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Academic Honesty and the New Technological Frontier

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Advances in technology affect academic integrity in significant ways. In order to respond to this issue, it has become necessary to change the way institutions work to prevent cheating and promote integrity. Higher education leaders should consider the ways technology has changed the landscape of academic integrity, or academic dishonesty. *Academic dishonesty* refers to a behavior or set of behaviors that lead to the misrepresentation of scholarly work (International Center for Academic Integrity [ICAI], (2015). These behaviors include plagiarism, fabrication, deception, cheating, bribery and paid services, sabotage, and/ or impersonation. (ICAI, 2015). Technology has emerged as a growing opportunity for students to both engage in cheating behavior and be caught doing so (McCabe, 2001; 2004; Robinson-Zañartu et al., 2005). In this manuscript, technology describes the vast access to information on the internet, the use of cell phones and social media, and the increased use of online platforms to supplement, host courses, or verify integrity. The impacts on higher education over the past two decades have led to a new *technological frontier*, characterized by social media, increases in online courses, unprecedented access to information on the internet, changes in labs and educational technologies, and algorithms which detect academically dishonest behavior. This language is also chosen to represent the unchartered and rapidly changing environment of higher education.

Papp and Wertz (2009) contend that cheating is not new, but that technology has provided increasingly creative outlets for students to engage in dishonest behavior. Stuber-McEwen, Wiseley and Hoggatt (2009) describe that the percentage of undergraduate and graduate students who have reported cheating varies between 9% and 90%. While the 81% gap may seem significant, it relates to the notion that cheating has perhaps become such second nature to many students that they do not see their behavior as cheating (Stuber-McEwen et al. 2009) or they are not able to admit to their dishonest actions.

McCabe (as cited in Jones, 2011) found that many students saw the internet as an open forum, and did not feel obligated to cite material found online. In a study to identify cheating perceptions, students and faculty alike believe that it is easier to cheat in an online course than in a traditional lecture course (Mastin, Peska, & Lily, 2009). A study assessing the motivation for student cheating in the online environment suggests that student cheating in the online environment is due to factors not traditionally associated with cheating in face-to-face courses such as anonymity (Black, Greaser, & Dawson, 2014). When examining academic dishonesty in higher education, it is valuable to examine the ways that the use of technology has increased, how different types of students are using technology, and examine the role and responsibility of faculty and institutions as academic honesty continues to be challenged in today's new technological frontier.

The Rise of Technology in Higher Education

Beyond online courses, internet research provides access to information faster than ever before (Manly, Leonard, & Riemenschneider, 2015). Instant access to information alters historical concepts of the faculty student relationship as faculty have been forced to alter curriculum. Technology has added to the methods of academic dishonesty including

unauthorized representation, purchasing written papers, using unattributed secondary sources, and cut and paste plagiarism (Manly et al. 2015). The prevalent nature of cheating behavior is not limited to online education, and is not new. Bowers, (1960) found that 60% of students were involved in academically dishonest behavior; over fifty years later McCabe, Trevino, and Butterfield (2012) found that 66% of students self-reported cheating behaviors in a national study.

Opportunities for education and prevention of student cheating in the online environment are significant. Over 6.7 million students, or 32% of students in postsecondary education have enrolled in online courses since 2012 and the number continues to climb (Sheehy, 2013). Despite this growth, a 2011 study from Babson College showed only 30 % of faculty support the legitimacy of online education. This disconnect is a concern, as faculty are largely responsible for design course content and promoting integrity in coursework. Indeed, with institutions becoming increasingly friendly to asynchronous coursework, the potential for students to obtain course credit or even an entire degree without a face-to-face interaction is increasing (Trenholm, 2006). 2.6 million students were enrolled in fully online programs in 2014 (NCES, 2014). Growth in online education is rapid and promoted within higher education (Azevedo, 2012; Symonds, 2003).. Research suggests limited differences in quality between courses delivered online and those facilitated face to face. There are several factors to consider in the online environment. First, current research shows an increased workload for faculty developing course content online, and academic integrity literature acknowledges the need for meaningful connections between students and faculty in creating communities of academic honesty. The question of what, if any resources are provided to faculty to create relationships with trust and integrity in mind is a concern. Trenholm (2006) notes that while instructional designers find reward in efforts to modernize course content to include new technologies, “in this competitive environment administrators backed by many working in instructional design appear in no rush to examine issues of quality assurance and academic integrity” (p. 287).

