

Exploring Factors Contributing to Plagiarism as Students Enter STEM Higher Education Classrooms

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Abstract

Students often come to college with a limited understanding of how to ethically incorporate and cite source materials in their writing, and this is commonly cited as the leading reason for plagiarism. Studies have shown that students in STEM are more apt to plagiarize as compared to students in the humanities or social sciences, so they are an ideal population for looking at causes of plagiarism. The goal of this study was to examine college STEM student self-reported frequencies of plagiarism, ability to recognize instances of plagiarism, and justifications for why certain acts of plagiarism may or may not be acceptable. Surveys were collected from 965 STEM students taking an introductory biology class. The majority of freshmen surveyed admitted to some degree of plagiarism and found it difficult to recognize certain types of plagiarism. Juniors and seniors were less likely to report any form of plagiarism and were better able to recognize specific types, supporting previous work that point at lack of experience as the reason for most plagiarism in college. However, students at all levels were confused about the acceptability of some examples of plagiarism, such as reusing the same paper in multiple classes, and some students point to external factors like grading practices in previous courses as motivators for certain types of plagiarism. Fully understanding where students still struggle to recognize plagiarism and their motivations for committing certain types of plagiarism will help in creating strategies to mitigate this common problem.

Keywords: Academic integrity, Plagiarism, STEM, Undergraduates, Writing instruction

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Introduction

Western higher education places great emphasis on quality and independence of thought, frequently reflected through researched writing and speaking tasks in the classroom environment. Within this context, students are told not to plagiarize and, if they do, they can face the negative consequences of such behavior through institutional policies and statements in course syllabi (Gullifer & Tyson, 2014). Faculty, ever cognizant of how to prove plagiarism, have recently turned to ever more sophisticated software programs meant to identify possible infractions of academic integrity policies and streamline the evidence needed in reporting students to their administration (Baker et al., 2008; Batane, 2010; Heckler et al., 2013).

As these circumstances have evolved, there has been a recognition that students come to the university environment with limited experience incorporating source materials into their work while in high school, and that there is some responsibility within the academy to teach students how to recognize plagiarism and self-correct (Gullifer & Tyson, 2010; Macdonald & Carroll, 2006; Newton, 2016; Park, 2003; Vieyra & Weaver, 2016). To aid in the efforts to understand student plagiarism behavior, this study used a survey to collect student self-reported data on the frequency of plagiarism, ability to recognize plagiarism, and self-justifications given for excusing plagiarism in their work.

Literature Review

Within higher education, plagiarism is situated within the larger context of academic integrity and cheating behavior (Gullifer & Tyson, 2014; Park, 2003; Power, 2009). In looking at what kind of cheating or plagiarism frequently occur in the university classroom, Walker (2010) identified three major types of plagiarism, including presenting material as paraphrased when it is actually quoted, copying material verbatim without citation, and stealing content written by another student and presenting it as one's own. A variety of factors have been identified that lead to plagiaristic behavior including demographics, societal and technological considerations, and situational opportunities (Al-Qaisy, 2008; Hosny & Fatima, 2014; McCabe & <u>Trevino</u>, 1997). Simkin and McLeod (2010) apply the theoretical framework of reasoned action to cheating behaviors, bringing understanding to the various factors that lead to the decision to cheat. They found attitudes related to getting ahead, attitudes toward cheating itself, and the messages and attitudes of friends, family, and professors were all predictors for students who engaged in cheating behavior. More recently, Uzun and Kilis (2020) found students who felt plagiarism to be morally wrong were less likely to engage in plagiarism behaviors and, contrastingly, students with past success in cheating were more likely to continue that behavior.

Past studies of plagiarism have focused on the issue in specific contexts including elearning (Sendağ et al., 2012), through the use of information communication technologies (Ali et al., 2012), in particular academic disciplines (Dawson & Overfield, 2006; Yeo, 2007), in the first year of university (Newton, 2016; Yeo, 2007), and with the use of open access materials (Ocholla & Ocholla, 2016). Newton (2016) focused on the ability of students to recognize plagiarism and their perceived confidence in their understanding of plagiarism, finding that students entering the university had great confidence in their understanding of plagiarism, but that this confidence was not related to their actual behaviors or understanding of citation and plagiarism. Ali et al. (2012), in contrast, found that slightly over 60% of common plagiaristic behaviors were recognized by undergraduate students in the Malaysian context. Considering the findings of these varied studies in sum, they suggest student understanding and recognition of plagiarism varies widely from location to location and is influenced by a variety of factors, including the presence or absence of plagiarism education within the K-12 educational system, or local equivalent.

