

PLAGIARISM CHECK AS LEARNING EXPERIENCE

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ABSTRACT

Plagiarism detection services, such as turnitin.com, can help professors identify unreferenced copying and, perhaps more important, deter students from even attempting to take credit for the work of another. The services can also help professors teach students about proper acknowledgement practice. The present paper describes one professor's experience with turnitin.com. The service was used as an opportunity to teach students about good scholarship, rather than as a club with which to threaten and punish them.

INTRODUCTION

Speeches of presidents (of the country, of corporations, of universities) are ghost written, as are many books. Professors' names are listed as co-author of scholarly papers though little, if any, actual contribution was made by the person whose name was added. Memos, proposals, and reports are written by subordinates while administrators and managers put their names on the work. Though seldom described using the p-word, Martin (1994, pp. 38-41) dubs this form of taking credit for the work of others "institutionalized plagiarism." Its existence makes it difficult to answer the student who says, "If the president (or professor or boss) can do it, why can't I?" Competitive plagiarism, on the other hand, as Martin calls it, occurs in an academic or intellectual (rather than institutional or bureaucratic) context in which the writer is vying for status and advancement by taking credit for ideas based on individual effort. Thus, the student, who may justifiably not be convinced by this distinction, or by mumblings from the professor about expectations and generally accepted practice, must do more than the president.

Yet moralistic denunciations and punishments do not seem warranted for students who, for example, paraphrase poorly or even copy word for word from the Internet. Students, Martin argues, "simply do not know or understand proper acknowledgement practice . . . [They] are apprentices, and some of them learn the scholarly trade slowly" (p. 37). It would seem to follow, then, that plagiarism checking, say, through an Internet-based plagiarism detection service, such as turnitin.com, should be viewed as a learning experience for the student, rather than as an opportunity to turn students over to an Office of Judicial Affairs for possible probation or expulsion. The

author of this paper views plagiarism checking in precisely this manner, as a teaching and learning experience, and for two years has been using turnitin.com to detect competitive plagiarism in his International Marketing course. The present paper describes the results of one professor's ongoing evaluation of turnitin.com as both a detector and preventer of plagiarism and, more importantly, as a vehicle by which to teach students about good acknowledgement practice.

INTERNET PLAGIARISM

Plagiarism of research papers in marketing courses, of course, is not new, but the arrival of the Internet has posed new challenges for maintaining and enforcing academic integrity in the classroom. The most common type of Internet plagiarism, because it is so easy to do, is "cut and paste," that is, the process of selecting a few sentences from a source, then copying and pasting them without quotation marks or citation in the final paper. In a 1999 survey, McCabe (2001a, 2001b) found between 10% and 20% of college students admitting to such behavior, with nearly half not considering the act to be serious cheating. Between 5% and 10% have admitted to downloading papers from the Internet. In a 2003 survey, 38% of students admitted to cut and paste plagiarism with 44% not considering it a serious issue (Rutgers, the State University of New Jersey 2003). The reasons for such cheating are procrastination and a variety of pressures—to pass, for example, or to get good grades, or to succeed, or because of too much work; observation of peer behavior is a major influence on the decision to cheat (McCabe 2001a, 2001b; McCabe, Trevino, and Butterfield 2001).

The amount of plagiarism, however, generated from the Internet apparently is not greater than that generated from printed sources. Scanlon and Neumann (2002, p. 379) found 24.5% of students to have admitted to sometimes, very frequently, or often committing cut and paste plagiarism, whereas 28.6% admitted to doing the same from printed texts. This seems to indicate that the advent of the Internet has not led to an increase in plagiarism. Indeed, McCabe (2001b) asserts that only 6% of Internet plagiarizers are new cheaters. Perception is everything, though: 87.7% of students in the Scanlon and Neumann study think their peers practice cut and paste. McCabe (2001a), who has done extensive work with

both high school and college students on a wide variety of cheating issues, points out that cut and paste plagiarism is more widespread among high school than college students, 52% to 10%, because high school students have not yet fully grasped the meaning and purpose of citation. In fact, "many of them," he says, "are developing an attitude that anything on the Internet is public domain, and they're not seeing copying as cheating" (quoted in Kellogg 2002, p. A44). This attitude also seems to be prevalent among college students who cut and paste (see Labi 2004).

