Improving Online Assignments to Deter Plagiarism

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Abstract: Student plagiarism in online learning environments inhibits student learning and damages institutional reputations. Instructors may use many methods and technologies to instructors to combat plagiarism in online classrooms, including the use of plagiarism detection tools, establishing and administering academic integrity policies, developing effective education programs, and improving assessment practices. The focus of this paper is on reducing plagiarism in online learning environments by improving the design of student assignments.

Background

Plagiarism is the reproduction or inclusion of another person's creative work into one's own work without properly attributing the included work to the original author. Educational institutions usually define plagiarism within the context of their academic integrity policies. Another perspective considers if plagiarism is "materially misleading" in such a way that readers – including a faculty member evaluating the student's work – may assign undue benefit – perhaps in the form of a higher class grade – to the plagiarist (Brigham Young University Law School, 2007).

Numerous researchers have documented the extent of plagiarism and student cheating over the past 60 years (Hart & Friesner, 2004). Plagiarism is acknowledged as a widespread phenomenon in both traditional and online classrooms, with a majority of students in most disciplines admitting to some form of academic dishonesty during their academic careers. Most students understand that submitting another author's entire work as their own is clearly plagiarism, but are often confused about how to summarize and cite the works of others. Furthermore, students may not understand that submitting their own previous original work, in whole or in part, is considered self-plagiarism as it misrepresents their efforts in a current class.

Because it is so easy to plagiarize using Internet sources, students may plagiarize without recognizing that they are doing so, even though they believe that plagiarism is ethically wrong (Kraus, 2002). These "casual plagiarists" may also plagiarize due to poor time management skills (Beasley, 2004), information overload (Collberg & Kobourov, 2005), or lack of academic preparation prior to college (Adeva, Carroll & Calvo, 2006; Jackson, 2006; Kirkpatrick, 2006). Many students, however, make self-serving decisions to plagiarize with the hope of materially improving their grades (Beasley, 2004;

Braumoeller, 2001; Harris, 2004; Hart & Friesner, 2004; Hughes & McCabe, 2006; McGowan, 2005).

Online learning is an increasingly important component of higher education institutions' strategic plans. The Sloan Consortium reports that almost 3.5 million U.S. students enrolled in online classes in Fall 2006, and that the annual growth rate for online classes is approximately 10% (Allen & Seaman, 2007). The global growth in online education has created a new classroom environment where students with different cultural and educational backgrounds interact in more diverse and anonymous ways than possible in a traditional classroom environment. Even students enrolled in residential campus programs enroll in online classes, and most students are required to use the Internet to participate in both traditional and online classes on our campuses.

Critics of online education suggest that plagiarism may be more prevalent in online environments than in traditional classrooms. Others suggest that the ease of copying and pasting Internet information sources contributes to an overall rise in plagiarism for traditional and online students alike (Stevens, Young, & Calabrese, 2007). The increased use of the Internet in online and traditional classrooms cannot help but shape students' perceptions of the nature of academic work, and of the world itself (Kraus, 2002). Most students start their class research by using an Internet search engine, despite understanding that the integrity of their findings may be suspect. Students enrolled in online classes experience those classes through the lens of the Internet, post their work via the Internet, interact with other students via the Internet, and even develop the student-faculty relationship via the Internet without the benefit of a "known baseline" for instructors to evaluate the work of individual students (Hafner & Ellis, 2005). Online education is therefore significantly different from the traditional classroom, and there are unique features of online education that provide unique challenges and opportunities for addressing the overarching issue of student plagiarism.

Institutional Approaches to Reducing Plagiarism

Reducing plagiarism is a function of both the level of policing and the perceived tolerance for cheating. Most institutions implement several approaches to combat plagiarism, including establishing academic integrity policies, conducting training and awareness programs, implementing plagiarism detection technologies, and prescribing punishment for students found guilty of violating policies (Hughes & McCabe, 2006). The Center for Academic Integrity at Clemson University maintains an excellent collection of model policy statements, assessment guides, and links to institutional resources (Center for Academic Integrity, 2007).

One approach to fighting plagiarism is to change the campus culture from focusing on "catching cheaters" to promoting academic integrity (Devlin, 2006; Gallant & Drinan, 2006; Hart & Friesner, 2004; Kraus, 2002; McGowan, 2005). Institutional policies will likely be more effective if students perceive them to be fair and reasonable, applied consistently, reinforced by faculty action, and have an impact on their grades (Bombaro, 2007; Hughes & McCabe, 2006; Martin, 2005).

Historically, plagiarism has been detected using expert review by faculty members or teaching assistants. Expert review requires laborious comparison of bibliographies, citations, library catalogs, and source documents. While expert review is still needed to confirm most instances of plagiarism, the advent of online library databases and Internet search engines makes the task of identifying plagiarized information easier. Plagiarism detection tools use mathematical algorithms to compare a submitted document to a database of fingerprinted Web pages, published articles, or previously submitted documents. Results are summarized in an "originality report" to guide subsequent expert review (Maurer, Kappe, & Zaka, 2006; McCullough & Holmberg, 2005). Upon reviewing the originality report, the instructor may identify legitimate matching sources, remove those sources from further calculations, and reprocess the assignment.