Beyond the understanding of plagiarism behaviors generally by undergraduate students, students in the science, technology, engineering, and mathematics (STEM) fields have been shown to have high incidence of plagiarism (Gilmore et al., 2016; Turner et al., 2022; Yeo, 2007). While Dawson and Overfield (2006) pioneered scenariobased questions to examine STEM student plagiarism perceptions, Yeo (2007) is widely regarded to have authored the foundational study in the area of STEM student plagiarism perceptions and behaviors. Using a survey methodology employing scenarios to test student knowledge, student understanding of different incidents of plagiarism varied widely. While students were generally able to recognize issues like direct copying of another student's assignment or cutting and pasting behavior as acts of plagiarism, they struggled to identify over-collaboration through common assignment answers, poor referencing, and social loafing where non-contributory group members claimed equal credit to fit within the definition of plagiarism. Furthermore, the study found strong evidence that students possessed the assumption that for plagiarism to occur, it must be an intentional act, though this is not how the issue is broadly considered within the academy or throughout STEM fields. There has additionally been some suggestion that the curriculum of STEM fields, which emphasizes repetition over critical and creative thinking in the foundational years, has served to increase the problem in those areas of study (Santos et al., 2017).

Exploring the issue of plagiarism recognition by biology students, Holt (2012) found that 87% of STEM students in the study had prior education on plagiarism through graded assignments and the rest of the students in the sample were previously exposed to definitions or examples of plagiarism through prior schooling. Furthermore, the study found continued direct educational training on plagiarism could significantly improve student ability to recognize plagiarism and reduce acts of unintentional plagiarism. Finally, the study posits disciplinary-based training is of key importance, indicating a more extensive knowledge of plagiarism behaviors in STEM would aid educators in designing educational interventions to address plagiarism (Chankova, 2017; Childers & Bruton, 2016). Focusing narrowly on the issue of improper paraphrasing within scientific writing, Eberle (2013) observes the very nature of scientific writing, with a focus on clarity and brevity, makes avoiding plagiarism

difficult, especially for novice student writers and non-native English speakers in STEM fields. Şendağ et al. (2012) also found in a cross-disciplinary study of online academic dishonesty that students in engineering and physical sciences were significantly more likely to engage in dishonest behaviors than students from the humanities or social sciences. Collectively these studies indicate STEM students, with the collaborative foci of their disciplines, and the very nature of scientific writing, may struggle to both recognize and avoid plagiarism in their work and be predisposed to plagiarism behaviors more than students in the humanities or social sciences.

Sendağ et al. (2012) uses a survey instrument similar to Yeo (2007) and builds on this earlier work by both investigating plagiarism within the disciplinary context of the STEM fields and understanding reported changes in awareness and behaviors across the span of undergraduate education. While our current study is firmly situated in the framework of student self-report research on plagiarism, it enhances understanding of how students receive and interpret knowledge acquired about plagiarism over the course of their academic careers. Furthermore, the nature of the subjects in this study allows greater insight into the knowledge and exposure students have had to plagiarism throughout their formative education. The students taking part in this study are drawn from a public institution in South Carolina, meaning that the student body is broadly representative of the demographics and educational experiences within the state as a whole. The results of this study can help educators and librarians in the higher education context better understand and address plagiarism, as well as develop pedagogy to enhance academic integrity.

Objectives

The primary goals of this study were to examine college student self-reported frequencies of plagiarism, ability to recognize instances of plagiarism, and reasons they may give to justify certain acts of plagiarism. Of particular interest was the comparison between new college freshmen and upperclassmen. This study builds on past work by using scenario-based questions (Dawson & Overfield, 2006) in a STEM classroom setting (Yeo, 2007). Scenario-based questions were selected for this study as they address not only student perceptions about what plagiarism is, but also how contextual factors like instructor consistency in grading or citation expectations affect student behavior. Due to the large number of respondents in this study, it also expands the present knowledge base in this field.

The following research questions underpinned the questions asked in the survey instrument:

- What are the self-reported frequencies of plagiarism?
- How well can students recognize instances of plagiarism in scenario-based questions?
- How do students justify acts of plagiarism?
- Are there differences between students based on different demographic characteristics including class rank and area/field of study?

Methods

Survey data were collected from 965 students from across a large variety of STEM programs enrolled in a core foundational course, Biology 101, at a large public university in South Carolina where plagiarism and all academic integrity offenses are addressed as part of the student honor code, but where any instruction students receive around these issues is at the discretion of individual faculty members. The online survey was administered during the Fall 2015 semester using LimeSurvey software and consisted of three parts: demographic questions including major and number of semesters of college completed, questions asking how often students had engaged in several types of plagiarism, and scenarios featuring different types of plagiarism (Appendix). The third part asked students to rank acceptability of the activity featured and included an open-ended question asking them to explain why the ranking was given. IRB exemption was granted by the University of South Carolina Institutional Review Board prior to administration of the surveys.