How Students Use Technology to Challenge Academic Honesty

The internet has changed the way students choose to cheat, and in some ways those students who choose academic dishonesty. Students frequently use search engines to quickly access information which has led to the idea that students are viewing scholarship as borrowing ideas and piecing the ideas together to demonstrate learned knowledge, when in fact it is plagiarism (Huang, 2013; Scanlon, 2003). Beyond basic search engines like Google and Yahoo (Herberling, 2002), students are frequently using Wikipedia, Yahoo! Answers, eNotes, OPPapers, and Slideshare to access information for assignments (Huang, 2013). College students perceive peer-to-peer sharing as an acceptable type of behavior (Scanlon, 2003). The ease of access to these internet sites provides endless amounts of information at the eager fingertips of college students. Yet, there is a question of whether or not students fully understand if their use of the information constitutes as cheating. Additionally, explaining the nuances of cheating behaviors is complicated, and faculty and administrators are loathe to label a student as a cheater based on an erroneous citation. Evering and Moorman (2012) also suggest that there is “little concern for differentiating degrees of seriousness, such that the intentional copying of large amounts of text without any acknowledgment is often viewed and treated the same as failing to properly cite sources” (p. 35).

Selwyn (2008) notes that “students who self-reported instances of online plagiarism were also significantly more likely to be frequent users of the internet” (p.471). Students who self-reported cut and paste plagiarism were also more likely to use the internet as an online student (Selwyn, 2008). In addition, students who purchased papers online and/ or used essay-writing

services were also students who used the internet as a required part of coursework. This study also suggests students who commit online plagiarism are more likely students who use the internet to purchase goods and download media. This reinforces the need for education around the ownership of information, and the risks of using information without attribution on the internet. Selwyn (2008) also asserts that despite changes in how students choose to cheat, the reasons why students choose to cheat remain the same.

Beyond plagiarism, technology provides students with avenues to purchase research and papers. While the list is not exhaustive, these behaviors include copying files from friends, manipulating timestamps to request extra time, using messaging software or email to discuss exams (Etter, Cramer, & Finn, 2006), and the misuse of student response technology in participation (Zou, 2011). Clickers have been used to aid cheating students who fail to show up for class. Perhaps more concerning is the fact that students who do attend are willing to complete work for non performing classmates (Zou, 2011). Faculty often consider foregoing the technology due to the risks of student teaching in such overt ways (Zou, 2011). Etter, Cramer, and Finn (2006) studied 237 students focusing on ethical orientation and personality traits related to cheating using information technology. This work suggests that students with an idealistic orientation are more likely to use cheating behaviors than those who are thrill seeking. These findings are promising to educators, suggesting that reframing appropriate behavior and student responsibility for success may have an influence on academically competitive students.

Prevalence of Academic Dishonesty

Clarity is lacking in definitions of academic integrity among educational institutions; however, this should not provide leniency for students choosing to violate the principle. Plagiarism occurs so frequently that Herberling (2002) contends that putting material into an individual writing style is too much work for today's Generation Y students. Institutions of higher education should be concerned that "the Center for Academic Integrity found that 70% of college and high school students admit to some sort of cheating" (Wasley, 2008, n.p.).

