Cheating and Chegg: a Retrospective

Mr. Eli Broemer, Michigan State University

PhD student focused on soft tissue biomechanics.

Dr. Geoffrey Recktenwald, Michigan State University

Geoff Recktenwald is a member of the teaching faculty in the Department of Mechanical Engineering at Michigan State University. Geoff holds a PhD in Theoretical and Applied Mechanics from Cornell University and Bachelor degrees in Mechanical Engineering and Physics from Cedarville University. His research interests are focused on best practices for student learning and student success. He is currently developing and researching SMART assessment, a modified mastery learning pedagogy for problem based courses. He created and co-teaches a multi-year integrated system design (ISD) project for mechanical engineering students. He is a mentor to mechanical engineering graduate teaching fellows and actively champions the adoption and use of teaching technologies.

Cheating and Chegg: a Retrospective

Abstract

In the spring of 2020, universities across America, and the world, abruptly transitioned to online learning. The online transition required faculty to find novel ways to administer assessments and in some cases, for students to utilize novel ways of cheating in their classes.

The purpose of this paper is to provide a retrospective on cheating during online exams in the spring of 2020. It specifically looks at honor code violations in a sophomore level engineering course that enrolled more than 200 students. In this particular course, four pre-COVID assessments were given in class and six mid-COVID assessments were given online. This paper examines the increasing rate of cheating on these assessments and the profiles of the students who were engaged in cheating. It compares students who were engaged in violations of the honor code by uploading exam questions vs. those who those who looked at solutions to uploaded questions.

This paper also looks at the abuse of Chegg during exams and the responsiveness of Chegg's honor code team. It discusses the effectiveness of Chegg's user account data in pursuing academic integrity cases. Information is also provided on the question response times for Chegg tutors in answering exam questions and the actual efficacy of cheating in this fashion.

Introduction

Academic dishonesty at universities is nothing new. In fact, cheating on exams is both old and frequent. In his 1964 book, "Student Dishonesty and its Control in College" William Bowers cites a survey of 11,262 students that asked them about their involvement in cheating. At least 16% of the survey respondents admitted to copying from someone else's exam at some point in college [1]. While the literature explores the motivations for cheating [2, 3], perhaps the best and simplest description of why students cheat is "the failure of undergraduates to appreciate the value to themselves of serious and conscientious intellectual effort and achievement" [4]. This description is helpful because it addresses cause while pointing towards a solution.

While there is little evidence (pre-COVID) to suggest that cheating is more frequent now than in years past [4], it is obvious that opportunities to cheat have expanded. Crib sheets can be replaced with electronic devices that can store more information. Whereas before, the pool of people one could cheat from was limited, and cheating required identifying someone in the class to sit next to, now it is possible to contact anyone on the planet during an exam and benefit from their expertise. Indeed, several companies: Chegg, Course Hero, Vedantu, and Studydaddy to name a few, have built networking platforms to connect students with experts who can answer any question almost instantaneously.

During the COVID pandemic, many universities have reported increases in cheating. North Carolina State University experienced a tripling of their academic violations [5]. Some recent

news stories have discussed ways that universities try to stop cheating in classes [6,7]. For example, the University of Michigan at Dearborn used COVID relief monies to move from "traditional exam to authentic assessments, which typically connect course learning to real-world tasks and can take various forms including case studies, reflections, portfolios and projects." [6]. The U.S. Military Academy at West Point ended its second chance program, returning to a policy where cheating results in expulsion from the Academy [7]. Even video game companies are trying to find ways to stop non-academic cheating. Call of Duty recently banning 60,000 users who were cheating in its online gaming platform [8]. Cheating, and specifically cheating with Chegg, was significant enough to warrant an extensive article in Forbes Magazine titled, "This $12 Billion Company is Getting Rich Off Students Cheating Their way Through COVID" [9].

Solutions to the problem of cheating can be daunting. Research suggests that the best cure for cheating is building a culture of strong academic integrity [3]. Such a system needs the buy-in of the whole academic community and specifically, the example and influence of the administrative leaders. Such leadership must be prioritized at the institutional level.