Subjects

Towards the middle of the fall semester, all students enrolled in a Biology 101 course were offered a small amount of extra credit to complete the online survey. The anonymous survey was accessible through the course's Blackboard Learning Management System and had a link at the end to a second survey where students could enter their name and section number to receive the extra credit. Nine hundred and sixty-five students completed the survey and of these, 487 were first semester freshmen, 267 were sophomores, 145 were juniors, and 66 were seniors. The majority of students surveyed were science majors in biology, exercise science, or chemistry (373 biology/ biomedical, 189 exercise science, and 165 chemistry/pre-pharmacy). Most of the remainder of the students (206) were pursuing other majors across the STEM disciplines such as public health, psychology, math, engineering, or nursing. Of the few non-STEM majors surveyed, 14 were majoring in a humanities or social science, 11 were education majors, and 7 were business majors. In addition, 623 identified as female, 326 identified as male, and 16 did not specify gender. Of the students surveyed, 758 went to high school in South Carolina, or surrounding states (Georgia and North Carolina). All but 12 attended high school in the United States.

Self-Reported Plagiarism Questions

Students were asked to report on a scale of 1-5 (1 = Never, 2 = Once or twice, 3 = A few times, 4 = On most assignments, and 5 = On all assignments) whether they had ever participated in the following activities:

- Used information without citing the source
- Copied a sentence without citing the source
- Copied a few sentences without citing the source
- Copied a paragraph without citing the source
- Copied a few paragraphs without citing the source
- Copied a whole page without citing the source
- Copied a whole paper or turned in someone else's paper

Paid for an assignment

Recognizing Instances of Plagiarism

Students were presented with five specific scenarios and asked to score how acceptable the hypothetical student's actions were on a scale of 1-5 (1 = Totally unacceptable, 2 = Could be unacceptable, 3 = Neutral, 4 = Could be acceptable, and 5 = Totally acceptable). Students were asked to justify why they assigned their scoring and those reasons were then coded into categories by the researchers. Two of the scenarios present cases of plagiarism that should be obvious to most students based on the institution's student honor code and past educational experiences (copying source material without citing it and turning in someone else's paper as your own). The other three present cases of plagiarism that may not be recognized as such by many students (turning in the same paper in more than one class, citing sources that are not actually used, and copying definitions from dictionaries without citing the dictionary). To make the cases more "real world" the scenarios also included details such as how a professor may have graded an assignment, experiences other students reported having in the class, or why the student has chosen their course of action. The exact scenarios are as follows:

- 1. Alex is a full-time student and has a full-time job. He must write a paper for his microbiology class and doesn't have time to complete it. He wrote a paper about bacteria in his introductory biology class and received a good grade for it. He submits the same paper for this class. Again, he receives a good grade.
- 2. Philip has a research paper due next week. The professor requires that the assignment must have a reference page with no less than five journal article sources. Phillip's roommate, Steve, had Phillip's professor before. Steve told Phillip that the professor did not check sources in his assignments. Phillip wrote a paper based mostly on what he remembered from class and what he found on the internet. He turned in his research assignment with a list of five journal articles he found, but did not use, in the paper. The professor graded the assignments and Phillip got an A.
- 3. Jenny has a research report due next week. Her friend Karen took the class before and had her old research report. Jenny did not understand the instructions so she asked Karen if she could look at her report to better understand what the professor wanted. Jenny saw that Karen copied dictionary entries in her report without saying where they came from. Seeing that Karen got an A on her report, Jenny did the same with her report for all the words she needed to define.
- 4. Marc plays football on the university team. His grades have suffered through the semester and he needs a good grade on the next assignment to stay on the team. However, it is due the next class period. Marc found a website that had the information he wanted to use in his paper. Marc copied some paragraphs and a few sentences without citing his sources and submitted it to his professor on time. The professor graded the paper and Marc passed.

5. Jessica has to submit her research paper by the next class period but she hasn't started. Her roommate, Cassidy, did the same assignment the previous year and got an A on the assignment. Jessica got a copy of Cassidy's paper, put her own name on it, and turned it in. Jessica got an A as well.

Data Analysis

For all figures shown in the results section, the percentage of students within each class rank (freshman, sophomore, junior, and senior) who assigned a given score along the scale is shown. Mean scores assigned by each class rank were also calculated and one-way analysis of variance (ANOVA) with a least significant difference (LSD) analysis was used to assess statistical differences between groups. Means were also calculated and analyzed to compare scores given by each gender and by students with different majors.

For the self-reported plagiarism questions, graphs were generated showing the percentage of students in each class rank who reported engaging in the activity of question "Never," "Once or twice," "A few times," or "Most of the time." A table of the exact means for each class rank is also provided where lower mean values lean towards "Never" and higher mean values lean towards "Most of the time." For the scenario-based questions, graphs were generated that show the percentage of students in each class rank who reported that the example given was "Totally unacceptable," "Maybe unacceptable," "Neutral," "Maybe acceptable," or "Totally acceptable." A table of the exact means for each class rank is also provided where lower mean values lean towards "Totally unacceptable" and higher mean values lean towards "Totally acceptable." For all of the graphs a table is also provided showing the calculated p-value for differences between freshmen and each of the other class ranks, as well as between all the groups if the between groups difference was statistically significant; p-values lower than 0.05% are considered statistically significant.