Academic dishonesty starts as early as high school. Stuber-McEwen et al. (2009) say that the students who cheat in high school are more likely to cheat in college and those who cheat during their undergraduate years are more likely to cheat in graduate school. This issue is not a new one; in 1999, a series of high school focus groups indicate a socialization of cheating behaviors. The majority of students openly admitted to cheating or witnessing cheating in high school (McCabe, 1999). In the same study, high school students expressed confidence in online cheating, and a sense that they knew more about technology than their instructors (McCabe, 1999). Additionally, students with low grade point averages and those who are exposed to the pressure of maintaining high price scholarships are more likely to be academically dishonest (Stuber-McEwen et al. 2009). When entering college, freshman are reported as having higher levels of academic dishonesty (Şendağ, Duran, & Fraser, 2012). Additionally, traditionally-aged college students are considered digital natives, and as a result adjust to new technology at a faster pace than many faculty members adapt (Manly et al., 2015).

Alternatively, Stuber-McEwen et al. (2009) found that non-traditional students are less likely to cheat, especially with online classes. Non-traditional students are more likely to take online classes and are potentially more motivated and independent than those in traditional brick and mortar institution classrooms, which could decrease their desire to cheat (Stuber-McEwen et al. 2009). Cheating occurs through online and on-campus courses, but many students feel as though online courses require far more work and that it is harder to cheat online because it is easier to detect (Herberling, 2002). Despite the instructional format of the class, faculty and administration should be alerted to the amount of students who are reporting

academic dishonesty and should be responsible for educating students on the appropriateness of information from the internet and the ramifications of plagiarism in order to establish a positive educational atmosphere.

Faculty Involvement with Academic Honesty

Faculty are often thought of as silent partners in regards to academic dishonesty (McCabe & Pavela, 2004), yet their influence is outstanding and sometimes not recognized. Faculty members are instrumental to facilitating a positive and effective educational experience and it begins with their demeanor and relationship with students. Research has demonstrated that when professors appear to be unconcerned about their class, the incidence of cheating increases (Stuber-McEwen et al., 2009). Additionally, instructors who are permissive, unduly difficult or are considered unfair are more at risk to have their students be dishonest (Stuber-McEwen et al., 2009). On the contrary, Stuber-McEwen et al. (2009) found that professors who are closer to their students and develop positive, honest relationships are less likely to have incidences of academic dishonesty. Additionally, when students believe their professor has knowledge, acceptance and adheres to the institution's academic integrity policy, they are less likely to cheat (Kelley et al., 2005).

Faculty responses to plagiarism are varied and dependent on individual faculty member discretion (Roig, 2001). Research also indicates that faculty members prefer to handle student issues on plagiarism independently, rather than going through administrative policies (Robinson-Zañartu, Peña, Cook-Morales, and Peña, 2005; McCabe & Pavela, 2004; Coren, 2011). Faculty who do not address academic integrity violations note time constraints and the perception of a difficult and confrontational process (Robinson Zañartu et. al, 2005; Coren, 2011).

The variation in how faculty handle academic integrity is problematic as the lack of consistency impacts how students view the process. When faculty members choose to not follow administrative policies in plagiarism cases, it downplays the severity of academic dishonesty. These issues provide the opportunity to improve processes and resources available for faculty members to provide more of a simple, streamlined process to address academic dishonesty. As technology continues to provide new opportunities for academic misconduct, a coordinated, faculty supported effort is a necessary in creating an educational response (Volpe, Davidson, and Bell, 2008).

Students who take online classes oftentimes do not have any face-to-face interaction with their professor which makes it more difficult to understand their personalities, characteristics, intricacies and expectations. Therefore, Stuber-McEwen et al. (2009) found that students and faculty both perceive that cheating occurs more frequently in virtual settings than in brick and mortar classes despite Herberling's (2002) previous thought about the difficulty of online education. In fact, some students take online classes, especially with certain instructors, because they know they can cheat in them (Khuder, 2011). Yet, the researchers also found that students who perceive that their professor is tech savvy are less likely to cheat because of the ease of accessibility to resources to catch academic dishonesty.

Hoshlar, Dunlap, Li, and Fredel (2014) also note the effectiveness of academic authenticity procedures. In their study of 100 California community colleges, the researchers found that faculty who teach online are aware of the importance of student authenticity in online education. The study showed that faculty perceive a higher potential for academically dishonest behavior in the online environment. The researchers note a relationship between faculty professional development and awareness of authenticity issues. Faculty with strong professional development opportunities had a greater awareness of authenticity issues. To a lesser, but still significant extent, faculty practicing in an institution with clearly written and disseminated policies also have a greater awareness of authenticity in online learning.