THE PLAGIARISM CHECKING SERVICE

Plagiarism detection services use proprietary algorithms to compare student papers to source documents on the World-Wide Web. A match of phrases, sentences, or paragraphs from an Internet source are then highlighted in the student paper and an originality report is generated by producing a score based on percentage of similarity between the student paper and source documents. The Internet sources are also identified so that the professor may make side-by-side comparisons. Turnitin.com was the first such service to be founded, in 1996. Its direct competitor is MyDropBox.com (formerly plagiserve.com), founded in 1999. The present paper is based on the author's experience with turnitin.com.

Turnitin.com boasts access to three databases: 4.5 billion pages of Internet documents, millions of published works, and millions of previously submitted high school and college papers (Turnitin.com (a)). It creates a digital fingerprint of the student paper, then samples the archives based on a "dimensional reduction" technique that "automatically group[s] papers by categories and specific mathematical relationships" (Turnitin.com (b)). In addition to matching exact text, the service can also detect poor paraphrasing by the student, which usually means that a few words are substituted here and there for the actual content; turnitin.com will highlight the exact text from the source, revealing the substituted words unhighlighted. The same process will reveal what turnitin.com calls sentence substitution, wherein one or two sentences may be written by the student, but the remainder of the paragraph has been cribbed. Custom research papers—original papers especially ghost written for the student—will not be detected. Turnitin.com reports that less than one percent of papers submitted to its service are copied entirely from one source (Turnitin.com (c)).

LEGAL ISSUES

Plagiarism detection services, however, are not without controversy. A student at McGill University in

Montreal refused to submit his papers to turnitin.com and a faculty senate committee supported him (Grinberg 2004). Essentially, there are three issues that apply here under U. S. law: the presumption of guilt, that is, submitting, or forcing students to submit, papers without the student's prior consent; the violation of the Family Educational Rights and Privacy Act (FERPA); and the infringement of student copyrights to their papers. Turnitin.com denies all of these criticisms (Turnitin.com (d)).

Concerning the first issue, students, when attending a school or university, agree to an implied license that enables the instructor to evaluate their work, which may include making copies of papers to give to an assistant or librarian to check for authenticity; turnitin.com is just another "assistant." FERPA violations only apply to giving out identifying information from a student's record; however, an ungraded paper, the courts have ruled, is not yet a part of the student's record and only the instructor can identify the author of a paper submitted to turnitin.com. Names are never released by the service even though FERPA allows schools to do so after the grades have been recorded, provided annual notice is given to students. Copyright infringement is probably the most serious charge, because the submitted papers are stored for subsequent plagiarism checking and for making a profit. Turnitin.com responds by saying that only a digital fingerprint, "a digital code, which relays . . . unprotectable factual information," is archived and that the marketable value of the student paper is not in any way diminished by its retention. In fact, its marketability, when shown to be completely original by the service, is likely enhanced (turnitin.com (d), pp. 6-8). Such use of student papers, turnitin.com argues, falls well within the fair-use provision of U. S. Copyright Law.

EVALUATION

Turnitin.com was made available as a test to faculty of the California State University during the spring of 2002. It was adopted system-wide in the fall. At that time, the author began using turnitin.com in his International Marketing course and has used it now for five quarters.

The Assignment

The assignment that students must complete is an adaptation of the country notebook in Cateora and Graham's textbook *International Marketing* (2005, pp. 591-600). The country notebook consists of four parts: cultural analysis, economic analysis, market audit and competitive market analysis, and preliminary marketing plan. Students conduct extensive

secondary data searches in order to describe the cultural, economic, and market conditions of a country they have chosen, then produce a marketing plan for distributing a specific product in that country. The country notebook is a major undertaking for ten-week quarters, especially when the project, as required by the present author, is an individual, rather than group, assignment and the classes usually consist of 40 students. To cope with these requirements, the author combined the third and fourth parts of Cateora and Graham's country notebook and relegated them to extra credit, due on the day of the final exam. The cultural and economic analyses were split into two separate papers with draft, peer review, and final copy required for each.

The rationale for separate papers and for the draft-and-peer-review process comes from the writing-across-the-curriculum movement that began in England in the 1960s and spread throughout the United States in the 1970s and '80s (Boland 1989). The premise of writing across the curriculum is that writing should be at the center of learning in all disciplines. To facilitate the teaching of writing in all disciplines, and to encourage professors to do so, a large number of techniques have been developed and tested. Among the suggestions are assignments that are shorter than normal, but more of them, as well as the draft-and-peer-review process (Odell 1980; Herrington 1981).