Results

Demographic Differences

There were very few differences between students in different majors. Exercise science majors were significantly more likely to report using information and copying a sentence without citing the source once or twice compared to other majors (exercise science mean for using information = 2.03 as compared to 1.85 for other sciences and 1.97 for non-science, p < .028, and for copying a sentence = 1.61 compared to 1.45 and 1.34, p < .005), but they scored every other question on par with other majors. There was a significant difference between male and female students for almost every question with males self-reporting more frequent incidents of plagiarism and finding the scenarios less unacceptable than their female counterparts. However, the averages were near or below 2 for both males and females for all questions. The majority of males self-reported plagiarizing infrequently and found the scenarios presented unacceptable, with the exception of reusing one's own paper, which was neutral-to-acceptable to the majority of both males and females. The biggest differences seen between groups for

many of the questions was between freshmen and upperclassmen as explored in the following sections.

Self-Reported Plagiarism

The majority of freshmen reported using information without citing the source at least once or twice, with over 25% admitting that they have done it a few times or most of the time. Upperclassmen are more likely to deny ever having used information without citing the source, with almost 60% of the seniors claiming they have never done so. As shown in Figure 1, there is a significant difference between groups (i.e., class ranks) in self-reporting this level of plagiarism.

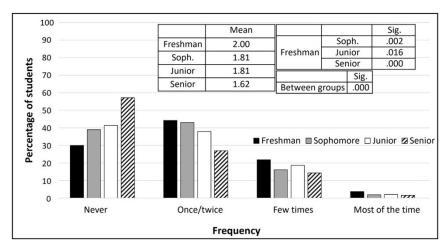


Figure 1. Self-reported frequency of using information without citing the source

A lower percentage of students self-report copying material from a source without citing it. However, over 40% of freshmen report copying a sentence without citing the source at least once or twice while the percentage of seniors claiming they have never done so is over 70%. There is a significant difference between groups at this level as shown in Figure 2.

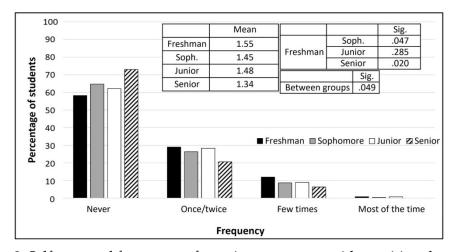


Figure 2. Self-reported frequency of copying a sentence without citing the source

As the degree of plagiarism increases, fewer and fewer students report having ever done it. For copying a few sentences without citing a source, well over 80% of the students across every class rank report having never done so. At this level, there are no

significant differences between groups, as seen in Figure 3. This trend continues for questions about copying paragraphs, pages, and whole papers with very low averages across all class ranks.

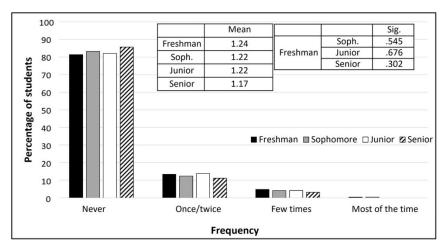


Figure 3. Self-reported frequency of copying a few sentences without citing the source

Recognizing Instances of Plagiarism

The majority of students across all class ranks had trouble recognizing the reuse of one's own paper as unacceptable. Fewer than 20% of freshmen surveyed viewed this activity as totally unacceptable with almost 35% scoring it as maybe or totally acceptable. There was a significant difference between groups, as seen in Figure 4, with more seniors reporting this as totally unacceptable behavior. Students were asked to justify their scoring and almost a third of the students (314) said that if the original paper did not plagiarize and met the criteria of the new assignment, it was perfectly acceptable to reuse it. Eight students went so far as to praise this time-saving strategy and 11 said that it was a complete waste of time to write a new paper. Fifty-two students said that this behavior was acceptable if you are not caught or if the professor did not specifically say that an old paper could not be used.

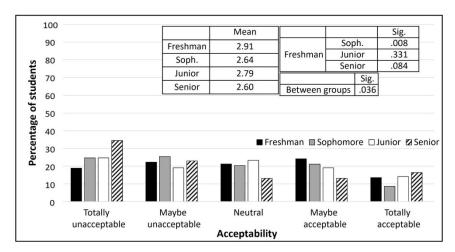


Figure 4. Perceived acceptability of reusing one's own paper

The majority of students recognized the listing of sources not actually used in a paper as problematic. As seen in Figure 5, there was a trend towards seniors finding this

behavior more unacceptable, but this finding was not statistically significant. However, a fair number of students, over 30% in every class rank, were neutral or found this behavior acceptable. When asked to justify their scores, 69 students said that it was up

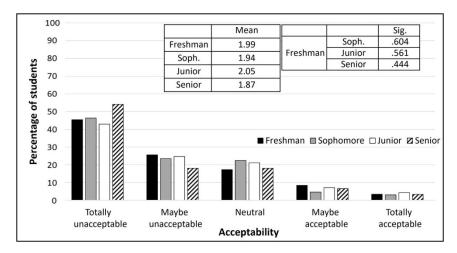


Figure 5. Perceived acceptability of listing sources not actually used in one's paper

to the professor to check sources and if they do not then it is not the student's fault, 36 said that as long as nothing was copied from any sources then they did nothing wrong, 57 said that it is acceptable to list sources you did not use as long as they are the same subject as the paper, and 16 actually admitted that they do this often.

