

# Academic Plagiarism in the Networked Environment

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## Overview

Plagiarism is not new. However, the ease with which information can be copied from the web and the emergence of "term paper mills" make it an increasingly serious problem. In a recent survey, administrators and faculty said they believe that academic integrity is an issue on college campuses. While they were reluctant to cite academic integrity as a "top ten" issue, they believe it is a serious concern because it reflects the core values of the institution.

In a brief survey, more than 90% of those interviewed said that academic integrity is an issue on their campus. Most were unable to pinpoint the extent of the problem, the source of the problem or whether specific departments or student groups were more at risk. In addition, of those who believe academic integrity is an issue, 83% believe that it has become more of an issue over the last three-to-five years, primarily due to the use of the Internet as a research tool. Compounding the effects of the Internet are difficulties in proving violations and a reluctance to report violators.

Larger universities are thought to experience higher incidences of cheating than smaller, more closely-knit academic communities. Reports from some of the largest institutions underscore this fact.

- Statistics from Texas A&M's office of Student Conflict Resolution Services (SCRS) reflect a persistent problem with plagiarism. While faculty and students have expressed an interest in implementing an effective honor code system, including a student-run judiciary and a requirement that students sign an honor code agreement each semester, most doubt that it will be effective on a campus that has one of the largest undergraduate student bodies in the country.
- At Penn State, despite the fact that 63% of students had faculty discuss the consequences of cheating in their classes, 17% of the students surveyed said they themselves cheated on tests and 44% said they cheated on class assignments.

Faculty at institutions like the University of California-Berkeley, Georgetown University and Southern Louisiana University have begun to use an automated, technology-based anti-plagiarism tool as a deterrent.

## Term Paper Mills

Term paper mills existed long before the Internet. With the advent of Internet technology, though, the number of places where papers are available has grown, and the ease with which they can be obtained has increased. At term paper vendors or "mills" on the Internet, students can directly purchase pre-written papers. Most sites offer free services and make money through advertising. Others act as an exchange—a student must submit a paper to get a free paper. Most term paper mills charge a fee, ranging from about \$5 - \$10 per page. Students may pay an additional fee for immediate e-mail delivery (\$15 on most sites). Other sites will write a customized paper for a much higher fee.

The companies will bill the student's credit card using an unrecognizable company.

The increase in the number of Internet term paper mills attests to their popularity among students. Experts estimate that there are more than 200 term paper mills in operation today; that is up from 28 in the beginning of 1997.<sup>1</sup>

The online paper mill is not a phenomenon exclusive to the United States. The Student Essay Bank in the UK and CheatWeb in Germany provide papers from abroad for downloading. There are at least 37 sites in Asia that provide free or low cost papers for students.

Not only are there a growing number of term paper mill sites on the web, but their popularity among students continues to skyrocket.

- AP Business wire reports that traffic to these sites exceeds 2.6 million hits per month;
- Cheater.com has 72,000 members and is growing a few hundred per day;
- With 9,500 papers in its database, the Evil House of Cheat reports 4,000 visitors a day;
- School Sucks reports being profitable "from day one."<sup>2</sup>

### **Institutional Attitudes towards Academic Dishonesty**

Although the incidence of academic dishonesty is believed to have grown in the last two decades, the reported number of infractions reported by professors has not. In a survey of 800 faculty members about why they ignored possible plagiarism violations, professors cited inadequate administrative support as a primary factor.<sup>3</sup> Research indicates that there is an inverse correlation between a university and/or professors' emphasis on academic integrity and the rate of plagiarism. However, many university administrations and professor remain reluctant to make plagiarism an issue in the classroom.

Once a professor suspects plagiarism, it can be a laborious process proving that plagiarism has actually taken place. Professors may need to comb through old papers, primary and secondary resources and compare the suspicious paper to these sources. Tracking down a student's sources and proving plagiarism can take days-time professors often do not have. Those faculty who have used an automated plagiarism tool cite the streamlined process as one of the primary advantages of the tool.

### **Tools to Ensure Academic Integrity**

There are five leading vendors that provide tools designed to ensure academic integrity (or identify cases of suspected plagiarism). They can be differentiated on the basis of software applications, price structure, search capability and processing time. Below is a table that highlights the characteristics of these five firms.

Vendor	Downloadable software	Ongoing fee for use of tool	Searches a proprietary database	Searches the Internet	Processes in < 1 hour	Targets high schools	Targets colleges
Plagiarism.org		X	X	X		X	X
TurnItIn.com		X	X	X		X	X
Paperbin.com		X	X	X		X	X
HowOriginal.com			X			X	X
EVE2.com	X			X	X	X	X

**Downloadable software:** These vendors offer users the opportunity to download their proprietary software and grant a one-person license to use the software as an anti-plagiarism device for an unlimited number of users. Those who do not have downloadable software use an Internet-based application.

**Ongoing fee:** These vendors charge users by the paper or the time period. Other competitors charge a one-time fee.

**Searches a proprietary database:** Search engines match submissions against a proprietary database containing company-specific content. These databases may contain other student submissions, papers from term paper mills or other sources.

