What Students Say They KNOW, FEEL, and DO About Cyber-Plagiarism and Academic Dishonesty? A Case Study

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This article presents results of a case study that used self-reported paper-and-pencil questionnaire by thirty-seven junior high school students with regard to their understanding of, attitudes, and behaviors toward plagiarism in the Web environment. Performance indicators used in the questionnaire were framed in the context of information literacy standards. The article identifies those areas that intervention programs should be designed on the basis of students' gaps and levels of understanding with respect to responsible uses of information in general, and especially of digital networked resources.

Introduction

This article reports part one of a three-prong project that has designed pretest instruments and a sequenced intervention program, the impact of which will be reported elsewhere. Thirty-seven junior high school students were examined with regard to their understanding, attitudes, and behaviors toward cyber-plagiarism. Prong A explored students' normative understanding of specific issues surrounding plagiarism in the Web environment, the values they place on ethical uses of copyrighted digital resources, and their practices in their own work. The reviewed literature (Ercegovac & Richardson, 2004) and this author's own experience with secondary- and college-level students have demonstrated that they often distinguish among content knowledge, moral values and moral behavior toward different forms of academic dishonesty. For

example, a student may give a correct definition of plagiarism, yet fail to correctly apply it on exams and projects. Prong B has piloted intervention programs that are sensitive to different levels of learners' moral reasoning to ensure their understanding of one of the core values in education as a whole, that of academic honesty. Prong C will use both formative and summative assessment instruments in order to measure the impact of interventions on students' behaviors and learning outcomes.

Related Work

Reports on information seeking and search process, search effectiveness, and children's relevance criteria of digital contents have included elementary school children (Borgman, et al., 1995; Hirsh, 1999; Kafai & Bates, 1997; Marchionini, 1989; Schacter, Chung & Dorr, 1998; Wallace & Kupperman, 1997), middle-school (Bilal, 2000; Bilal, 1999; Eastman & Agostino, 1986; Small & Ferreira, 1994), and high-school students (Fidel, 1999; Edyburn, 1988). The researchers asked important questions and used different information technologies ranging from digital resources on the Web to online library catalogs, electronic encyclopedias, and magazine databases.

The Nine Information Literacy Standards for Student Learning organizes nine IL standards under three headings: Information Literacy, Independent Learning, and Social Responsibility (AASL, 1998). When applied through inquiry-based learning, the standards should help learners access, evaluate, and use information effectively in their own work. This would include students' ability to find and evaluate various resources, to formulate theses and ask good questions, and to understand the value of trustworthy information. These IL skills are applicable across projects, tests, and in lifelong learning, beyond schools and colleges. The studies concern themselves mainly with the first group of IL standards, which helps one to understand the information search process in order to access and evaluate a variety of information resources.

This article addresses those issues that fall under the third group of IL standards, that of Social Responsibility. It considers students' understanding, values, and behaviors toward responsible *use of information* after they have accessed variety of resources and evaluated them for potential relevance with respect to their information needs.

Indicators #2 (students respect intellectual property rights) and #3 (students use information technology responsibly) per Standard 8 have been especially useful to us, as well as indicator #2 (respects others' ideas and backgrounds and acknowledges their contributions) in Standard 9. AASL performance indicators on ethical uses of information resources and technology parallel those indicators that were established for Higher Education (ACRL, 2000). However, children mature unevenly and some of the social responsibility performance indicators across IL standards may vary with regard to age, gender, school environment, level of skills, and moral reasoning (Kohlberg, 1976; Kuhlthau, 1987).

To bring the two sets of IL standards closer together, we are developing a suite of sequenced instructional units and assessments across IL standards. The starting point was to develop a palette of assessment instruments in the area of responsible uses of digital information resources. The instruments are designed as scalable, modular, and customizable, so that instructors could adapt them according to learners' needs.

The word cyber-plagiarism is taken to mean copying text, images, music, film and pasting into one's own work without proper acknowledgement. Under broader headings of cheating or academic dishonesty, plagiarism refers to cheating on assignments, projects, lab reports, and exams by means of using other persons' ideas and words as their own without giving proper credit.