Even more students recognize the copying of dictionary entries without citing the source as unacceptable with more than 50% of students in all class ranks saying this behavior is totally unacceptable (Figure 6). A small percentage of students still had trouble recognizing this as problematic. Within this group, 73 stated that dictionary definitions are common knowledge and therefore do not need to be cited and 17 felt that if the first student got away with not citing the dictionary entries then no one else should have to either.

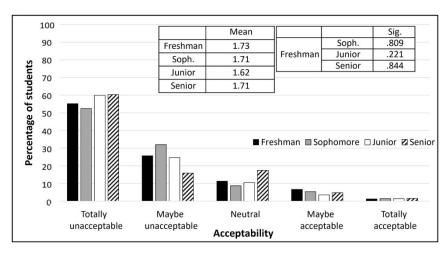


Figure 6. Perceived acceptability of copying dictionary entries without citing the source

Overall, students in all class ranks had very little difficulty recognizing that copying paragraphs from the web without citing them and turning in someone else's paper as

your own are unacceptable behaviors. Averages were very low for both of these scenarios and there were no differences between the groups (Figure 7 and Figure 8).

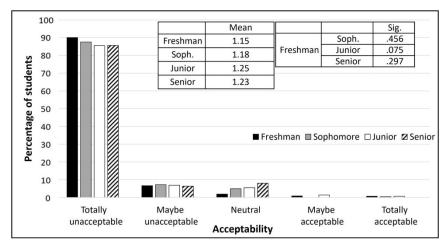


Figure 7. Perceived acceptability of copying paragraphs from web without citing source

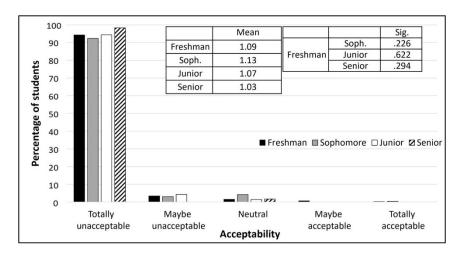


Figure 8. Perceived acceptability of turning in someone else's paper as your own

Discussion

For the self-report portion of the survey, the majority of students deny ever having committed the most egregious forms of plagiarism. Many students did admit to using information and copying small bits of text without citing the source. Upperclassmen, particularly seniors, were much less likely to admit to these activities. Because it is unlikely that a population of students just a few years older would have actual differences in past behavior, this is unlikely to reflect actual past behavior but instead these findings likely reflect the fact that seniors are much more aware that these less severe acts of plagiarism are unacceptable. As these students proceeded through their college curriculum, there appears to be an increased understanding that plagiarism at any level is not tolerated and so the students became more aware of their behaviors, even if they deny having done them or fail to actively make changes to them.

For the plagiarism recognition exercises, students at every level showed that they can recognize obvious acts of plagiarism such as copying web materials without citing them and turning in a paper that is not your own. Many students demonstrated a lack of

understanding when it comes to use of dictionary definitions. Somewhere along the way these students were taught that "common knowledge" needs no citation, but inaccurately applied that idea to information obtained from a reference such as a dictionary, which is not "common knowledge." Several students were also confused about the need for citations in the bibliography to correspond to cited information within the body of the paper. By far the biggest problem was the large number of students who find it acceptable to reuse the same paper for multiple classes and students should be told early on that this is not acceptable behavior. Interestingly, some of the students who found various scenarios acceptable externalized the problem by putting the onus on the professor to check sources or specify what is not acceptable. This emphasizes the importance of consistency to these students in how a professor grades papers, as well as the importance of clear instructions that address plagiarism issues and indicate what is expected.

Implications for Practice

This study and the results of previous studies provide some insights into strategies faculty and librarians may use to reduce the incidence of plagiarism. First, students in STEM disciplines do benefit from direct instruction on academic integrity concerns (Holt, 2012; McCabe & Trevino, 1997; Price, 2002). The findings of this study, combined with the understandings of past research, indicate institutions and programs looking to combat academic dishonesty should build time into the curriculum for clear instruction in introductory classes, particularly in STEM fields, including addressing less clear-cut issues such as reusing one's own paper and when it is necessary to cite the source of information (Holt, 2012; Wan et al., 2011). There is also a need to clarify the meaning of common knowledge within the individual discipline, an issue noted in this study and past literature (Shi, 2011). Although students may see some increase in their awareness of academic integrity over time through immersion in the higher education environment, it would be beneficial for individual professors to commit time to thoroughly check references and give students feedback. Engagement with other academic partners on campus, such as libraries and campus writing centers along with recognizing writing as a core skill that transcends disciplines can be effective strategies (Ard & Ard, 2018; Hyland, 2013; Lampert, 2008). Furthermore, there is some evidence that this instruction is more effective when deployed in-person, especially in a biology classroom (Holt et al., 2014).