The author's assignment is to have the students write two two-and-a-half page papers, the cultural and economic analyses of their chosen country (minimums: one-and-one-half spacing, ten-point type, one-inch margins). The draft of each paper is peer reviewed in class one week before final copy is due. After revisions are made to the draft, students are instructed to submit their papers to turnitin.com for a plagiarism check. Final copy is handed in for grading, along with the draft, peer review, and originality report from turnitin.com. The latter are required to prove that the student complied with the assignment, but they are not graded.

The syllabus and class discussions leading up to the first submission to turnitin.com emphasize that this process should be viewed as a learning experience, not as a punishment or prior assumption of guilt. Indeed, the author admits to the students that he has submitted three of his own papers to the service (and was pleased to receive a 0% similarity score) and stresses that the service essentially is a dumb computer that is looking for matching words, phrases, clauses, and sentences. For example, on one of the author's papers, turnitin.com highlighted the clause "what we would like to achieve in the future," which

could appear in any number of papers and not indicate plagiarism. The dumb computer, the author tells his students, will also highlight properly quoted and cited material. Thus, a certain amount of flakiness is to be expected. Additional discussions focus on the nature of proper citation and good acknowledgement practice. The author's goal throughout the course is to help students, not to threaten or punish them.

Turnitin.com's originality report issues a similarity index based on a five-point scale, either numerical or color-coded (the student and professor can choose either). The professor can access all papers online and view the originality reports and highlighted passages. The scale reads as follows: 1 (blue), fewer than 20 matching words; 2 (green), 0 - 24% matching text; 3 (orange), 25 - 49% matching text; 4 (yellow), 50 - 74% matching text; and 5 (red), 75-100% matching text. The author's syllabus states that a score of 3 (orange) or above means the paper should be further reworked. The author also tries to monitor submissions before the due date and email students, especially those with high scores, with suggestions for improvement. (The author does not always succeed in this task, unfortunately.)

Impressions

Because data for the country notebook assignment is almost entirely secondary (occasionally, a student will interview a national) and, today, comes almost entirely from the Internet, the arrival of plagiarism checking services, such as turnitin.com, was viewed by this author as a godsend. Prior to the use of turnitin.com, the author was certain that papers were being recycled and that large chunks of text were taken unacknowledged from the Internet. Lack of a database of past papers and time to submit a sentence or two to a search engine, such as google.com, to look for Internet sources made it impossible to check for plagiarism. After using turnitin.com for two years, the author is now just as certain that paper recycling has almost completely disappeared. The same can be said for the purchased (but not custom written) papers. The use of turnitin.com seems to stop most hard-core cheaters from even trying to pass off the work of others as their own. (However, see below.)

What comes across to the author after five quarters' use of turnitin.com is that a significant minority of upper-division college students do not understand how to do good research, especially what needs to be referenced and how to do so. Perhaps some students are not trying to understand, but when a student innocently asks, "It's just a fact. Why does literacy rate need to be referenced?," or says, "I thought only what

I put in quotation marks had to be referenced," it is difficult to conclude that this is an act. As McCabe said above, it does seem that some students today are viewing information available on the Internet as in the public domain.

The most common errors committed by students and revealed by use of turnitin.com range from no reference to poor paraphrasing to excessive quoting of referenced material. Lack of reference in some cases means the student provided only a bibliography. Poor paraphrasing usually includes word and sentence substitution. And excessive quoting is properly referenced, but little or no original writing by the student is present.

Data

Turnitin.com makes available modest statistics for each assignment, based on a similarity index received on the originality reports. Table 1 summarizes these findings for the five quarters in which the service was used. It should be pointed out immediately

TABLE 4

The draft and peer-review process used for the Country Notebook papers was a valuable learning experience. Why?	Court	Pt
It helped me correct mistakes, see what was overlooked, gave me a chance to edit	14	412
Good to get a different point of view	11	324
I enjoyed my peers' papers	4	118
Good to get ideas for new material	1	29
It showed me that people do different kinds of research	1	29
I could learn what others found interesting about my country	1	29
It kept me from procrastinating	1	29
It helped somewhat	1	29
	34	1000