Motivation

Ercegovac and Richardson's review (2004) has demonstrated that 75 percent of 4,500 self-reported surveyed high school students had cheated at least once on a test, up from 50 percent in 1993. More than fifty percent had stolen sentences and paragraphs from the Internet. This study's pilot pretests assessed students' and teachers' conceptual and procedural knowledge of plagiarism related issues. Both groups have demonstrated numerous problems in the areas of citing Web sources, understanding digital primary documents, and paraphrasing. Conceptual knowledge refers to the ability to define plagiarism, explain reasons for giving credit, and recognize if a given

text has been plagiarized. Procedural knowledge refers to the ability to cite a source obtained on the Web.

Due to the widespread "cut and paste" practice of copyrighted digital resources on the Web, it is important to address the notion of plagiarism in the Web context now that it has extended beyond schools and colleges into mainstream society. Student *understanding* of cyber-plagiarism, *values* they place on uses of copyrighted digital resources, and related *behaviors* vary widely.

In order to design sequenced student-centered instructional units on understanding ethical uses of information and information technology, training programs must be based on learners' capacities, gaps and needs. Thus, our first task was to develop assessment indicators for the constructs mentioned in the two sets of standards.

While there is some progress made on assessment measures of IL in general, we found little evidence with regard to student knowledge of, values, and practices in the ethical uses of copyrighted digital resources. The notion of plagiarism has been traditionally addressed with a one-size-fits-all teaching regarding ethical uses of Web sources that invariably include dictionary definitions, bibliographic templates, and subsequent punishments if students are found guilty of plagiarism and fabrication in their reports. Unfortunately, this type of pedagogical model has not produced desirable outcomes across the educational ladder. Clearly, innovative student-centered intervention models on ethical uses of digital assets need to be developed, tested, and partnered with librarians and the faculty.

Colleges have been concerned with plagiarism issues and have started to publish tutorials and quizzes on their library portals. In an interview with three candidates for 2005 IEEE president-elect, a top professional engineering society, the candidates were asked to comment on their views toward plagiarism. Asked "What action do you think is appropriate to take against an IEEE member found to have plagiarized another's work?", one of the respondents noted that the important mission is to educate people that plagiarism is not acceptable and that it is against the code of engineering ethics (Kowalenko, 2004).

Nearly every form of expression is nowadays available on paper and in multiple digital equivalents. While many educational institutions have become wired, literature suggests that people are unclear as to what digital objects are, how to manage them properly, prevent plagiarism, and train the new generation of citizens who will continue to access, manage, and use digital assets throughout their lives. We need innovative models that would engage *students*, *librarians*,and *faculty*at different levels of learning in understanding why plagiarism is immoral. We believe that if secondary school students are given proper interventions during their formative stages of moral development, they will have sufficient capacity to build upon at subsequent learning levels.

Objectives and Research Design

The main objectives of this exploratory study are to:

G1: Demonstrate the extent of difficulties high school students have in their understanding of, values they place on plagiarism in the context of Web resources, and relative behaviors (what students say they know, what their attitudes are toward plagiarism, and what they do).

G2: Develop indicators that measure content knowledge, values toward and students' behaviors of cyber-plagiarism.

The Context

This study was a part of a new school-wide initiative under History Department and the Library. The purpose has been to prepare junior high school students for writing research papers on self-selected topics in American History in the 50s and 60s. We wanted from the outset of the project to instill in students a sense of self-respect, to use resources responsibly, and to adhere to high academic ethical standards.

The process was conceptualized as a three-part program. After a sequence of three 55-

minute instructional units, students were divided into two groups, each visiting a major local college library for a full day field trip. Students prepared ahead of their off-campus visit and researched their topics using a variety of resources such as books, online databases and encyclopedias. The third part consisted of an additional three 55-minute units.

Subjects and the Testing Environment

Non-AP American History high school juniors were asked to respond to a self-administered eight-page paper-and-pencil pretest questionnaire. A sample of availability of thirty-seven eleventh grade students was considered adequate in this exploratory study. Twenty-one male and sixteen female students were all from an independent 7-12 co-educational school in Los Angeles. There were three sessions with two history teachers. We have no reason to suspect that the students were self-selected by aptitude, gender, friends, particular teacher, or time of the day. All scheduling is done independently of students' preferences; it is dependent on classroom space alone.

The pretest took about 15 minutes to complete. The investigator as well as history teachers in respective classes were present during the test. Students were told briefly about the purpose of the test, they were assured that responses will not influence their grades, and that in many instances there are no right or wrong answers. All students were unidentified for confidentiality reasons.