> "…the importance of fundraising for today's higher education administrators, we suspect that commitment to an ethical culture may take a back seat to other commitments and skills. That's why it becomes so important to institutionalize integrity as much as possible into multiple cultural systems. Also, because most senior administrators are extraordinarily busy, we are convinced that development and/or maintenance of a culture of academic integrity must be a significant portion of some administrator's job in every college." [3]

This type of culture is even more difficult to create when many faculty, typically non-STEM, are willing to ignore cheating during the COVID pandemic. A recent article in the Chronicle stated it this way,

> "On one side are professors who consider themselves pedagogically progressive. They've adopted the perspective that many prominent teaching experts have been encouraging: Trust your students, and find creative ways to assess their learning. Yes, some students will cheat. That's unavoidable, and policing them shouldn't be the North Star of anyone's teaching. Especially not during a crisis that has put students under tremendous pressure." [10]

Although culture is important, individual instructors are not without tools, Anderman and Koenka suggest five things instructors can do to reduce cheating in their classes [2].

1. "Emphasize mastery", including retaking exams in order to improve.
2. "Don't stress students out about grades", don't call exams 'big'.
3. "Clearly communicate expectations", and make grades fixed rather than relative to peers.
4. "Don't publicize student grades", even if anonymously.
5. "Talk about cheating", define it, be clear on consequences, and talk about how it detracts from learning goals.

Beyond the immediate objective of stopping cheating, professors should consider tackling the cheating problem as an educational one. College is a time when many students are still developing their ethical framework and proactively training students in ethical behavior will have positive long-term consequences [3].

While causal discussions about why students cheat and how faculty (individually or collectively) can create a culture of integrity are important, they are not the focus of this paper. This paper is also not about how to stop cheating in your class. Other papers and books [3,4] approach this topic much more exhaustively than could be accomplished here and clearly, no simple solution has been identified.

Purpose

The purpose of this paper is to provide a retrospective on the use of Chegg during exams. It specifically looks at honor code violations in a sophomore level engineering course. This course makes an interesting case study for three reasons. First, the course transitioned from in-person exams to online exams halfway through the semester due to the COVID pandemic. Second, this course had enough data points, both in terms of students (over 200) and exams (4 pre-COVID and 6 mid-COVID), to provide a meaningful sample. Lastly, by fortunate happenstance, the instructor of this course utilized a rather unique problem header on their exams and wrote their own unique exam problems (rather than utilizing textbook problems). This means that Chegg submissions can be both identified and unequivocally linked to the class.

This paper also looks at the abuse of Chegg during exams and the responsiveness of Chegg's honor code team. It discusses the effectiveness of Chegg's user account data in pursuing academic integrity cases. Information is also provided on the question response times for Chegg tutors in answering exam questions and the actual efficacy cheating in this fashion.

It must be noted that while this paper focuses on Chegg, this is only one of many companies that exist to provide support (both legitimate and illegitimate) to students. In no way are the authors assuming that Chegg is unique in this space. Other companies, student groups, and informal networks provide similar services. The focus here is on the abuse of Chegg by students, the response of Chegg's honor code team, the process of identifying students who cheat, and the value of this data for academic integrity cases. These topics are approached as a retrospective and provide direction for further study. This paper also examines the potential effectiveness of cheating using a platform like Chegg.

Background

In the spring of 2020 many universities transitioned to online or hybrid education due to the global COVID pandemic. This transition occurred suddenly mid-semester and faculty scrambled to find methods to provide instruction and assessment. Instructors tried to proctor exams over Zoom, used online proctoring services with lockdown browsers, or made exams take-home. Some instructors abandoned exams and opted for alternative assessment methods. Instructors who gave exams, gave them synchronously or asynchronously.

The change to online exams reduced the normal integrity measures that faculty use to prevent cheating. The combination of decreased invigilation and increased pressure and stress created ideal conditions for students to use expert solutions (like Chegg) during exams.

This paper is a retrospective on students using Chegg to cheat in one such class. The class is a sophomore mechanical engineering course that enrolled more than 200 students.

Pre-COVID (January and February), exams were taken synchronously during a 2-hour time block. Instructors used a room that could seat 375 students with multiple instructors monitoring the room. Students were spaced in every-other seat and two different versions of the exam were distributed. Instructors walked around the room and at the end of the exam verified student identity by examining their student ID cards.

Mid-COVID (March, April, and May), exams were also taken synchronously during the same 2-hour time block. Because the university was not able to contract with an invigilating tool at short notice, exams were proctored using Zoom, with multiple instructors viewing students real-time during the exam. Concerns about student privacy prevented instructors from recording the Zoom sessions, and technical limitations prevented the instructors from seeing each student's computer screen or locking them into a browser.