TABLE 5

The draft and peer-review process used for the Country Notebook papers was not a valuable learning experience. Why not?	Court	Pt
I knew what I was missing, didn't need someone to tell me that	4	444
Professor's evaluation and criticism are more effective	2	222
No help, the reviewer wanted to change my paper to the way he or she would write it	1	111
Didn't help me	1	111
Not taken seriously if done by a friend	1	111
	9	1000

that turnitin.com upgraded its software in 2003 to provide more rigorous matches of text. Table 1 shows a dramatic shift between the winter and spring quar-

ters of 2003 in the number of students who had similarity indexes of fewer than 20 words and those who had 0-24% matching text. This does not indicate a sudden decline in academic integrity on the part of international marketing students; rather, it reflects the software upgrade. In the author's opinion, the criterion of fewer than 20 matching words is extreme, considering the "flakiness" of the "dumb computer" to highlight isolated words and phrases, as well as references, especially URL codes, that may be sufficient to push the student's score into the second (green) category.

Papers in the highest two categories (50-74% and 75-100% matching text) typically had several large chunks of unacknowledged cut-and-paste text. One student in particular, after an email from the author, did quite a good rewrite. Two papers in the red zone (75-100%) were recycled from the author's previous classes. This last usually drew a stern email threatening failure of the course unless an original paper was submitted by some specified date (four or five days from the date of the email). One student produced a reasonably good paper that passed the turnitin.com test; she was also a good (3.00) student. The other had submitted his paper to turnitin.com under a bogus email address and disappeared from class.

Because the similarity index is based on word count—number of highlighted words divided by the total in the paper—turnitin.com provides a word count for each student's paper on the originality report. For the winter quarter of 2003, the author calculated a Pearson correlation coefficient between word count of the cultural analysis paper and student grade. Letter grades are assigned to the papers, and for purposes of this calculation, the letter grades were converted to the 4.00 system (A = 4.000, A- = 3.667, etc.). The Pearson correlation coefficient was a positive .67 (n = 35). It must be emphasized, of course, that number of words in, or length of, many kinds of papers is not the proper criterion for grading. In the country notebook, however, thoroughness of research is what students are told will be the standard. The correlation coefficient seems to uphold this relationship. Indeed, "A" papers include a remarkable amount of information—as many as 1500 words—in two-and-one-half pages.

After completing the final exam during the spring quarter of 2004, students were asked to respond to a brief, anonymous questionnaire (n = 42) that was analyzed well after the final grades were recorded. Two questions compared student perceptions of their understanding of the nature of plagiarism before and at the conclusion of the author's course. A five-point scale ranging from "High" (5) to "Low" (1) understanding was used. The mean score for the "before" meas-

ure was 4.50 and the "after" was 4.81. A paired samples t-test was significant at $p = .005$ ($t = -2.949$, $s = 0.690$). While many limitations to this finding can be mentioned, the most interesting interpretation is that despite the likelihood that some students, upon entering the course, already understood the nature of plagiarism, the test found a significant difference between the two measures. It seems to confirm the author's suspicion of need to teach good acknowledgment practice.

Two additional questions, using a five-point Likert-type agree-disagree scale (with "strongly agree" being 5), were asked. The first asked students to indicate extent of agreement or disagreement with a statement that said submitting papers to turnitin.com was a valuable learning experience. The second asserted that the draft-and-peer-review process was a valuable learning experience. Both questions asked the follow-up, open-ended questions: why or why not? The mean of the first was 3.69 and of the second 3.81. A paired samples t-test was not significant—there was no reason to expect it to be. A moderate inverse correlation, though, was found between the first question and the before measure of understanding of the nature of plagiarism. It was $-.31$. The interpretation would be: the lower the understanding of the nature of plagiarism before taking the author's course, the greater the use of turnitin.com was a learning experience ($p = .001$).

The most valuable and enriching findings, as usually occurs when asking open-ended questions, are to be found in answers to the "why or why not?" questions. Tables 2, 3, 3A, 4, and 5 summarize these findings. (Counts do not add to sample size because of multiple responses.) Corresponding with the difference in mean scores between use of turnitin.com and the draft-and-peer-review process, students by a slight margin seem to have had a better experience with the latter than the former. Especially pleasing to the author are the comments in Table 2 about the value of turnitin.com: "made me do better research," "put in my own words," "fix problems," "teaches honesty," etc. A significant number of students, in other words, found the use of turnitin.com to be valuable. On the negative side, in Table 3, some students who know how to cite properly were indignant about having to go through the process.

