel Inhibited in Front of Students?

When asked whether they agreed with the statement that “the majority of teachers feel inhibited in front of their students because students almost always know more than they do about the subject,” a not insignificant 18% agreed, 40% somewhat agreed, and 38% disagreed. In the two focus groups, the issue also produced different opinions: some agreed, while others stated that it was a “myth.” According to the latter, many students

³⁰ One teacher summed up what it meant to be overburdened, on top of the secretariat’s constant policy changes. The school as an institution has taken on countless responsibilities, including “hospital, psychologist, prison guard (because there are principals who want students to stay there in the classroom and forget about it. . . . And then there’s the mother who doesn’t check the student’s notebook, or else you call the mother to discuss the situation and she says, ‘I don’t know what to do with him.’ A nine-year-old child and she doesn’t know what to do, so then I’m supposed to know? And then there’s the twelve-year-old who is pregnant, and when I ask her, ‘But, angel, with so much going on out there, condoms, you know. . . .’ ‘Yeah, but at least I’ll have something that belongs to me.’ Because she doesn’t have a bedroom, she doesn’t have a baby doll, she doesn’t have anything, so she decides to have a baby. ‘The baby is mine, all mine.’ It’s insane! And there I am trying to teach quadratic equations. Sometimes I ask myself what I’m doing there.” And when she tries to make changes or take action, the government comes along and says no: “It’s insane because I work with practical knowledge that takes a long time, my subject takes time because I want the guy to learn, but I can’t, because now I have to just regurgitate content.”

³¹ The question is tied to the way in which each CRE manages its budget. One might allocate funds to buy routers, while another might not.

only know how to use certain communication tools and social networks, but have little or no information about other uses and applications. One coordinator cited the example of students creating profiles on Orkut without knowing that part of the process involved creating an email account, or the purpose of having an email account. Administrators, with somewhat more conviction, stated that "teachers do feel insecure" in front of their students.

The Internet and Professional Communication

Another bone of contention among teachers was whether the Internet should be used to communicate with administrators and the central office: 28% agreed, 40% somewhat agreed, and 25% disagreed. Despite the Internet's intensive use for personal communication, there is still strong resistance to its "hierarchical" use, even though this resistance is apparently decreasing. In the administrators' group, the comment was made that it was easier to communicate by email with students than it was with teachers.

One principal, however, has a virtual newsletter that she regularly sends to teachers. Not all of them have email, she said, but she felt that it was important to be proactive. Another principal tried to stay in touch with her subordinates by email, but because some refused, she had to "return to the old way of communicating." Some principals complained that there were teachers who, even when they had information hand-delivered, claimed that they "didn't know anything about it": for them to admit otherwise would require some kind of signed statement.

The Secretariat of Education, for its part, uses the Internet to communicate with principals and coordinators, but it was acknowledged that there were still administrators who did not "open their email." The secretariat also maintains an intranet that contains virtually all the relevant information needed for management purposes, but in several of the Regional Education Offices (CREs), online communication does not work. According to one principal: "We also have a drop-box system, where you go to the CRE to pick it up."

Everything that is sent by email is also sent on paper and additionally by fax. So, if something comes up and we need to respond, we have to do so in three ways. I don't even remember life before the Internet and cell phones, so I send

everything by email. If you ask me a question by email, I reply by email and assume that you're going to read it. But then you get a call, and they say you never replied. So, I say that I sent it by email five seconds ago, and the person asks me to fax it and then leave a copy in the drop box. The 7th CRE has killed every tree in the world all by itself.

According to one principal, only the Computing Division managed to communicate solely by email.

Conclusions

For the most optimistic observers, the use of new technologies has enabled new forms of teaching that value the skills and individual learning pace of each student, as well as innovative forms of collaborative work that can bring colleagues together across space and time. Until that promise comes to full fruition, the road ahead will certainly—at least for those responsible for administering the school system—be a long one. This study can help identify the pitfalls to avoid along the way and can help put aside false obstacles, many of which have been evoked repeatedly to "explain" the difficulty schools have experienced in incorporating new media, especially computers.

First of all, it bears pointing out that we are no longer in a time when it can be said that elementary school teachers and computers are foreign to each other. Contrary to conventional thinking (given the age profile of the group and its overwhelmingly female majority), Rio's school teachers appear to be relatively familiar with the use of computers and the Internet. At the same time, and this is precisely the point of greatest interest, familiarity does not immediately translate into regular use and/or systematic adoption of educational computing in the schools, much less efficient use of the medium for professional communication, whether with students, superintendents, or administrative superiors.