The exam format was unchanged. Students were presented with a PDF of the exam delivered via email from a grading software called Crowdmark. Exams were written in a free response format with most problems requiring diagrams, equations, and algebraic manipulation. Students were expected to work on the exam using blank scratch paper and upload images of their work to Crowdmark at the end of the exam.

In both cases, pre- and mid-COVID, students were required to sign a university honor code for every exam. This honor code printed on the front page of every exam has the student acknowledge that honesty is valued above grades and that unauthorized aid is a violation of university code.

Four exams were given pre-COVID and six exam were given mid-COVID. Towards the end of the semester, the instructor became aware, from discussions with the broader academic community, that Chegg was being used by students to cheat during these online exams. However, no actionable user details could be obtained before the end of the semester.

What is Chegg and how do students use it to cheat on exams?

To begin, the authors must again emphasize that Chegg is not unique. Many companies provide similar services for students. The services detailed here are not the only services Chegg offers to students, they are the ones that were used to cheat on exams in this class.

Students sign up for a Chegg account for a monthly fee. This subscription gives them access to many services, but the two used for cheating are "homework solutions" and "expert Q&A".

The homework solutions section allows students to search Chegg's vast database of solved homework problems. Students can search for questions by key words or typing phrases from the

problem into Chegg's search engine. For many common textbook problems, Chegg will return a detailed solution guide and final answers.

If a student is trying to solve a problem that is not in Chegg's current database, they can submit a problem by asking an expert. Chegg claims that answers are returned by experts, on average, within 46 minutes of submission [11]. Submissions can be sent to Chegg by taking a screen capture or photo of the problem. Chegg uses optical character recognition to turn text in the image into searchable text. The problem is then solved by one of Chegg's tutors. A detailed solution is then uploaded to Chegg by the tutor. Once the problem is uploaded to Chegg, it is included in the database of solved homework problems. This means that the solution is accessible to both the uploader and any other student with a Chegg subscription.

Chegg has released a new service to try to address the uptick in cheating on their platform during COVID lockdowns [12]. This involves the instructor giving Chegg their exams prior to the examination date, and then if questions on these exams are posted by students, Chegg will prohibit experts from giving solutions during the exam window. The effectiveness of this instructor service is unclear. At the time of this writing, Chegg claims they are "still working out the kinks" [12] of this service and it may be changed or discontinued at any time. From their self-described limitations, the service may not work if exam questions are adapted from previous exam or textbook questions already posted to Chegg. They will also not provide details on students who post the questions during the exam window. Altogether, this service increases instructor workload as it requires creation of new and unique test questions and compliance with their uploading policies, and the upside of this effort is not confidently proven or marketed.

For the student, using Chegg to cheat is quite streamlined. The entire process of snapping a picture of a problem, uploading it, and getting an answer can all be done on a cellphone or computer screen capture tool during an exam. Chegg is aware that its services are being used to cheat on exams, and claims to train their experts to recognize cheating [13]. They have developed a process to allow instructors to obtain information on students who use Chegg in this way and claim that they punish the tutors who knowingly provide solutions during exams [14].

Chegg Honor Code

The process of obtaining data on students who cheat can be time consuming and requires administrative support. Chegg's instructions for submitting a request are to fill out an Honor Code Violation Form containing [15]:

1) "A letter of authorization on institution letterhead from your Dean or student conduct office."
2) "The URL for the question which may have caused the violation." "Note: that we cannot remove answers to Textbook Solutions."

URLs for suspicious submissions can be found by using Chegg's search engine. Chegg does not require a user subscription to search its solution library, only to see the solutions. The search feature is limited to text from the question. It is not possible to search by image or timeframe.

Search results do not have indications of when the question was uploaded. Exam questions that are similar to homework problems may be difficult to find using this search feature.

Chegg will provide information on the user who posted the question as well as all students who viewed the question. The information that Chegg supplies includes:

- Account information for students who posted the question or looked the URL:
    - Sign up email address
    - Account username
    - Account number (useful because students can change usernames)
    - University that the student associated with the account
- Access data:
    - Time and date of the URL access (or upload)
    - IP address used to access the URL (or upload)
    - Geo-location data at the time of URL access (or upload)

Chegg will also return:

- Time and date that the problem was uploaded
- Time and date that the expert solution was posted
- Time and date for each user that accessed the solution
- A link to the posted question and solution

Chegg will remove the problem from their database since hosting it is considered a copyright violation. However, they will provide instructors with a link to the posted question and uploaded solution.

In spite of this process being in place, it must be noted that this information is not as useful as it may first appear.