Assessment of student learning may be improved to reduce the chances for plagiarism while improving the validity of assessment processes (Galles et al., 2003; Harris, 2004; McCabe, Butterfield & Treviño, 2006; Rowe, 2004). Institutions are taking significant steps to combat plagiarism and cheating on exams given in both traditional and online classrooms, as students report using a wide range of conventional and digital cheating techniques in both environments (Stevens, Young & Calabrese, 2007).

This paper concerns itself with another approach to reducing plagiarism in online classes: improving the design of assignments within online classes. Of the institutional approaches commonly used to fight plagiarism, improving online assignments is most closely linked to pedagogy and instructor-student interaction.

Improving Online Assignments

Kraus (2002) states that, "Our students are telling us something when they plagiarize as casually and as frequently as they do" (p. 95). We should not be surprised when students casually plagiarize when they are under pressure to complete assignments that do not require original thinking or synthesis. A comprehensive approach to reducing plagiarism should include a careful redesign of online assignments to actively involve students in the learning process (Carroll, 2005; Kraus, 2002), minimize fact-based background work, and maximize higher-level original work.

There are many ways for instructors to improve the structure and quality of online assignments to combat plagiarism. Recommendations may be grouped into four general approaches and will be examined from the perspective of their use in online learning environments:

1. Varying the nature and frequency of assignments
2. Dividing assignments into component parts
3. Requiring a range of deliverable products
4. Requiring evidence of research and proper citation of sources

Varying the nature and frequency of online assignments reduces the chance that deliverables will be plagiarized or shared in future semesters. Assignments may be framed in varying contexts, such as requiring students to perform a critical analysis in

one semester and to develop an original solution in another semester. Required deliverables can be changed, such as requiring students to submit a Word document in one semester and produce an original podcast in another semester. Students may be required to submit multiple deliverables, such as an Excel spreadsheet or an original multimedia production in addition to a Word document. Instructors may assign variants on a specific assignment to individual students, or may allow students to select a variant or propose a variant of their own design. Instructors may also change assignments from individual to group projects, allow a group to choose from a range of possible topics, or allow individuals or groups to propose unique topics not addressed within the past few semesters. Instructors should also exercise caution in responding to student requests to change their topics near the assignment due date, as late changes may increase the chance that student work will be plagiarized.

Dividing assignments into component parts provides the opportunity to evaluate student work at multiple points during the semester, thereby increasing the opportunity for instructors to note structural and stylistic changes in students' work as the semester unfolds (Harris, 2004). Instructors may require submission of an annotated project plan at the start of the project that defines a timeline and responsibilities for each task (Kraus, 2002). Individual progress checks may be conducted using e-mail, instant messaging, or telephone calls between the instructor and individual students, student groups, or individual members of student groups (Lancaster & Culwin, 2007). Students may be asked to submit drafts of their work to the course management system or Wiki during the semester and to include a formal "revision history" with each revision (McLafferty & Foust, 2004). Instructors may return comments and change requests on students' working drafts, and then track students' responses to those change requests in future updates (Lancaster & Culwin, 2007). Members of group projects may be required to complete a "360° evaluation" of their teammates against the project plan as additional input to the instructor for evaluating the performance of team members (Beasley, 2004).

Requiring a range of deliverable products provides the opportunity to evaluate students' work from a variety of perspectives. Assignments should emphasize personal synthesis over factual reporting (McLafferty & Foust, 2004), and should provide students with the opportunity to synthesize knowledge and skills from textbooks, class lectures, specialized library resources, personal experiences, experimentation, and even the work of other students (Hafner & Ellis, 2005). Instructors may develop evaluation rubrics for assignments that define required content areas, research approaches, and deliverables rather than simply specifying a page count. Students may be required to gather, verify, and cite original information using techniques such as interviews, observations, experiments, or observations. Instructors may require students to produce multimedia content such as narrated presentations, blogs, podcasts, or videos to emphasize the importance of original and creative works. Instructors may also require students to prepare a brief presentation as part of the assignment, either as an online class presentation using web collaboration tools or as a facilitated asynchronous discussion within the course management system (Harris, 2004). Students may be required to hold a *viva voce* with the instructor using web collaboration tools or phone conference calls

(Dey and Sobhan, 2006). Many of these tools offer the instructor the option to record the collaboration session or call for future reference.