The Pretest Instrument

A draft of the questionnaire was pre-tested with teachers and high school sophomores in Fall of 2003. It was subsequently revised on wording and ordering of questions asked. The pretest was designed to solicit student responses with respect to their content knowledge of cyber-plagiarism, their attitudes, and behaviors in the area of cyber-plagiarism related issues.

Part (a) developed assessment indicators to capture students' *content knowledge* of cyber-plagiarism related concepts. Students were asked to circle the best definition among several definitions of plagiarism, and to recognize a correct citation format for a book, a magazine article, a Web site. A separate question asked students to identify the part of web citation that books do not have. Other questions pertained to practice of citing, recognizing if a portion of text has been plagiarized, and if the students' exhibited preference to cite printed over electronic resources. Students were asked to indicate on a five-point scale specific instances in which they would cite Web based material (e.g., if they copied exactly an entire paragraph, a sentence, quoted text, or paraphrased). Students were asked about their practices in citing printed and electronic equivalents; if they understood the concept of various authorial responsibilities that participate in intellectual or artistic functions. For example, would they cite a choreographer whose dance is put on DVD, map-maker, speechwriter, and film producer. Students were also asked to mark examples of plagiarism (or not) for the following activities: copying computer code off the Web and submitting as own; for transferring email information or ideas into their own work without attribution; for scanning images and making a DVD album for sale; for digitizing someone's cartoons and sharing them on the Web under their name. Students were also asked if they were given points for submitting bibliographies along with their work, and about their awareness of honor code in their schools.

Part (b) used indicators to measure students' *attitudes* toward plagiarism. Students were asked to compare plagiarizing with activities such as stealing and cheating. Again, as in the section on content knowledge, students were asked to state what they considered "immoral" toward various non-book materials. Examples included burning CDs for commercial profit, mixing songs into a new album and distributing to friends, rendering photos and making a new album without attribution, and downloading images for classroom (educational) purpose. Other indicators to gauge student values toward cyber-plagiarism were measured in terms of how students ranked order various behaviors on levels of seriousness on a five-point scale (Niels, 2002).

Part (c) used indicators to gauge students' *actions* toward academic honesty in general, plagiarism included. Examples of students' behavior was measured in terms of their self-reported answers to questions, if they have ever cheated on tests, projects, lab

reports, if they gave or received help, and the extent of such behavior. They were asked to give reasons for cheating (e.g., competition, fears of failing, parents' expectations, teachers are soft, everyone cheats, won't be caught). Other questions asked if they would recycle and/or purchased papers from paper mills and other sources.

Findings

Content Knowledge-What Students Say They Know?

The first part of the survey gauged students' level of content knowledge with regard to cyber-plagiarism. Among interesting findings was the extent of difficulties students had with regard to giving attribution to creators of non-book resources; examples are photographers, choreographers, and cartoon artists. In particular, the extent of students' difficulties is demonstrated in their answers to a multi-part question with regard to the concept of authorship:

1. Forty percent of students would fail to cite an artist who choreographed dances for a ballet Romeo and Juliette.
2. About 30 percent students (n=11) think that maps are not worth crediting.
3. Scanning images and making a DVD album for sale is considered plagiarism by sixteen percent of students.
4. None of the students thought that plagiarism is digitizing someone's cartoons and sharing them on the Web under own name.
5. None of the students thought that copying computer code off the Web and submitting as own would constitute plagiarism.
6. Only twenty-one percent of students regard plagiarism when transferring email information to own work without giving credit to email transcripts (senders' name, time stamp).
7. Only six students thought that failing to cite interviews would be considered plagiarism. Majority (81 percent) would not attribute ideas received from personal communication.

Students had problems understanding digital objects, especially primary digital

resources. While all except one student agreed that personal letters were primary sources, only 29 percent considered digital photos as primary sources, 42 percent said that Alexander Hamilton's shoes were primary sources, and 45 percent considered their family's records as primary sources. About two thirds of the students under study were not sure about the concept of fair use; in this regard, one of the questions asked students if we had right to include a digitized photo from the Library of Congress collection of prints and photographs on the survey. Thirty-five percent (n=14) said that "we had right to include an image on the survey."

Nearly half of the students (49%) under study would give credit only "to avoid punishment". Others cite sources to "support evidence that you use in your report," and to "help your reader find a resource that you used in your report."