Table 3A lists the comments of three students that are quite similar and, at the same time, disturbing. They possibly capture the essence of what the significant minority, who do not understand what good research and acknowledgement practice are, think. "It's just facts. It can't be original. Of course it's going to look like plagiarism." An unstated premise here is

TABLE 2

Submitting my Country Notebook papers to turnitin.com was a valuable learning experience. Why?	Count	Pct
It helped, gave me valuable information, was good to see 3rd party evaluation	8	25.0
It made me do better research, cite sources, put in my own words	8	25.0
It helped me to avoid plagiarism, enabled me to fix problems	5	15.6
It teaches honesty, it let me know how well I paraphrased	3	9.4
I learned how much came from other sources, wondered if I was citing too little or too much	3	9.4
It made clear how easily plagiarism is done and noticed	2	6.3
It was okay	2	6.3
It was fair	1	3.1
	32	100.0

TABLE 3

Submitting my Country Notebook papers to turnitin.com was not a valuable learning experience. Why not?	Count	Pct
Just data and facts were highlighted, common phrases; should do the whole paper	3	27.3
Didn't help, didn't learn anything; it's just for professors	2	18.2
I don't plagiarize	2	18.2
Why do it? Should know how to cite	1	9.1
Learned only that it exists; how could it have been a learning experience?	1	9.1
Everything in quotes came back in red	1	9.1
Database not yet large or strong enough	1	9.1
	11	100.0

TABLE 3A

Comments Requiring Special Comment
Research papers are standard; can't help repeating information clearly and concisely
Information from other sources, never my idea - good for English class
Notebook all facts from somewhere, so naturally it's going to look like plagiar

that facts on the Internet are public domain. The fundamental error in this way of thinking is to believe that the process of reporting facts, by its very nature, because someone else has identified the facts first, cannot be original. The challenge to instructors, though, is to correct this thinking by pointing out, for example, that even newspaper reporters, who often report facts identified by others, must still write their own stories, in their own words.

Tables 4 and 5 indicate a general appreciation of the peer review process. The author, who has used this technique for improving papers for many years, has found it to be successful in producing better papers than when the technique is not used. Turnitin.com now provides an electronic version of peer review, wherein students, as assigned by the instructor, can access other students' papers for constructive comment. The author, however, has not yet explored this form of peer review.

CONCLUSION

Electronic detection services are not a panacea for instructor doubts about the authenticity of student papers. They are, nevertheless, a powerful assistant in helping maintain academic integrity. More importantly, as demonstrated here, they can become valuable tools for teaching the meaning of good acknowl-

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The draft-and-peer-review process used for the Country Notebook papers was a valuable learning experience. Why?

	Count	Pct
It helped me correct mistakes, see what was overlooked, gave me a chance to edit	14	41.2
Good to get a different point of view	11	32.4
I enjoyed my peers' papers	4	11.8
Good to get ideas for new material	1	2.9
It showed me that people do different kinds of research	1	2.9
I could learn what others found interesting about my country	1	2.9
It kept me from procrastinating	1	2.9
It helped somewhat	1	2.9
	34	100.0

TABLE 5

The draft-and-peer-review process used for the Country Notebook papers was not a valuable learning experience. Why not?

	Count	Pct
I knew what I was missing, didn't need someone to tell me that	4	44.4
Professor's evaluation and criticism are more effective	2	22.2
No help; the reviewer wanted to change my paper to the way he or she would write it	1	11.1
Didn't help me	1	11.1
Not taken seriously if done by a friend	1	11.1
	9	100.0

edgement practice. Indeed, turnitin.com, at the instructor's option, will now overwrite originality reports until the due date of the paper; this means that students can re-submit their papers after making corrections without receiving a red zone similarity index (because, without this feature, the re-submit would match at nearly 100% the first submission). This feature, not available for the two years of use discussed in this paper, can only enhance the learning experience of students who sincerely want to learn what good research is.

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The assignment that students must complete is an adaptation of the country notebook in Cateora and Graham's textbook *International Marketing* (2005, pp. 591-600). The country notebook consists of four parts: cultural analysis, economic analysis, market audit and competitive market analysis, and preliminary marketing plan. Students conduct extensive

secondary data searches in order to describe the cultural, economic, and market conditions of a country they have chosen, then produce a marketing plan for distributing a specific product in that country. The country notebook is a major undertaking for ten-week quarters, especially when the project, as required by the present author, is an individual, rather than group, assignment and the classes usually consist of 40 students. To cope with these requirements, the author combined the third and fourth parts of Cateora and Graham's country notebook and relegated them to extra credit, due on the day of the final exam. The cultural and economic analyses were split into two separate papers with draft, peer review, and final copy required for each.