**Searches the Internet:** Search engine matches submissions against content found on the Internet.

**Processes in less than one hour:** Returns results on tested submissions in less than an hour.

### Selected Anti-Plagiarism Vendors

**iParadigms** has developed a search engine that is used primarily for knowledge mining intellectual property over the Internet. iThenticate is able to clearly identify matching texts between two text-based documents of any language or size. It examines a chunk of text, eliminates words that are too common and turns the other words into numbers. It has also converted Internet content into numbers. Consequently it can compare patterns of numbers from the sample with patterns of numbers from the Internet. To do this, its search engine uses a number of complex mathematical algorithms.

iParadigms has levered this search engine through four primary vehicles. Its sites include Plagiarism.org, TurnItIn.com, PeerlessPress.com and Slysearch.com.

**Plagiarism.org**, a division of iParadigms.com, is the leading provider of an anti-plagiarism screening device for professors and universities. If a professor is interested in "testing" a paper for plagiarism, he or she will submit it for processing through the proprietary search engine. Once the process is complete, Plagiarism.org will produce an originality report that indicates the probability (in terms of a percentage) of whether a paper is plagiarized. Professors can click on links to direct them to the source of the possibly plagiarized material. This process may take anywhere from one to two days. While Plagiarism.org does alert a professor in word-for-word cases, it seems to have difficulty detecting problems in paragraphs with even slight rewriting.

The company believes that a key in plagiarism is the re-circulation of term papers, therefore their database contains student papers, papers posted online, material from academic web sites and documents indexed by major search engines. Its database consists of 800 million Internet pages and 50,000 papers. All student papers are also archived to the database by registered users. Extended use of the service will build an instructor's archive of papers and ensure that students cannot easily recycle papers from previous classes.

Professors can analyze an entire class' papers for \$20; the university-wide package charges fees of \$1 per student plus \$1 per paper.

**TurnItIn.com** is iParadigms' portal for registered users of their services. Because students reacted negatively to turning a paper into a site associated with plagiarism, iParadigms.com created a more general purpose site: TurnItIn.com. TurnItIn.com is the site where students or professors submit papers that will be tested against the Internet or proprietary databases for plagiarism violations.

TurnItIn.com has been designed to provide users a simple process for submitting papers for a plagiarism test. Users must only complete a short form to submit the paper. On this site a student or professor will identify their institution, department, course, name and ID number. Then the student or professor may submit the paper for testing by pasting a text only document onto the web page.

**Paperbin.com** has developed an anti-plagiarism site aimed at limiting the ability of students to copy from one another by building a database comprised of student-written term papers and papers purchased from term-paper mills.

Paperbin.com was designed by former educators to limit the use of term paper mills. This site tries to prevent plagiarism by building a database of student-written papers and using the Integriguard.com search engine technology. Its primary target audience is post-secondary educational institutions: usage is 80% at the university level and the rest is a mix between high school and technical schools.

Once an instructor enrolls in Paperbin.com, the professor will receive an ID that is also given to students in order to submit their papers to this account. The student is asked to copy and paste the document into the empty "writing text" field of the browser. The writing is then transferred to Integriguard for processing and checked for originality. If any matches are found in the database, the surrounding text is included from the student's work as well as the matched writing in order to provide the appropriate context. The site began with a

database of 600 term papers purchased from term paper mill sites. Because each scanned student paper is automatically added to its database, the site's database has grown considerably in the last two years.

An institution or an individual instructor can sign up to use this service for a fee of \$4.95 per month. The service is free for students.

**HowOriginal.com** is a free service allowing instructors to check the originality of suspicious text once it has been submitted. Using Integriguard technology HowOriginal.com can be used to test a small sample of text that a professor might believe is suspicious. It will search the suspicious text against the Internet as well as its database of student papers. Like Paperbin.com it is not considered to be an effective deterrent of plagiarism but rather an enforcement technique if a professor suspects plagiarism has taken place. It only will allow a professor to submit up to 1,000 characters of text.

A detailed analysis of the submitted text is provided to the instructor through the HowOriginal.com web site by entering his/her e-mail address and a report number. Integriguard technology analyzes the submission sentence by sentence, usually linking the professor with the "fast search engine" that has found the match.

**EVE2** is anti-plagiarism software that teachers and may license for a one-time fee and download to their hard drives. A user may submit a paper in .txt form and the software will search the Internet, including term paper mills, for results. EVE2 allows professors and teachers to determine if students have plagiarized material from the World Wide Web. While it is targeted at all educational levels, most users seem to be high school teachers. It has performed almost 1.9 million searches since February 2000.

Professors must convert papers to .txt format and submit the text to the software (which has been downloaded to his/her hard drive). EVE2 then examines the essays and makes a large number of searches of the Internet to locate "suspect" sites. Once suspect sites have been located, EVE2 visits each of these suspect sites to determine if they contain work that matches the essay in question.

It takes 15 minutes to two hours to process a search. Processing time is in part linked to the power of the user's hard drive. Once the search is complete, the teacher is given a full report on each paper that contained suspected plagiarism, including the percent of the essay plagiarized, and an annotated copy of the paper showing all plagiarism highlighted in red, and links to the plagiarized sites. It does not distinguish which sentences have been plagiarized from which sites.