Furthermore, students would credit sources if they quoted portions of text (83%) or copied exactly from a source (43%). With regard to Web resources, only fifty-six percent of the students "strongly agree" and "agree" that they would cite sources if the text was quoted. Forty-five percent of the students would credit Web sites that provided ideas in their work. In general, only sixteen percent of the students (n=6) thought that paraphrasing or summarizing another's work without attribution would be considered plagiarism; eighty-one percent are all right to paraphrase without attribution. Eighty-one percent of students would not cite a source for ideas not commonly known. Misquoting someone else's work is considered plagiarism by eighteen percent of the students. None of the students think that using someone else's work as own would be considered cheating.

Specifically, students were asked to match two citation formats with a Web site, a book, a magazine article, and an encyclopedia article. The magazine article as a citation pattern was recognized by 11 of 37 students (29%), and six students (16%) could not match the correct citation with a book.

Students' Attitudes toward Plagiarism

The second part of the pretest attempted to gauge students' attitudes toward

plagiarism related issues. Seventy-three percent of the students (n=27) feel it is "immoral" to use the same logo or trade mark (like in nike shoes, coca cola) and present as their work. Fewer students (37%) feel that it is immoral to render a stuffed animal and display locally under their name. Nearly all (35 of 37) students think that it is all right to use a particular design (cereal box, Campbell soup design, etc.) as a basis for their work and acknowledge the original artist's name.

Students were asked to respond about their attitudes toward various non-textual digital art products such as music, images, and photos. Specifically, students feel that it is immoral to:

1. Burn CDs for commercial profit (eighty-six percent (n=32) of the students think it is wrong).
2. Reproduce an image and publicly display under their name (fifty-one percent (n=19) think it is immoral).
3. Burn CDs even for your own use (only four students think that it is not all right).
4. Mix songs into a new album for non-commercial purposes (distribution to friends). Six students regard this as immoral.
5. Modify an existing album and resell to friends. Over two thirds of students (n=25, 67%) consider it immoral.
6. Download images for educational purpose (fair use). Only three students consider it immoral.
7. Render photos and make a new album without attribution. Fifty-eight (58%) students think that it would be wrong.

Finally, students were asked to rank level of seriousness of various forms of academic cheating on a scale of five (very serious) to one (not at all serious). Students' responses show an overall confusion of what constitutes academic honesty. Is copying an answer left by mistake on the board considered a dishonest act? By looking at the spread of answers to most questions (e.g., 1, 5-9, 11-14), there is a definite need to instill a solid sense of what constitutes a moral behavior, a feeling of thrust and respect toward self and others. For comparison purposes, the list was given separately to a group of teachers as well as to parents. Disagreement between the groups and among the members within each group tells us that teachers, students, and parents need guidance

in the matter academic dishonesty should be interpreted and treated.

What Students Do?

Finally, the survey explored students' practice in the area of academic honesty in general. Students were asked the following questions: "Have you ever given help on tests, exams, projects, lab reports to your friends?" and "Have you ever received help from others on tests, exams, projects, lab reports?" Only 7 and 8 students respectively have never given or received help while on tests, exams, projects, and lab reports from their friends. Thirty-one students (80%) helped on tests, and thirty students (78%) received help at some point. We have not asked how often and when they gave or received help. This is in large contrast with their own attitudes toward the types of behaviors previously ranked "very serious" by the same group of students. It demonstrates our earlier remark that students' content knowledge, their attitudes, and behaviors vary widely. Fears of failing followed by parents' high expectations were the two reasons students give as reasons for their plagiarized work.

Conclusions and Further Work

This study explored extent of students' content knowledge, their attitudes, and general practices toward cyber-plagiarism and academic [dis]honesty. A sample of availability consisted of thirty-seven junior high school students from an independent school during Spring of 2004. We designed and pre-tested paper-and-pencil assessment instrument both with students and teachers on wording and sequencing of questions. This study's results have demonstrated that numerous concepts in the area of Social Responsibility are confusing in the minds of high school junior students under study. The following core recommendations are based on this study's students' responses to questions related to content knowledge, attitudes, and behaviors with regard to cyber-plagiarism:

1. Teach teachers, (e.g., in-service, pre-service, mentoring) to deal with cheating situations. This should be a part of the school mission and in collaboration with

media specialists, administrators and care givers. In addition, teachers themselves may not know how to cite digital resources; they also appear to be inconsistent in requiring students to write bibliographies. The implication here is that more training is needed for both teachers and students (and parents) in the area of Social Responsibility skills. Thus, librarians have an untapped opportunity to collaborate with faculty in offering their expertise on conceptual and procedural aspects of responsible uses of all kinds of resources, born digital and digitized. Creative methods should be developed to teach students about catalogs and how these compare with magazine databases, search engines, digital libraries, and archives.