The rationale for separate papers and for the draft-and-peer-review process comes from the writing-across-the-curriculum movement that began in England in the 1960s and spread throughout the United States in the 1970s and '80s (Boland 1989). The premise of writing across the curriculum is that writing should be at the center of learning in all disciplines. To facilitate the teaching of writing in all disciplines, and to encourage professors to do so, a large number of techniques have been developed and tested. Among the suggestions are assignments that are shorter than normal, but more of them, as well as the draft-and-peer-review process (Odell 1980; Herrington 1981).

The author's assignment is to have the students write two two-and-a-half page papers, the cultural and economic analyses of their chosen country (minimums: one-and-one-half spacing, ten-point type, one-inch margins). The draft of each paper is peer reviewed in class one week before final copy is due. After revisions are made to the draft, students are instructed to submit their papers to turnitin.com for a plagiarism check. Final copy is handed in for grading, along with the draft, peer review, and originality report from turnitin.com. The latter are required to prove that the student complied with the assignment, but they are not graded.

The syllabus and class discussions leading up to the first submission to turnitin.com emphasize that this process should be viewed as a learning experience, not as a punishment or prior assumption of guilt. Indeed, the author admits to the students that he has submitted three of his own papers to the service (and was pleased to receive a 0% similarity score) and stresses that the service essentially is a dumb computer that is looking for matching words, phrases, clauses, and sentences. For example, on one of the author's papers, turnitin.com highlighted the clause "what we would like to achieve in the future," which

could appear in any number of papers and not indicate plagiarism. The dumb computer, the author tells his students, will also highlight properly quoted and cited material. Thus, a certain amount of flakiness is to be expected. Additional discussions focus on the nature of proper citation and good acknowledgement practice. The author's goal throughout the course is to help students, not to threaten or punish them.

Turnitin.com's originality report issues a similarity index based on a five-point scale, either numerical or color-coded (the student and professor can choose either). The professor can access all papers online and view the originality reports and highlighted passages. The scale reads as follows: 1 (blue), fewer than 20 matching words; 2 (green), 0 - 24% matching text; 3 (orange), 25 - 49% matching text; 4 (yellow), 50 - 74% matching text; and 5 (red), 75-100% matching text. The author's syllabus states that a score of 3 (orange) or above means the paper should be further reworked. The author also tries to monitor submissions before the due date and email students, especially those with high scores, with suggestions for improvement. (The author does not always succeed in this task, unfortunately.)

Impressions

Because data for the country notebook assignment is almost entirely secondary (occasionally, a student will interview a national) and, today, comes almost entirely from the Internet, the arrival of plagiarism checking services, such as turnitin.com, was viewed by this author as a godsend. Prior to the use of turnitin.com, the author was certain that papers were being recycled and that large chunks of text were taken unacknowledged from the Internet. Lack of a database of past papers and time to submit a sentence or two to a search engine, such as google.com, to look for Internet sources made it impossible to check for plagiarism. After using turnitin.com for two years, the author is now just as certain that paper recycling has almost completely disappeared. The same can be said for the purchased (but not custom written) papers. The use of turnitin.com seems to stop most hard-core cheaters from even trying to pass off the work of others as their own. (However, see below.)

What comes across to the author after five quarters' use of turnitin.com is that a significant minority of upper-division college students do not understand how to do good research, especially what needs to be referenced and how to do so. Perhaps some students are not trying to understand, but when a student innocently asks, "It's just a fact. Why does literacy rate need to be referenced?," or says, "I thought only what

I put in quotation marks had to be referenced," it is difficult to conclude that this is an act. As McCabe said above, it does seem that some students today are viewing information available on the Internet as in the public domain.

The most common errors committed by students and revealed by use of turnitin.com range from no reference to poor paraphrasing to excessive quoting of referenced material. Lack of reference in some cases means the student provided only a bibliography. Poor paraphrasing usually includes word and sentence substitution. And excessive quoting is properly referenced, but little or no original writing by the student is present.

