



issues in cyberplagiarism:

INFLUENCES THAT AFFECT TECHNOLOGY AND ENGINEERING EDUCATION

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One of the most prominent forms of cheating in academia is plagiarism and its electronic/digital counterpart, cyberplagiarism.

Cheating in an academic setting is nothing new; however, our society is producing more and more infractions of academic integrity in the form of cheating than ever before (Papp and Wertz, 2009). One of the most prominent forms of cheating in academia is plagiarism and its electronic/digital counterpart, cyberplagiarism. The technology within all of education continues to evolve as the influx of more and more data is available electronically to all stakeholders (students, faculty, and administrators).

Students within Technology and Engineering Education at all levels are now becoming mainstream writers within the discipline. They are increasingly being asked to write to a greater extent as part of an overall and well-rounded school curriculum, whether or not it is associated with Technology and Engineering courses. The bottom line is that, because of the new Common Core Standards, administrators are asking students in all subject areas to write more (Carr, 2014). Because of these constructs, Technology and Engineering Education students are now more susceptible to the cyberplagiarism issues that will be discussed.

The *Standards for Technological Literacy* document indicates that writing could be an acceptable way to convey information. Standard 17, Benchmark Q for 9-12 students states: “Technological knowledge and processes are communicated using symbols, measurement, conven-

tions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli” (ITEEA, 2000/2002/2007). Furthermore, students may be asked to write on any technology within the *STL* standards. Standards 1, 2, and 3 are good examples of how writing could be used:

- STL 1.** Students will develop an understanding of the characteristics and scope of technology.
- STL 2.** Students will develop an understanding of the core concepts of technology.
- STL 3.** Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.

Students could write research papers on all of these topics as an introduction to the given standard(s) concept. Almost all other standards could be used for writing purposes as well. For example, Maryland’s Glenelg High School requires that students write an argumentative essay for engineering and include sources (Glenelg High School, 2014). In higher education, Technology and Engineering Teacher Education students are required to write as well. In the State of Florida, the Florida Subject Area Competencies and Skills for Teacher Certification in Technology Education require that students write design briefs, identifying conceptual technological knowledge through writing. All teacher education candidates (including Technology and Engineer-



ing candidates) are required to take a course in reading and writing for their content area.

This article will explore the cheating culture and why this behavior is occurring more often as well as how it is being perpetrated by all students, including those in Technology and Engineering Education. Furthermore, information will be provided regarding how education professionals can combat this ever-increasing trend as well as a new phenomenon, “Cyberplagiarizing Cyberplagiarism.”

THE CULTURE OF CHEATING

The phrases “Culture of Cheating” and “The Cheating Culture” are being used in a number of research articles and publications (Crittenden, Hanna, & Peterson, 2009; Callahan, 2004). Essentially these authors are indicating that cheating has become commonplace in all facets and levels of our society. This includes academics, business, the entertainment industry, journalism, politics, and sports. One only needs to read a newspaper or watch the news, and chances are there will be some form of cheating reported (excluding “mainstream” crime—i.e., violent crime, larceny etc.—although these too are forms of cheating). For example, from December 31, 2007 to June 24, 2008, *The New York Times* published ten articles regarding serious forms of cheating that ranged from a California high school student who hacked into the school’s administrative computer system, altered grades, and downloaded tests (Cathart, 2008) to Division A college football players caught cheating on a music test and subsequently being suspended from a bowl game (Glier, 2007). Competition in our society as a whole seems to be a significant catalyst for cheating.

Several articles have been published that indicate people take shortcuts to better their position either economically or socially or both (Yahr, Bryan and Schimmel, 2009; Jonsson, 2011;

Toppo, Amos, Gillum & Upton, 2011; Pérez-Peña, 2013). Academic articles on cheating within an educational setting are prevalent as well. One of the biggest scandals reported was the Atlanta cheating scandal. Jonsson (2011) states: “At least 178 teachers and principals in Atlanta Public Schools cheated to raise student scores on high-stakes standardized tests...”. The Georgia Bureau of Investigation alleged that many educators raised the scores of the standardized tests for personal gain or were intimidated by their administrators. These actions led to a number of firings, resignations, and lawsuits (Toppo, Amos, Gillum & Upton, 2011).

In another educational setting, The Harvard Law School suspended, and in some cases expelled, several students for allegedly cheating on a take-home test (Pérez-Peña, 2013). Although the initial reaction to cheaters who are caught is that “they get what is coming to them,” it is important to realize that lives can be ruined by the act of cheating.