2. Teach students at different levels of their understanding the notion of *intellectual property* both conceptually (what it consists of, why it exists, how to decide when to credit others' ideas) and procedurally (how to write a bibliography). It seems as if the students are trained to make judgment mechanically, based on whether or not a text is put between a pair of quotation marks. If quoted, it gets cited by the majority of students for some formats and media. Since images, music, cartoons, and other artistic products are generally not quoted, they don't get attribution. Teach students to distinguish between intellectual property and trade marks when they use in their work. There might be a general confusion between what is permissible for the purposes of classroom practice in contrast to what is ethical when students' art is displayed publicly under their names.

3. *Authors matter.* While the procedural instruction has been included in IL units with a variety of templates and case studies, conceptually, this is the problem of *authorship.* As such, it may be a more difficult concept to teach especially secondary school students, middle school, in particular. However, in a long run, teaching this concept early on might be a more powerful way to organize many IL skills.

4. *Content matters.* One of the lessons we need to convey in IL units is that students give credit to borrowed materials regardless of format (book, map, sound recording, serial), medium (print, digital, networked), intellectual (writings), or type of artistic creation (graphic, moving picture, audio,

choreography). Plagiarism applies equally well to text, image, video, quilt, music, any intellectual or artistic endeavor. Understanding the concepts of authorship and content should be weaved throughout IL skills.

5. Instill the sense of cultural heritage in *primary sources*, digitized or born digital, focusing on "objects" rather than particular examples of primary sources (e.g., diaries, postcards, costume, armory, decorative and other museum and archival artifacts). There is a need to explain the nature of digital objects in general, and specifically digital primary sources to students of all ages. It is important to do this now because thousands of digital historical documents, archival and museum artifacts, scientific data, visualization, and models are increasingly being available to anyone who has access to digital collections (e.g., The American Memory; Digital Library for Earth System Education (DLESE); National Science, Mathematics, Engineering, and Technology Education Digital Library (NSDL)). Internet is students' source of choice, so they will continue to use wealth of information in their reports from these and other digital libraries, and we have a responsibility to explain ethical uses of digital objects at appropriate levels of their moral understanding. From students' own responses, it appears that they would cite printed over Web sources.

6. Teach students to correctly *paraphrase*and give credit to ideas and sources they use in their own work. When a group of seventh grade children were recently surveyed on their practice of citing Web resources, 73 percent (n=57) said they would credit information or ideas obtained from Internet if they quoted sources; only 28 percent (n=22) would credit sources if they paraphrased.

7. Develop a variety of age appropriate and inquiry-based *moral scenarios*that students can begin to understand why plagiarism is morally wrong.

8. Teach students to respect themselves by being honest not for "fears of failing" and because of "parents' high expectations."

9. Teach the teachers to consistently require students to write bibliographies in reports, presentations and projects.

We expect that this study's contribution will raise awareness about the nature of digital networked resources in the way these can be properly managed and responsibly used throughout lifelong learning at all educational levels. As we make transition from predominantly textual materials to multimedia, fundamental products of intellectual or artistic endeavor, and intellectual property rights need to be taught at appropriate levels of students' moral reasoning.

We believe that this study will have a major impact on how librarians will train learners in responsible uses of digital networked resources. The contribution is of theoretical and practical values and may be applicable in the broad educational and policy-making aspects.

Further Work and Concluding Remarks

Based on the findings from this study, we have piloted intervention programs for upper grade high school students. The procedure will be adjusted and replicated with middle school students. The result will have a unified structure that introduces students at their "native" stages of development to the ethical uses of digital resources. Post-tests are being developed to assess the effect interventions will have on content knowledge, attitudes students have toward cyber-plagiarism issues as demonstrated in their learning outcomes, and related behaviors.

Further studies will be designed to show that there is a positive correlation between students' content knowledge and their attitudes and behaviors toward cyber-plagiarism. The ultimate goal is to produce graduates who will reduce cheating and plagiarizing. We will know that we have accomplished this goal when deans for students' behavior no longer report embarrassing cases of cheating, when we no longer have to "punish" students for their unacceptable actions, and when there is a culture in place that respects learning itself rather than learning for an A plus outcomes. Until then, we need to keep working on designing student-centered instructional units, ensuring that instructors are well prepared, and that campuses are dedicated to ethical graduates.

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