School computer labs have been present for the last 10 years, but have not yet reached the entire city school system. From the perspectives voiced by the teachers and administrators who participated in our research, we can see that the most significant variables for determining daily use, aside from the issue of available content and appropriate teaching methods, are Internet access, equipment maintenance, and the presence of a teacher who is "responsible" for the lab. If this

teacher is not able to manage the school's adoption of these resources (as an "educational computing specialist"), he or she should at least tend to the lab room, keeping it open to those who wish to use it and assisting his or her colleagues in the activities carried out there.³² The absence of one of these three factors tends to condemn the lab to disuse. The dissatisfaction of the vast majority of teachers regarding available resources (the motives of which also include the amount of equipment and the size of the lab rooms) reflects the difficulty faced by educational authorities in trying to balance these factors.

These shortcomings affect the whole school system, but it is because of them that the comparative advantages of small schools come to the forefront. Contrary to what would be a simple correlation between supply and demand, which would lead large schools (with more teachers and students) to use their laboratories more intensively, our research shows that the opposite occurs. Frequency of use and the proper functioning of lab equipment depend first and foremost on variables such as the ability to facilitate oversight and appropriate behavior, characteristic of small schools.

In spite of structural problems, however, some transformations are underway. Still, it is unclear just how much this is the result of implementing a particular policy or whether it is an inertial, or even "natural," process. In fact, our research indicates that the younger a teacher, the greater his or her mastery of basic computing tools, the more skilled he or she is in using the Internet, and the more likely to directly assist his or her students in computer-related activities. This tendency suggests that, left to follow its "natural" course, the adoption of these resources will occur in accordance with the pace—be it fast or slow—of the generational turnover of school teaching staff. If we take the position that the great expansion of public education, in terms of the primary level, has already happened (as reflected by the age profile of teachers), the tendency is that the process of renewal will occur slowly, compromising the full adoption of these resources in the short term.

³² The ability to fill this role, and the level of computing skill and motivation of the person who fills it, depends on having a trained group of monitors. Because the work schedule of lab instructors is part time, labs can be kept open every day during both shifts only with the help of trained monitors (with few exceptions).

The "real" incorporation of information technology in the teaching process—that is, the actual state of things in the Rio school system—is clearly linked to yet another element, beyond the influx of younger teachers: namely, the Internet itself. Our research points to the clear centrality of the Internet in the current context: laboratories with a quality Internet connection see greater use, and Internet research is the most frequent lab activity (and practically the only one assigned by teachers who do not use the lab). Teachers who have more Internet-related skills are the ones who use the lab most frequently. Lastly, but no less importantly, teachers who access the Internet on a daily basis are also the ones most likely to use school computers for this purpose (and, ergo, most likely to strive for satisfactory levels of access, in terms of both connectivity and equipment conditions).

Finally, it seems clear that incorporating computer use into school curricula, in a broader sense, is different from using computers with the specific goal of remedial learning in mind, with tools created specifically for that purpose. While the former may contribute, at worst, to spreading a "culture" in which computers and the Internet become inseparable from everyday experience, the latter demands specific training and information. There is no evidence that these two dynamics, which are complementary in theory, can work together in actuality. In this regard, our research shows that the teacher training carried out by the Secretariat of Education over the course of 10 years, although limited in scope, has played a decisive role in determining whether or not a teacher will use the school laboratory with his or her students. Nevertheless, this tendency, which helps encourage the use of labs whose Internet access is absent or precarious, seems to prevail only with respect to the early years of primary education. The higher the grade level, the more likely it is that "educational computing" will be limited to "Internet research." It was not possible to identify the reasons behind this trend in terms of the present study, although possibilities include a lack of knowledge, a lack of specific tools, shortcomings in the way training programs have been designed, or simply a lack of faith among teachers that these resources are compatible with traditional teaching methods.

This study, like others that have been conducted in Brazil and elsewhere, suggests that there are tremendous gaps in the invisible chain that is

crucial to ensuring that equipment is put to good use.³³ The technical support structure is still precarious, not to mention the lack of standardization in the systems being used. Teacher training, especially when carried out through online courses using outdated “distance learning” methods, leaves much to be desired because it does not take an individualized approach, something for which the Internet would provide ideal support and that these courses should exemplify. The commitment of school principals to introducing new technologies is uneven, but generally remote, if not hostile. Available teaching material is still limited and fragmentary.