Data

Turnitin.com makes available modest statistics for each assignment, based on a similarity index received on the originality reports. Table 1 summarizes these findings for the five quarters in which the service was used. It should be pointed out immediately

TABLE 4

The draft and peer-review process used for the Country Notebook papers was a valuable learning experience. Why?	Court	Pt
It helped me correct mistakes, see what was overlooked, gave me a chance to edit	14	412
Good to get a different point of view	11	324
I enjoyed my peers' papers	4	118
Good to get ideas for new material	1	29
It showed me that people do different kinds of research	1	29
I could learn what others found interesting about my country	1	29
It kept me from procrastinating	1	29
It helped somewhat	1	29
	34	1000

TABLE 5

The draft and peer-review process used for the Country Notebook papers was not a valuable learning experience. Why not?	Court	Pt
I knew what I was missing, didn't need someone to tell me that	4	444
Professor's evaluation and criticism are more effective	2	222
No help, the reviewer wanted to change my paper to the way he or she would write it	1	111
Didn't help me	1	111
Not taken seriously if done by a friend	1	111
	9	1000

that turnitin.com upgraded its software in 2003 to provide more rigorous matches of text. Table 1 shows a dramatic shift between the winter and spring quar-

ters of 2003 in the number of students who had similarity indexes of fewer than 20 words and those who had 0-24% matching text. This does not indicate a sudden decline in academic integrity on the part of international marketing students; rather, it reflects the software upgrade. In the author's opinion, the criterion of fewer than 20 matching words is extreme, considering the "flakiness" of the "dumb computer" to highlight isolated words and phrases, as well as references, especially URL codes, that may be sufficient to push the student's score into the second (green) category.

Papers in the highest two categories (50-74% and 75-100% matching text) typically had several large chunks of unacknowledged cut-and-paste text. One student in particular, after an email from the author, did quite a good rewrite. Two papers in the red zone (75-100%) were recycled from the author's previous classes. This last usually drew a stern email threatening failure of the course unless an original paper was submitted by some specified date (four or five days from the date of the email). One student produced a reasonably good paper that passed the turnitin.com test; she was also a good (3.00) student. The other had submitted his paper to turnitin.com under a bogus email address and disappeared from class.

Because the similarity index is based on word count—number of highlighted words divided by the total in the paper—turnitin.com provides a word count for each student's paper on the originality report. For the winter quarter of 2003, the author calculated a Pearson correlation coefficient between word count of the cultural analysis paper and student grade. Letter grades are assigned to the papers, and for purposes of this calculation, the letter grades were converted to the 4.00 system (A = 4.000, A- = 3.667, etc.). The Pearson correlation coefficient was a positive .67 (n = 35). It must be emphasized, of course, that number of words in, or length of, many kinds of papers is not the proper criterion for grading. In the country notebook, however, thoroughness of research is what students are told will be the standard. The correlation coefficient seems to uphold this relationship. Indeed, "A" papers include a remarkable amount of information—as many as 1500 words—in two-and-one-half pages.

After completing the final exam during the spring quarter of 2004, students were asked to respond to a brief, anonymous questionnaire (n = 42) that was analyzed well after the final grades were recorded. Two questions compared student perceptions of their understanding of the nature of plagiarism before and at the conclusion of the author's course. A five-point scale ranging from "High" (5) to "Low" (1) understanding was used. The mean score for the "before" meas-

ure was 4.50 and the "after" was 4.81. A paired samples t-test was significant at $p = .005$ ($t = -2.949$, $s = 0.690$). While many limitations to this finding can be mentioned, the most interesting interpretation is that despite the likelihood that some students, upon entering the course, already understood the nature of plagiarism, the test found a significant difference between the two measures. It seems to confirm the author's suspicion of need to teach good acknowledgment practice.

Two additional questions, using a five-point Likert-type agree-disagree scale (with "strongly agree" being 5), were asked. The first asked students to indicate extent of agreement or disagreement with a statement that said submitting papers to turnitin.com was a valuable learning experience. The second asserted that the draft-and-peer-review process was a valuable learning experience. Both questions asked the follow-up, open-ended questions: why or why not? The mean of the first was 3.69 and of the second 3.81. A paired samples t-test was not significant—there was no reason to expect it to be. A moderate inverse correlation, though, was found between the first question and the before measure of understanding of the nature of plagiarism. It was $-.31$. The interpretation would be: the lower the understanding of the nature of plagiarism before taking the author's course, the greater the use of turnitin.com was a learning experience ($p = .001$).