However, there are other ways for instructors and institutions to decrease academic dishonesty.

For online classes, professors could require students to take their exams and quizzes through a regional testing proctored system (Khuder, 2011). Additionally, professors can check IP addresses, have students submit screen shots with assignments, and participate in challenged and timed tests and assignments where the questions are random and shuffled (Herberling, 2002; Lytle, 2012; Khuder, 2011; Stuber-McEwen et al., 2009). For face-to-face classes, professors can allow and encourage their students to turn in papers early to be examined before being graded. Multiple submissions of a paper allows students to take corrective actions and possibly alleviate some of the stress for both the faculty member and the student (Turnitin®, 2013). Use of the software in empirical research finds that student knowledge of plagiarism detection software will prevent cheating behaviors (Perhaps one of the most effective, and often the most forgotten, is just the simple education and action of individual professors. As stated previously, professors are often thought of as silent partners in regards to academic dishonesty (McCabe & Pavela, 2004); however, the administration must be regarded as a partner as well. Olt (2002) identified four strategies for online instructors to use as tools in preventing academic misconduct; identify limitations for the student instructor and include relationships; design effective, mastery based online assessments; curriculum rotation; and providing students with a written academic dishonesty policy. Faculty and administrators should openly discuss academic dishonesty and decide what approach is best to take for their institution (Stuber-McEwen et al., 2009). Scanlon (2003) thinks that colleges and universities need to be upfront in confronting plagiarism and academic dishonesty through many ways in order allow students to understand the policies but also promote personal change and academic understanding. Administration can support faculty by financially providing services like Turnitin® and eCOACH, an online program to provide education and training for students and faculty members to teach them how to research online, understand journal articles and write more effective papers and presentations (Saint Leo University, 2013).

Opportunities for education and prevention of student cheating in the online environment are significant. Olt (2002) identified four strategies for online instructors as tools in preventing academic misconduct. These strategies are to identify limitations for the student instructor relationship, design effective, mastery based online assessments, curriculum rotation and to provide students with a written academic dishonesty policy.

Cizcek (1999) supports these suggestions, offering additional strategies including maintaining the security of assessments, proctoring exams, disabling networking capability during assessments, requiring handheld and mobile devices to be turned off, varying test questions, and using private distance learning management software.

Institutional Response to Academic Dishonesty

University responses to plagiarism have a history of ambivalence. In a survey of 257 chief academic officers at colleges and universities throughout the United States, Aaron (1992) concluded that higher education has not moved aggressively to address any issues of academic dishonesty, including plagiarism. This reactive response is apparent when institutions are faced with student violations of academic integrity.

Unpredictable levels of institutional support and participation illustrate the need for coordinated educational efforts. Apathy and a lack of involvement are illustrated throughout the literature as a multifaceted problem. Specifically, faculty handle university academic integrity procedures inconsistently, students are often not active partners in enforcing a culture of academic integrity, universities do not regularly provide or assess academic integrity education, and few universities have an office of department dedicated to academic

honesty (Gallant and Drinan, 2008). A coordinated, intentional effort is needed to create and sustain an environment that values academic honor (Gallant and Drinan, 2008).

Promising theoretical frameworks created to promote academic honesty are instrumental in changing campus culture. Gallant and Drinan (2008) developed a theory of academic integrity institutionalization, an opportunity to integrate academic honor into postsecondary education. This four stage model is not linear, and should be adopted within the culture of an institution, rather than in opposition to current culture. The first stage, recognition and commitment, acknowledges the issue and builds relationships with others that are likeminded. A catalyst, such as a highly publicized incident, or shift in technological effectiveness often prompts the first stage. The second stage, response generation, requires an answer to the issue at hand. At this stage the actor will, with support, name the problem and propose an opportunity for others to aid in creating a solution. The third stage, response implementation, is where the responses generate a course of action. These changes are integrated into current policies and slowly adopted. An important piece of response implementation is support; the theorists stress that support “should not simply be directed at stopping academic misconduct but at supporting academically integrous behaviours” (pg.32). The support should also be in line with the organizational objectives of the institution. The final stage of this process is institutionalization, a process characterized by the normality of process changes. For example, an institution using online modules to educate students on academic integrity will achieve institutionalization when it becomes commonplace, the vast majority of students have access to and are familiar with the modules and the principles contained within the modules. Gallant and Drinan (2008) note that within this model, countless factors can act as a “pendulum effect” (pg. 34) at once providing momentum or setback. In addition to organizational and staffing concerns, technology could also affect the adoption of academic integrity initiatives.