There is certainly much to be learned from the experience of other countries, particularly those with similar characteristics. International research indicates that the effective use of new technologies requires increasing the time students spend at school, and some suggest, for example, that separate computer labs are not learning-conducive environments, leading to the creation of mobile laboratories that make it possible to transport equipment to regular classrooms where resources are scarce.

A central challenge involves those teachers, a considerable number, who see new technologies as a threat to their role as educators. Aside from conservatism and group interests, these teachers express an important concern: the redefinition of their role in a classroom where the computer (not to mention text messages sent by cellphones) “steals” students’ attention. In this new technological environment, redefining the role of the teacher is a challenge that requires rethinking the role of the educator so that it maintains its relevance. A considerable number of refresher courses for teachers focus on technological issues, which although important miss the heart of the matter: the technical skills of many who were born in the digital world are ahead of those possessed by the majority of teachers.

The teacher’s role continues to inhabit the realm of content and not technology. Maintaining a personal relationship with students will remain central during early schooling, but the teacher’s main role will ultimately involve the ability to guide students in the critical use of material available on the Internet, helping them communicate ideas—verbally or visually—interpret information, and solve problems. These challenges include finding one’s way in a world of information overload, not blindly accepting the first hits that appear on Google or Wikipedia, problematizing and critically analyzing information, knowing how to ask questions and be wary of online content (including spam), and managing threats to privacy and personal security.

It is not only a matter of educating students about the dangers lurking on the Web, including cyberbullying and privacy issues (with an understanding of the ways in which information about one’s personal life, and that of one’s acquaintances, may be used in the future). These are central concerns, but they are often presented as the only issues about which students should receive guidance, reducing the role of teachers and parents to one of repression, rather than offering a broader perspective in terms of ethics³⁴ and citizenship³⁵ for the responsible use of the Web.

These issues have redefined the role of the teacher, no longer seen as controlling what each student does in the classroom or relaying knowledge that he or she alone possesses (today, any student can go online to fact-check a teacher’s information and eventually question it). In his or her new role, the teacher is a Socratic figure who teaches students how to reflect and question. In this regard, new meaning should be given to information sources like Wikipedia: students should be guided to analyze the revision history of each article, where they will find disagreements about content, or to analyze examples of emails that masquerade as authentic by appealing to the reader’s prejudices.

Efforts at pedagogical reinvention could be bolstered by a new class subject that would provide a “Critical Introduction to the Internet,” with content

³³ This conclusion is echoed by one of the few systematic studies on the topic, focused on Colombia and carried out by the World Bank: Felipe Barrera-Osorio and Leigh Linden, “The Use and Misuse of Computers in Education: Evidence from a Randomized Experiment in Colombia.” http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079934475/547667-1145313958806/WPS4836_Computers_Edu_Colombia.pdf (retrieved March 5, 2011).

³⁴ See, for example, Charles Ess, *Digital Media Ethics*. Cambridge: Polity, 2009.

³⁵ See, for example, Mike Ribble and Gerald Bailey’s handbook, which addresses the United States: *Digital Citizenship in Schools*. Washington, DC: ISTE, 2007.

continually updated for each grade level. This issue seems particularly relevant because the Internet, in every aspect of analysis, has proven to be the most important factor for incorporating computers into the curriculum of Rio's schools. The risk inherent to the current scenario lies in simply riding the "wave"—a wave driven by feedback from public opinion and the market.

The systematic introduction of computers in public education, as the federal government has outlined via the Pro-Uca program,³⁶ or as state and city governments have outlined, should be accompanied by capacity building for ongoing monitoring and evaluation, as well as the production and evaluation of educational tools. This process will certainly open the doors to business lobbies that operate in the area and that tend to reduce the challenge of introducing new technologies to a simple issue of creating the right software. Without a doubt, private companies have a role to play here, but there are certainly a large number of public domain products available in Brazil and abroad that could be put to use and that require an ongoing process of cataloging and evaluation. In an area where resources are insufficient, the digital transition creates allocation dilemmas that need to be foreseen. The creation of a new educational system involves huge investments, and it bears repeating that so long as there are basic shortcomings in teacher training and motivation, the distribution of computers is a comparatively minor issue. Good intentions are not enough. If hamstrung by predetermined plans and educational goals, the positive impact of computer distribution (which will certainly exist) may be smaller than its disruptive effect. Although political motives may compel a course of action that lacks initial clarity regarding outcomes and costs, it is never too late to take responsibility and increase the level of transparency about what is being done.

³⁶ <http://www.uca.gov.br/institucional/>