CHEATING IN TEACHER EDUCATION PROGRAMS

The Atlanta scandal raises an interesting question because it can be assumed that a significant number of those involved in the scandal went through some type of teacher education program in order to get their jobs. Do students in teacher education programs cheat more than those in other majors at colleges and universities? Unfortunately, there is no research that suggests this is true. Conversely however, there is no research that this claim is false. It can be presumed that students in teacher education programs do not cheat any more or less than students in other majors. The overarching concern is, however, that because students in teacher education will ultimately be teaching children in K-12 academia, they should be held to a higher standard with regard to the most common form of cheating, most notably plagiarism, and specifically cyberplagiarism, when writing papers. There are other forms of cheating (i.e., cheating on a test or examination, etc.); however, this article will concentrate on cyberplagiarism.

CYBERPLAGIARISM DEFINED

Like its counterpart plagiarism, cyberplagiarism is the use of someone else’s work but taken from an electronic source

(Jones, 2011). This can be from a website, online journal, online book, blogs, or purchasing a paper from an online source known as a “paper mill” (Pennsylvania State University, 2012).

WHY DO STUDENTS CHEAT?

One only needs to do a cursory Internet search to obtain a plethora of websites that attempt to explain why students cheat and/or plagiarize. A number of higher education institutions have websites dedicated to plagiarism. Many of these sites are designed to educate students about plagiarism or to impart the consequences if a student is found guilty of plagiarizing. The most common reasons (The Pennsylvania State University, 2012, Starr, 2006) students plagiarize (in no particular order) are:

1. **A belief that most students cheat, and therefore it is an acceptable practice to cheat.** The notion that most students cheat is true. Several studies state that up to 95 percent of students admit they have cheated sometime during their academic careers (Yee, 2012; Grasgreen, 2012; Danielson, Simon, and Pavlick 2006). Furthermore, there appears to be a correlation between cheating in high school and the transference to post-secondary education (Educational Testing Service, 1999; Smith, 2005). Research indicates that cheating can start as soon as the fourth grade, but it begins to fully develop in Grades 6-12 (Educational Testing Service, 1999).
2. **The fear of failure.** The fear of failure appears to be associated with the academic pressure to succeed (Educational Testing Service, 1999). Reynolds (2010) states: “Unfortunately, that pressure to succeed leads to dishonesty and unethical behaviors, such as cheating on tests, plagiarizing...” Stuber-McEwen, Wiseley, & Hoggatt (2009) also indicate that many of the students who plagiarize do so due to feeling pressure because they may have a low grade point average, they need to maintain a good grade point average to receive scholarships, or they just want to get out of school to get a good job.
3. **Lack of planning.** It is common knowledge that many students, particularly incoming freshman, have difficulties with time management. In an attempt to help their students use time wisely, many orientation courses offered by universities are mandatory for all students (mainly in

their freshman year), and deal with time-management issues. However, many of these students still have difficulties (Trueman & Hartley, 1996).

4. **Lack of interest.** The Pennsylvania State University (2012), states: “A student uninterested in an assignment may be more likely to plagiarize.” Further, Schraw, Gregory, et al. (2007), indicate that, if the subject matter is not of interest to the student on a personal level, plagiarism may occur.
5. **Many students do not know they are plagiarizing.** A number of researchers (Jocoy and DiBiase, 2006; Park, 2003; Currie, 1998) indicate the number of students who are required to take remedial courses is high in pre- and post-secondary education. Furthermore, coming out of K-12 education there is a gap between students who know how to write correctly (i.e., citing sources, not copying and pasting electronic material, etc.) and those who don't; plagiarism can be a big problem.

HOW DO STUDENTS CHEAT?

Most students who do plagiarize “cut and paste” portions of articles found online into their papers (Scanlon, 2003). The biggest source that students gravitate to is Wikipedia.com. Wikipedia.com is a self-proclaimed online “free encyclopedia that anyone can edit” (Wikipedia, 2012). An issue that a number of educators have with Wikipedia is whether it is a scholarly source (Head & Eisenberg, 2010). Many feel it is a good place to start research, but should not be cited within the text (Young, 2006). Even the founder of Wikipedia indicates that Wikipedia should not be used for “...class projects or serious research” (Young, 2006). However the issue here is the ease with which students can cut





and copy big chunks of information (either reliable or not) from Wikipedia and use it as their own work.

Another widely used device for students who wish to cheat is the “Paper Mill.” These entities, generally available through the Internet, are sites that sell term papers (Ariely, 2012; Fischman, 2007). Students can easily do a search in any search engine to find sites such as WriteWork.com, and BuyAResearchPaper.com. These are paper mills that sell research papers for all students in pre- and post-secondary education and have their own search engines for topics their clients wish to preview and possibly buy. For example, the Technology and Engineering Education term “manufacturing” was put in the WriteWork.com website search engine, and a whopping 9,872 papers were listed (at the time of publishing), all with previews of the papers. A more specific term of manufacturing (lean manufacturing) was entered in the search engine, and 382 papers were listed. The preview provided the word count and pages (double-spaced) as well as information on how to subscribe to the site for downloading. Most of these sites require a subscription, with a rate that either reoccurs monthly or has a one-time fee for a number of months’ access. BuyAResearchPaper.com charges \$14.96 per page. Some of these sites will actually provide the client a document that they perceive will be an “A”, “B”, or “C” grade paper, depending on the client’s needs.