While students are ultimately responsible for the academic honesty of their work, there is also some responsibility within the academy to teach students how to recognize plagiarism and self-correct, along with clarifying expectations and consistently applying policies and grading approaches (Hafsa, 2021). This study found that, while recognition increases with academic progression, there is still more education needed to fully address the issue. Librarians, in particular, are well positioned to support the needed educational intervention as their information literacy efforts are already designed for integration across the curriculum and academic integrity aligns with the information ethics concepts found in the Association of College and Research Libraries' Framework for Information Literacy for Higher Education (Association of College and Research Libraries, 2015). As the type and severity of academic dishonesty also appears

to vary by major and discipline, librarians could also support these efforts by providing targeted, discipline-specific professional development for teaching faculty.

Conclusion

This study assessed the skills of a group of STEM students at a South Carolina public institution regarding their recognition and acceptance of various types of plagiarism and academic dishonesty. Freshmen were generally confused about the proper use and attribution of sources when writing college papers. These problems often persisted for upperclassmen, though evidence suggests there is some development of their knowledge of academic integrity as students progress in their studies, especially around self-plagiarism. The overall findings indicate a need to consider a combination of both student-driven and instructor- or institution-led solutions to combat plagiarism behaviors, an existing and ongoing tension in this area of study and work. This study, building on existing research in this area, strongly indicates educators and librarians should be open to exploring different strategies for addressing this issue because, unlike plagiarism itself, the solutions may not be as simple as copy and paste.

References

Ali, W. Z. W., Ismail, H., & Cheat, T. T. (2012). Plagiarism: To what extent it is understood? *Procedia – Social and Behavioral Sciences*, *59*, 604–611. https://doi.org/10.1016/j.sbspro.2012.09.320

Al-Qaisy, **L. M.** (2008). Student attitudes toward cheat and relation to demographic factors. *European Journal of Social Sciences*, 7, 140–146.

Ard, S. E., & Ard, F. (2018). Faculty expectations of a university writing center in preventing plagiarism. *The Southeastern Librarian*, 66(2), 14–31.

Association of College and Research Libraries. (2015). Framework for information literacy for higher education. American Library Association. http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/infolit/framework1.pdf

Baker, R. K., Thornton, B., & Adams, M. (2008). An evaluation of the effectiveness of Turnitin.com as a tool for reducing plagiarism in graduate student term papers. *College Teaching Methods & Styles Journal*, 4(9), 1–4. https://doi.org/10.19030/ctms.v4i9.5564

Batane, T. (2010). Turning to Turnitin to fight plagiarism among university students. *Educational Technology & Society, 13*(2), 1–12.

Chankova, M. (2017). Dealing with students' plagiarism pre-emptively through teaching proper information exploitation. *International Journal for the Scholarship of Teaching and Learning*, 11(2), Article 4. https://doi.org/10.20429/ijsotl.2017.110204

- Childers, D., & Bruton, S. (2016). Should it be considered plagiarism? Student perceptions of complex citation issues. *Journal of Academic Ethics*, 14(1), 1–17. https://doi.org/10.1007/s10805-015-9250-6
- **Dawson, M. M., & Overfield, J. A.** (2006). Plagiarism: Do students know what it is? *Bioscience Education, 8*(1), 1–15. https://doi.org/10.3108/beej.8.1
- **Eberle, M. E.** (2013). Paraphrasing, plagiarism, and misrepresentation in scientific writing. *Transactions of the Kansas Academy of Science, 116*(3-4), 157–167. https://doi.org/10.1660/062.116.0310
- **Gilmore, J., Maher, M., & Feldon, D.** (2016). Prevalence, prevention, and pedagogical techniques: Academic integrity and ethical professional practice among STEM students. In T. Bretag (Ed.) *Handbook of academic integrity* (pp. 729–748). Springer. https://doi.org/10.1007/978-981-287-079-7_45-1
- **Gullifer, J. M., & Tyson, G. A.** (2010). Exploring university students' perceptions of plagiarism: A focus group study. *Studies in Higher Education*, *35*(4): 463–481. https://doi.org/10.1080/03075070903096508
- **Gullifer, J. M., & Tyson, G. A.** (2014). Who has read the policy on plagiarism? Unpacking students' understanding of plagiarism. *Studies in Higher Education*, 39(7), 1202–1218. http://dx.doi.org/10.1080/03075079.2013.777412
- **Hafsa, N.-E.** (2021). Plagiarism: A global phenomenon. *Journal of Education and Practice*, 12(3), 53–59. https://doi.org/10.7176/jep/12-3-08
- **Heckler, N. C., Rice, M., & Hobson Bryan, C.** (2013). Turnitin systems: A deterrent to plagiarism in college classrooms. *Journal of Research on Technology in Education*, 45(3), 229–248. https://doi.org/10.1080/15391523.2013.10782604
- **Holt, E. A.** (2012). Education improves plagiarism detection by biology undergraduates. *BioScience*, *6*2(6), 585–592. https://doi.org/10.1525/bio.2012.62.6.9
- **Holt, E. A., Fagerheim, B., & Durham, S.** (2014). Online plagiarism falls short in biology classrooms. *CBE Life Science Education*, 13(1), 83–89. https://doi.org/10.1187/cbe.13-08-0146
- **Hosny, M., & Fatima, S.** (2014). Attitude of students toward cheating and plagiarism: University case study. *Journal of Applied Sciences*, 14(8), 748–757. https://doi.org/10.3923/jas.2014.748.757
- **Hyland, K.** (2013). Writing in the university: Education, knowledge and reputation. *Language Teaching*, 46(1), 53–70. https://doi.org/10.1017/S0261444811000036
- **Lampert, L. D.** (2008). *Combatting student plagiarism: An academic librarian's guide.* Chandos.