EVE2 has been praised for the power of its search engine, but most are critical of the quality of the user interface; the reports are not easy to read. There is a 15-day free trial and then a customer may purchase a license to the software for \$19.99.

## What it Means to Higher Education

More students use the Internet than ever before. Student Monitor found that 97% of students use the Internet and 70% use it at least once a day. The amount of student time spent online has steadily increased for each of the last three years, rising from 5.5 hours to an average of 8.1 hours weekly in 2000.<sup>4</sup> With the rise in student use of the Internet and the attitude that information should be "free", it is perhaps not surprising that incidents involving plagiarism have increased. It is easy to copy material; adding appropriate citations does not always follow, however.

There are several anti-plagiarism tools available on the market. What appears to be missing, however, is the integration of anti-plagiarism tools with education and ethics. While the tools currently available can search for instances of suspected plagiarism, the approach is a putative one.

Although some students are quite aware of plagiarism and violations of academic integrity, many feel that the majority of students unknowingly make citation errors. Confusion about when a citation is needed is common, particularly in areas such as using a figure from a book. With student work often being done at the last minute, questions about proper citation protocol are typically skipped. The market lacks a "citation checker" that would allow students to identify when they need to use citations and provide them with assistance on how to cite works properly.

The plagiarism-screening approach is not often integrated with other activities such as the discussion of ethics and overall academic integrity. Identifying instances of suspected plagiarism without providing a more developmental remedy may not provide a long-term solution. For example, a major factor determining whether a student will cheat or not is the academic culture of the specific institution that he or she attends. At the fewer than 100 institutions with more robust academic honor codes in place—where students pledge not to cheat and where they play a major role in the judicial process—significantly fewer incidents of cheating occur.

Plagiarism is thought to be more prevalent in large institutions, with larger classes and greater student anonymity. Of almost 2,000 students surveyed at nine large public institutions in 1993, more than three-quarters admitted to one or more instances of serious cheating on tests or examinations or to having engaged in serious academic dishonesty on written assignments.<sup>5</sup> Research gathered by Who's Who Among High School Students indicates that 80 percent of high-achieving, college-bound students have cheated and that they think cheating is commonplace. More than half do not consider cheating a serious transgression.<sup>6</sup>

### **Campuses have responded to the academic integrity issue by:**

- Increasing the emphasis on the university's honor code. This may include a requirement that freshman sign the honor code, or ensuring that all students sign the "blue book" before handing in an exam. One university has developed a CD-ROM that is handed out

to all incoming students that provides an overview of intellectual property and copyright issues.

- Forming student groups to monitor and promote the honor code. A handful of schools have created student groups that are responsible for promoting academic integrity on campus. These groups may make presentations about the importance of academic integrity to students, convene workshops about academic integrity, etc.
- Rewriting student guidelines. Many campuses have rewritten student guidelines to emphasize to the importance of academic integrity.
- Establishing an academic integrity office. Some campuses have formed offices of academic integrity. These offices may provide an annual review on the status of academic integrity on campus, develop a forum to address issues of academic integrity and oversee a faculty/student council designed to resolve academic integrity incidences as they arise.
- Convening faculty workshops aimed at more effectively addressing the issue in college classrooms. Many faculty may be unaware of the growth of academic integrity issues on campus or of specific techniques they can use to combat the issue. Many campuses have convened workshops, lectures, etc. specifically designed to teach faculty how to identify issues of academic integrity and how to protect themselves against it.
- Utilizing technology-based tools to find and verify suspected cases of plagiarism.

Student cheating appears to be on the rise and the pressures and opportunities for dishonest behavior are increasing in many academic and professional contexts. Thoughtful, wide-ranging, and effective action is required to reverse these trends. Academic integrity is essential to academic institutions. It also provides a foundation for responsible conduct in students' lives after graduation. Higher education and society benefit when colleges and universities have standards of integrity that provide the foundation for a vibrant academic life, promote scientific progress, and prepare students for responsible citizenship.<sup>7</sup> While technology tools have a role to play, the solution represents an integration of policies, personal interaction and on-going support.

## **Where to Learn More**

Center for Academic Integrity, Kenan Institute for Ethics, Duke University  
<http://www.academicintegrity.org/>

Academic Integrity at the University of Texas  
<http://www.utexas.edu/depts/dos/sjs/academicintegrity.html>

Center for Academic Integrity, Northwestern University  
<http://www.nwu.edu/uacc/cai/main.html>

Policy on Academic Integrity, Rutgers University  
<http://teachx.rutgers.edu/integrity/policy.html>

<sup>1</sup> New Republic, March 1998

<sup>2</sup> <http://www.wired.com/news/print/0,1294,33021,00.html>

<sup>3</sup> McCabe

<sup>4</sup> Eduventures.com

<sup>5</sup> McCabe

<sup>6</sup> <http://www.academicintegrity.org/Values.asp>

<sup>7</sup> <http://www.academicintegrity.org/Values.asp>