Complementing theory, there are a variety of technologies available to faculty and administration in the investigation of academic misconduct. Proactive measures include software to educate students on academic integrity. AcademicIntegrity.com, Epigeum UK, and Future Learn® provide modules that assist faculty and students in identifying academic misconduct. Investigative measures are more popular, and include commercially available resources, like Turnitin®, are online programs where professors can submit papers and it is compared to 20 billion webpages and 220 million previously submitted papers to cross reference for similar phrases and paragraphs to detect cheating (Anders, 2012; Herberling, 2002). According to Turnitin®(2013), roughly 200,000 papers are submitted per day and in 2012 over 80 million papers were processed. The use of this technology requires students to submit their papers electronically and often redirect them to third party websites like Blackboard, Moodle and Desire2Learn (Turnitin®, 2013). Punitive and preventative measures include other products, supported by literature and sold by vendors in the field such as academicintegrity.com, a site providing institutions with best practice modeling solutions as a supplement to university policies. For example, students with one lower level violation may be subject to complete a number of modules focused on plagiarism should an instance of cheating occur (Ryan, 2007). Completion of the module will serve as the educational outcome for the student necessary to return to positive academic standing. It is valuable for institution’s to invest in these support systems for the faculty members in order to create an environment in which students are being academically honest and learning the proper ways to use electronic sources in the classroom.

Conclusion

Online education will continue to expand, and with it, the risks of academic misconduct using the internet. There are several factors to consider in the online environment. First, current research shows an increased workload for faculty developing course content online

(Trenholm, 2006). Given the research that cites time as a detractor when dealing with academic misconduct, it is important for faculty to have resources that provide timely methods of developing online content and addressing academic misconduct. Academic integrity literature acknowledges the need for meaningful connections between students and faculty in creating communities of academic honesty. The question of what, if any resources are provided to faculty to create relationships with trust and integrity in mind is a concern.

Despite the avenue of delivery of coursework, academic dishonesty is occurring in higher education, much of which is stemming from the ease of access to information from the increase in the internet and technology. While there are different challenges for both students and faculty members for face to face and online education, there is a very simple solution. Faculty members need to face plagiarism and dishonesty head on and do so as educators and not always as detectives (Scanlon, 2003, Gallant, 2008). As educators, faculty should be proactive in their approach to students to address academic dishonesty in a fashion that will foster learning and growth. Administration need to be supportive by offering educational programs and in order to support academic honesty, to protect the reputation of the school and the integrity of academic work. Educational programming for students, faculty, and staff promotes academic honor and integrity (Gallant and Drinan, 2006). These culture shifts provide students the opportunity to assess their own values both academically and otherwise as they prepare for prospective careers. The opportunity for learning in this area is vast, and extends to faculty, staff, and students. Engagement opportunities that use the technologies students are familiar with are one way to demonstrate technological competence. While punitive measures are valuable, an approach rooted in student learning is necessary to shift behavior (Gallant, 2008).

It is necessary to engage students in education around academic integrity in ways that are both unique to the online environment and ways that echo on campus initiatives. As stated previously, many students do not believe their actions constitute cheating or dishonesty. Therefore, institutions need to be intentional about educating students on the proper use of the vast uses of technology which can be done through an up to date, technologically perceptive response at each institution to provide a unified and informative front on educating and tackling academic dishonesty due to technology.

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