- **Macdonald, R., & Carroll, J.** (2006). Plagiarism A complex issue requiring a holistic institutional approach. *Assessment & Evaluation in Higher Education*, 31(2), 233–245. https://doi.org/10.1080/02602930500262536
- **McCabe, D. L., & Trevino, L. K.** (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education*, 38(3), 379–396. https://doi.org/10.1023/a:1024954224675
- **Newton, P.** (2016). Academic integrity: A quantitative study of confidence and understanding in students at the start of their higher education. *Assessment & Evaluation in Higher Education*, 41(3), 482–497. https://doi.org/10.1080/02602938.2015.1024199
- **Ocholla, D. N., & Ocholla, L.** (2016). Does open access prevent plagiarism in higher education? *African Journal of Library, Archives and Information Science*, 26(2), 189–202.
- **Park, C.** (2003). In other (people's) words: Plagiarism by university students Literature and lessons. *Assessment & Evaluation in Higher Education*, 28(5), 471–488. https://doi.org/10.1080/02602930301677
- **Power, L. G.** (2009). University students' perceptions of plagiarism. *The Journal of Higher Education*, 80(6), 643–662. https://doi.org/10.1080/00221546.2009.11779038
- **Price, M.** (2002). Beyond "gotcha!" Situating plagiarism within policy and pedagogy. *College Composition and Communication*, 54(1), 88–115. https://doi.org/10.2307/1512103
- Santos, C. C., Santos, P. S., Sant'ana, M. C., Masuda, H., Barboza, M. B., & Vasconcelos, S. M. (2017). Going beyond academic integrity might broaden our understanding of plagiarism in science education: A perspective from a study in Brazil. *Anais da Academia Brasileira de Ciências*, 89, 757–771. https://doi.org/10.1590/0001-3765201720160474
- **Şendağ, S., Duran, M., & Fraser., M. R.** (2012). Surveying the extent of involvement in online academic dishonesty (e-dishonesty) related practices among university students and the rationale students provide: One university's experience. *Computers in Human Behavior*, 28(3), 849–860. https://doi.org/10.1016/j.chb.2011.12.004
- **Shi, L.** (2011). Common knowledge, learning, and citation practices in university writing. *Research in the Teaching of English*, 45(3), 308–334.
- **Simkin, M. G., & McLeod, A.** (2010). Why do college students cheat? *Journal of Business Ethics*, *94*, 441–453. https://doi.org/10.1007/s10551-009-0275-x
- **Turner, K. L., Adams, J. D., & Eaton, S. E.** (2022). Academic integrity, STEM education, and COVID-19: A call to action. *Cultural Studies of Science Education*, 17(2), 331–339. https://doi.org/10.1007/s11422-021-10090-4
- **Uzun, A. M., & Kilis, S.** (2020). Investigating antecedents of plagiarism using extended theory of planned behavior. *Computers & Education, 144*, Article 103700. https://doi.org/10.1016/j.compedu.2019.103700

Vieyra, M., & Weaver, K. D. (2016). The prevalence and quality of source attribution in middle and high school science papers. *Issues in Science and Technology Librarianship,* 83. https://doi.org/10.5062/F4FB50Z1

Walker, J. (2010). Measuring plagiarism: Researching what students do, not what they say they do. *Studies in Higher Education*, *35*(1), 41–59. https://doi.org/10.1080/03075070902912994

Wan, R., Nordin, S. M., Halib, M., & Ghazali, Z. (2011). Plagiarism among undergraduate students in an engineering-based university: An exploratory analysis. *European Journal of Social Sciences*, 25(4), 537-549.

Yeo, S. (2007). First-year university science and engineering students' understanding of plagiarism. *Higher Education Research & Development* 26(2), 199-216. https://doi.org/10.1080/07294360701310813

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The authors have received no financial benefit from conducting this study.