Requiring evidence of research and proper citations of sources underscores the need for synthesis of varied information sources and support of both facts and conclusions. Instructors may require that students submit an annotated bibliography at the beginning of a large assignment, with some sources drawn from a class bibliography and other sources drawn from recent academic or trade journal articles (Harris, 2004). Instructors may require students to use a specific number of citations from the past year, to use specific journals or research databases, or to use instructor-provided e-reserve materials. Instructors may require that students cite specific content presented in the course to draw relationships between the content and their work (McLafferty & Foust, 2004). Students may be required to use social bookmarking applications such as deli.cio.us®, Digg®, Reddit®, or Blackboard Scholar® to document Internet information resources, use reference citation services such as RefWorks® or EndNote® to collect and manage library research citations, and provide instructor access to those sites for verification. Instructors may require that final assignments be submitted to plagiarism detection services (Marais, Minnaar, & Argeles, 2006), and may offer students the opportunity to submit drafts of their assignments to these services to identify potential plagiarism issues (Kirkpatrick, 2006). Instructors may also require students to submit a supplemental paper explaining how they organized their search effort, where and how they identified their sources, how they integrated their information, and how they responded to unique challenges that arose during their project (Hart & Friesner, 2004).

Toward A Risk-Based Framework for Online Assignments

While it is a laudable goal to eliminate plagiarism and cheating in online learning environments, this goal may be practically unattainable. What is more attainable is to minimize the chance for plagiarists to receive material benefit in the form of a higher grade in an online class. Institutions should use multiple approaches to reduce student plagiarism and cheating, and improving the design of online assignments is one of these approaches and the focus of this paper.

The probability of material benefit from plagiarism should decrease as the number of assignments, variety of assignments, and linkage between assignments increases. Starting with a simple example, if students are required to complete only one assignment to receive a grade in an online class, then the probability that plagiarism will result in material benefit should decrease if one or more of conditions such as these are true:

1. Completing the assignment without plagiarizing is less difficult than attempting to plagiarize
2. The instructor is intolerant of plagiarism
3. Fellow students are intolerant of plagiarism
4. Plagiarism detection tools are effectively used
5. The assignment is of personal value to the student

If two assignments are required, then the probability of receiving material benefit from plagiarism will be a multiple of the two individual assignment probabilities, weighted by the relative importance of each grade. The probability of material benefit in this scenario will therefore be lower than for the online class requiring only one assignment. If the two assignments are linked via assessment practices, such as requiring students to write part of their final exam based on their individual semester work, then the probability of material advantage is further reduced.

It should therefore be possible to estimate the probability that students could receive material benefit from plagiarism within a single online course based on a review of assignment variables including but not limited to:

1. The number of assignments within the class
2. The number and variety of deliverables for individual assignment
3. The extent to which individual assignments require the use of personally generated information
4. The degree of instructor-student interaction for each assignment
5. The way in which plagiarism detection tools are used for each assignment
6. The mix of individual and group assignments
7. The linkage between individual and group assignments
8. The extent to which assignments are varied across semesters and between students
9. The extent to which assignments are linked to end-of-term assessment

We may hypothesize that students will be less likely to receive material benefit from plagiarism when an online class uses more of the variables identified above. We may also hypothesize that students are less likely to plagiarize their work as the assignment mix becomes more robust. The calculation of "defeat probabilities" for individual assignments or for individual online courses could provide instructors with insights into how to redesign online assignments to minimize the probability that students will receive material benefit from plagiarism in the form of a higher-than-deserved course grade.

Conclusion

Plagiarism is a complex issue made more challenging by the rapid growth of online learning environments. Students interact with their peers and instructors more anonymously in an online environment than in the traditional classroom, which adds challenges to deterring plagiarism in online classes. The sheer number of students enrolled in online classes makes it imperative that we address the issue of plagiarism in online learning environments. With almost 70% of academic leaders believing that student demand for online programs will continue to grow (Allen & Seaman, 2007), we must address this issue because plagiarism negatively affects both student learning and institutional reputations.

Several technology tools hold promise for reducing plagiarism in online learning environments. Plagiarism detection tools will evolve to detect and interpret suspected instances of plagiarism from a wider range of sources including subscription databases,

"paper mills," and works in the public domain (Braumoeller, 2001). Writing style evaluation tools may help identify potential plagiarism if samples of students' original writing are first interpreted (Lancaster & Culwin, 2007). Future online services should provide real-time assistance to students in detecting potential plagiarism and in properly formatting citations as they prepare their work. Social bookmarking tools are likely to be integrated with citation management software, digital library catalogs, and course management systems. These tools will provide students with better access to reliable information and will help students manage their research sources throughout their academic career. The implementation of electronic portfolios within course management systems will allow instructors to compare student works across multiple courses and multiple semesters (Hafner & Ellis, 2005).

Improving the quality and variety of student assignments, however, may have a greater effect on reducing plagiarism than will the use of plagiarism detection software or online research tools. This article suggests that students will be less likely to gain material benefit from plagiarism if the online learning environment is robust and engaging, requires multiple types of thinking and deliverables, mixes individual and group work, and includes significant levels of interaction between students and instructors. Student plagiarists can easily defeat many traditional assignments, and failure to improve the quality and variety of online assignments sends a clear signal to students that we do not take plagiarism seriously. Using the pedagogical techniques available today, we can choose to evolve and adapt our teaching methods to create an engaging and robust online learning environment that encourages original thinking and academic integrity.

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