The most valuable and enriching findings, as usually occurs when asking open-ended questions, are to be found in answers to the "why or why not?" questions. Tables 2, 3, 3A, 4, and 5 summarize these findings. (Counts do not add to sample size because of multiple responses.) Corresponding with the difference in mean scores between use of turnitin.com and the draft-and-peer-review process, students by a slight margin seem to have had a better experience with the latter than the former. Especially pleasing to the author are the comments in Table 2 about the value of turnitin.com: "made me do better research," "put in my own words," "fix problems," "teaches honesty," etc. A significant number of students, in other words, found the use of turnitin.com to be valuable. On the negative side, in Table 3, some students who know how to cite properly were indignant about having to go through the process.

Table 3A lists the comments of three students that are quite similar and, at the same time, disturbing. They possibly capture the essence of what the significant minority, who do not understand what good research and acknowledgement practice are, think. "It's just facts. It can't be original. Of course it's going to look like plagiarism." An unstated premise here is

TABLE 2

Submitting my Country Notebook papers to turnitin.com was a valuable learning experience. Why?		
	Count	Pct
It helped, gave me valuable information, was good to see 3rd party evaluation	8	25.0
It made me do better research, cite sources, put in my own words	8	25.0
It helped me to avoid plagiarism, enabled me to fix problems	5	15.6
It teaches honesty, it let me know how well I paraphrased	3	9.4
I learned how much came from other sources, wondered if I was citing too little or too much	3	9.4
It made clear how easily plagiarism is done and noticed	2	6.3
It was okay	2	6.3
It was fair	1	3.1
	32	100.0

TABLE 3

Submitting my Country Notebook papers to turnitin.com was not a valuable learning experience. Why not?		
	Count	Pct
Just data and facts were highlighted, common phrases; should do the whole paper	3	27.3
Didn't help, didn't learn anything; it's just for professors	2	18.2
I don't plagiarize	2	18.2
Why do it? Should know how to cite	1	9.1
Learned only that it exists; how could it have been a learning experience?	1	9.1
Everything in quotes came back in red	1	9.1
Database not yet large or strong enough	1	9.1
	11	100.0

TABLE 3A

Comments Requiring Special Comment	
Research papers are standard; can't help repeating information clearly and concisely	
Information from other sources, never my idea - good for English cl	
Notebook all facts from somewhere, so naturally it's going to look like plagiar	

that facts on the Internet are public domain. The fundamental error in this way of thinking is to believe that the process of reporting facts, by its very nature, because someone else has identified the facts first, cannot be original. The challenge to instructors, though, is to correct this thinking by pointing out, for example, that even newspaper reporters, who often report facts identified by others, must still write their own stories, in their own words.

Tables 4 and 5 indicate a general appreciation of the peer review process. The author, who has used this technique for improving papers for many years, has found it to be successful in producing better papers than when the technique is not used. Turnitin.com now provides an electronic version of peer review, wherein students, as assigned by the instructor, can access other students' papers for constructive comment. The author, however, has not yet explored this form of peer review.

CONCLUSION

Electronic detection services are not a panacea for instructor doubts about the authenticity of student papers. They are, nevertheless, a powerful assistant in helping maintain academic integrity. More importantly, as demonstrated here, they can become valuable tools for teaching the meaning of good acknowl-

TABLE 4

The draft-and-peer-review process used for the Country Notebook papers was a valuable learning experience. Why?

	Count	Pct
It helped me correct mistakes, see what was overlooked, gave me a chance to edit	14	41.2
Good to get a different point of view	11	32.4
I enjoyed my peers' papers	4	11.8
Good to get ideas for new material	1	2.9
It showed me that people do different kinds of research	1	2.9
I could learn what others found interesting about my country	1	2.9
It kept me from procrastinating	1	2.9
It helped somewhat	1	2.9
	34	100.0

TABLE 5

The draft-and-peer-review process used for the Country Notebook papers was not a valuable learning experience. Why not?

	Count	Pct
I knew what I was missing, didn't need someone to tell me that	4	44.4
Professor's evaluation and criticism are more effective	2	22.2
No help; the reviewer wanted to change my paper to the way he or she would write it	1	11.1
Didn't help me	1	11.1
Not taken seriously if done by a friend	1	11.1
	9	100.0

edgement practice. Indeed, turnitin.com, at the instructor's option, will now overwrite originality reports until the due date of the paper; this means that students can re-submit their papers after making corrections without receiving a red zone similarity index (because, without this feature, the re-submit would match at nearly 100% the first submission). This feature, not available for the two years of use discussed in this paper, can only enhance the learning experience of students who sincerely want to learn what good research is.

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