Appendix. Online Survey Instrument

Dear Survey Participant,

This survey is part of a study to help us better understand what college students know about source citation and plagiarism. The study is being conducted by Dr. Michelle Vieyra, a biology professor at USC Aiken.

The survey will ask you to answer a few demographic questions as well as how you have used and cited information in your past papers and how you feel about examples of certain citation practices. Data will be collected from several hundred USC students and pooled to help us determine what a typical student knows about source citation and plagiarism.

The information you provide in this survey is completely anonymous. You will receive extra credit points in your biology course for participating. Once the survey has been completed and submitted, you will be provided with a link where you can enter your name and the section number of your biology course so you can receive points for completing the survey. Your identifying information cannot be associated with your survey answers in any way.

The survey should take you about 15 minutes to complete. Please take your time and answer each question carefully.

Thank you for your time.

If you have any questions or comments feel free to contact us:

michellev@usca.edu

Please click the link below if you wish to complete the survey.

(link)

Demographic Questions

- 1. What gender do you identify with?
 - a. Male
 - b. Female
 - c. Other
- 2. How many semesters have you been in college?
 - a. This is my first semester
 - b. 1
 - c. 2
 - d. 3
 - e. 4
 - f. 5

- g. 6 h. 7 i. 8 j. more than 8
- 3. What is your major

(fill in the blank)

4. What state did you attend high school in?

(fill in the blank)

5. What city was your high school in?

(fill in the blank)

- 6. What was your high school type?
 - a. Public
 - b. Private
 - c. Home school
 - d. Other

How often have you ever engaged in the following activities:

- 7. Used information without citing the source:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 8. Copied a sentence without citing the source:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 9. Copied a few sentences without citing the source:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 10. Copied a paragraph without citing the source:
 - a. Never

- b. Once or twice
- c. A few times
- d. On most assignments
- e. On all assignments
- 11. Copied a few paragraphs without citing the source:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 12. Copied a whole page without citing the source:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 13. Copied a whole paper or turned in someone else's paper:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments
- 14. Paid for an assignment:
 - a. Never
 - b. Once or twice
 - c. A few times
 - d. On most assignments
 - e. On all assignments

Please read the following situations and rate how acceptable you think the student's actions were.

- 15. Alex is a full-time student and has a full-time job. He must write a paper for his microbiology class and doesn't have time to complete it. He wrote a paper about bacteria in his introductory biology class and received a good grade for it. He submits the same paper for this class. Again, he receives a good grade. Alex's actions were:
 - a. Totally unacceptable
 - b. Could be unacceptable
 - c. Neutral
 - d. Could be acceptable
 - e. Totally acceptable

15b. Explain your answer:

(fill in the blank)

- 16. Philip has a research paper due next week. The professor requires that the assignment must have a reference page with no less than five journal article sources. Phillip's roommate, Steve, had Phillip's professor before. Steve told Phillip that the professor did not check sources in his assignments. Phillip wrote a paper based mostly on what he remembered from class and what he found on the internet. He turned in his research assignment with a list of five journal articles he found, but did not use, in the paper. The professor graded the assignments and Phillip got an A. Phillip's actions were:
 - a. Totally unacceptable
 - b. Could be unacceptable
 - c. Neutral
 - d. Could be acceptable
 - e. Totally acceptable

16b. Explain your answer:

(fill in the blank)

- 17. Jenny has a research report due next week. Her friend Karen took the class before and had her old research report. Jenny did not understand the instructions so she asked Karen if she could look at her report to better understand what the professor wanted. Jenny saw that Karen copied dictionary entries in her report without saying where they came from. Seeing that Karen got an A on her report, Jenny did the same with her report for all the words she needed to define. Jenny's actions were:
 - a. Totally unacceptable
 - b. Could be unacceptable
 - c. Neutral
 - d. Could be acceptable
 - e. Totally acceptable

17b. Explain your answer:

(fill in the blank)

- 18. Marc plays football on the university team. His grades have suffered through the semester and he needs a good grade on the next assignment to stay on the team. However, it is due the next class period. Marc found a website that had the information he wanted to use in his paper. Marc copied some paragraphs and a few sentences without citing his sources and submitted it to his professor on time. The professor graded the paper and Marc passed. Marc's actions were:
 - a. Totally unacceptable

- b. Could be unacceptable
- c. Neutral
- d. Could be acceptable
- e. Totally acceptable

18b. Explain your answer:

(fill in the blank)

- 19. Jessica has to submit her research paper by the next class period but she hasn't started. Her roommate, Cassidy, did the same assignment the previous year and got an A on the assignment. Jessica got a copy of Cassidy's paper, put her own name on it, and turned it in. Jessica got an A as well. Jessica's actions were:
 - a. Totally unacceptable
 - b. Could be unacceptable
 - c. Neutral
 - d. Could be acceptable
 - e. Totally acceptable

19b. Explain your answer:

(fill in the blank)

Thank you for your time. To receive extra credit for completing this survey click this link here:

(link)



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