HOW TO COMBAT CHEATING

There are several ways to detect cheating in the form of cyberplagiarism (Howell, Soenson & Tippets, 2009). Several research studies have been conducted that give valuable information on detecting cheating (The Pennsylvania State University, 2012;

Jones, 2011; Howell, Soenson & Tippets, 2009; Starr, 2006). A good starting point is to educate students (Starr, 2002). As indicated, a significant number of students need remediation when entering a university setting (Jocoy, and DiBiase, 2006). Many of these remedial classes focus on writing fundamentals and not necessarily plagiarism (i.e., paraphrasing, correct citing of sources, etc.). Thus, students come to their major classes without the proper knowledge of how to write plagiarism-free papers. Therefore, it is up to the individual instructor to shoulder the responsibility of teaching students how to write without plagiarizing. Although this may be an added burden on instructors, it is worth the time.

When instructing students on cyberplagiarism, educators should require students to turn in papers electronically but indicate that cheating can be detected. Methods of detection include plagiarism-detecting software and online services such as Turnitin.com and SafeAssign (offered by Blackboard) or by simply copying and pasting portions of a student’s paper into a search engine. Additionally, it should be stressed that they are going to be teachers, and they will be required to check for plagiarism within their classrooms. Finally, and as soon as possible, students need to be informed that cheating has consequences. Technology and Engineering Educators at the primary and secondary level should be leaders in this area. Most universities and colleges have expectations and penalties regarding cheating; however, many leave it up to individual faculty members to enforce infractions (Papp and Wertz, 2009). All faculty, instructors, or departments that provide teacher education programs should have a written document that deals with plagiarism/cyberplagiarism. All students should know they might fail the assignment, the course, or be expelled from their program or university for any violation. If students still cyberplagiarize, educators at all levels and in all content areas should make sure to follow through with a penalty.

CYBERPLAGIARIZING CYBERPLAGIARISM

A new phenomenon is arising within the Internet community. That is Cyberplagiarizing Cyberplagiarism. This is when websites that impart information cyberplagiarize from other electronic sources. For example, if a search is done for information about hot air balloons, several websites will appear. More than likely, Wikipedia will be at the top of the search page and provide a full explanation of the query. In this case, Wikipedia

(at the time of publication) had a tremendous amount of information about hot air balloons and did a relatively good job of correctly citing information. However, there are two sentences that were not cited. They state: "The hot air balloon is the oldest successful human-carrying flight technology. It is part of a class of aircraft known as balloon aircraft." (Wikipedia: Hot air balloon, 2014). Although this could be considered common knowledge to a distinct group of people, the sentences are very unique. Another search (in this case Google) with these exact sentences put into the search box yielded (at the time of publication) over 100 results that had these sentences word-for-word. However, there were no scholarly articles tied to the sentences. A number of the websites listed did give credit to Wikipedia; however, many did not, and some even indicated that their writing was original content. Additionally, some of the sites listed were blogs, social media sites, or question forums. The question is, who wrote the original content? Was it the person who wrote the Wikipedia content or someone else? It must be noted that this phrase was also put into Google Scholar and had no results.

This is one example of hundreds of thousands that can be described as cyberplagiarizing cyberplagiarism. What is perceived as original is essentially being used repeatedly and often as the original content. When the example sentences above were put into SafeAssign through Blackboard Inc., the result came back as a 100 percent similarity submitted from a student's paper from a prestigious Aeronautical University. It may never be known where the original content came from, but what is known is that the student paper in question was more than likely plagiarized.

This should be of concern to all educators and specifically students, who think that an entry on a blog or social media for example, may never be detected if copied and pasted into their paper. This type of plagiarism can ultimately be caught by plagiarism detection software; however, the original author(s) may never be known.

FINAL DISCUSSION

The onslaught of cyberplagiarism has been and continues to be problematic at all educational levels. Technology and Engineering education programs are very susceptible due to the increasing writing initiatives and (in many cases) requirements by educational administrators. Several articles have been published regarding this continuing problem; however, they often have no impact in terms of educating educators or students and furthermore enforcing consequences by educators (Horton, 2011; Blum, 2009). Technology and Engineering Education programs should take the lead in not only enforcing the consequences that

go along with cyberplagiarism, but also in educating teachers in how to deal with this issue in their classrooms.

Although enforcing may be difficult for some (i.e., possibly ruining the academic career of a student), it must be understood by all students at all levels that they made a conscious and poor decision to cheat. Diligent education and enforcement regarding cyberplagiarism and the new phenomenon of cyberplagiarizing cyberplagiarism will ultimately curb the culture of cheating.

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