The sign-up email address is not verified by Chegg, in any way. While many companies send an email to the address to make sure that the account user actually has access to the e-mail address, Chegg does not. This means that a student could provide a random email address or one held by another classmate. Similarly, the account username and university affiliation are not verified (and can be changed at any time). The one piece of identifying information that could be traceable to a student is the name used on the credit card that paid for the account. Chegg will not provide this information. An additional problem arises when one considers that Chegg accounts are not cheap and often students will share login information with other students or groups of students. Although, Chegg does monitor accounts for multiple user activity and will suspend accounts suspected of being shared.

The access-data, IP, and geolocation, is potentially useful. However, during normal semesters, students are on campus and connected to the campus Wi-Fi. Thus, an IP address associated with the campus network could belong to any student. Additionally, some students may try geolocation spoofing or VPN masking of their IP address.

Students are aware that Chegg provides this type of information. Student groups on Reddit have specifically encouraged each other to use VPN or fake email addresses, and suggest users delete their posts before instructors might find them.

Another point to make is that Chegg may not be forth coming with the information. Persistence may be necessary. In this retrospective, the professor sent the original request as well as three follow-up requests before Chegg provided a complete set of data. The entire process took just over one month. Chegg also sells user access information including names, IP address, geolocation data, and other tracking data [16].

Finally, it does not appear that any of Chegg's deterrents for tutors are effective. In this particular retrospective, many of the problems posted to Chegg had the word "exam" or "final exam" on the submission image. Tutors still solved these problems and posted solutions.

Student Identification.

Once Chegg provided the aforementioned information, the instructors sought to identify who had cheated. While several students could be identified by username or email address, the most effective way to identify students was by IP address. For this retrospective, Chegg supplied IP addresses were compared to the IP addresses of students logging into the university learning management system (LMS), which in this case is Brightspace [17]. Brightspace records the IP address of students each time they log into the system. This allows instructors to access IP addresses for students over the whole semester.

From Brightspace, IP addresses for each student in the class were obtained for the whole semester. More than 90% of the IP addresses for Brightspace log-ons were unique to a single student. By matching unique Brightspace IPs to IPs in the Chegg dataset, 80% of the users were uniquely identifiable by IP. The remainder were matched by university email address on the Chegg account, or the student's real name being used on the account. A small percentage (<5%) of accounts were not able to be matched to a student. These individuals did not give Chegg any personally identifying information, and their associated IP address was never used by a student in the course to access the university LMS.

IP addresses for students were also ranked by frequency used to access Brightspace. It was found that when an IP was matched to a Chegg account, it was usually associated with the user's primary device (i.e., matched IP was first or second ranked).

There were zero Chegg accounts shared between students apparent from the data. This does not mean no accounts were shared—only that the accounts were not shared with anyone in this course. Interestingly, a handful of students were the clear owner of multiple Chegg accounts.

Analysis of Chegg Data.

The data that Chegg provided is used to create a better understanding of the behavior and profile of students who cheated on the exams. Specifically examined are the frequency of cheating, the time of cheating relative to the start of the exam and start of the semester, and the effectiveness of the cheating.

In this data set, 129 unique posts were linked to an exam. 123 of the posts occurred while the exam was taking place and 87 of these questions were answered by Chegg tutors during the exam (Figure 1A). Although more than two-thirds of the questions posted resulted in solutions that could have been used during the exam, only about one-third of the total posts resulted in answers that were seen during the exam by the poster (Figure 1B).

Although there could be several reasons for this, one item to consider is guilt. In several cases, students posted a single question to Chegg never went back to look for the solution. These students tended to be the first students to admit that they had posted the question and accept the associated course penalties. The instructors presume that these students felt guilty about cheating and stopped their activities.

Solutions for the 123 unique posts in an exam, were viewed 425 unique times, also during the exam. Of the 425 views, 142 occurred before the solution was posted, so the student knew the question had been asked, but no helpful information was obtained. 283 views saw the solutions while the exam was active (and thus likely affected student work) (Figure 1C).

The 129 posts and 570 views came from 82 students (Figure 1D). And while some of these students, 11, appear to use Chegg only for studying, 71 used it to cheat at least once. Of these 71 students, 17 of them posted questions and 54 only looked at solutions (Figure 1E).

Finally, using the student-Chegg account matching described above, 68 of the students who cheated could be uniquely identified (Figure 1F). Of the three that could not be identified by IP address, only one posted a question during an exam. In this case, the username for the account was traced to a
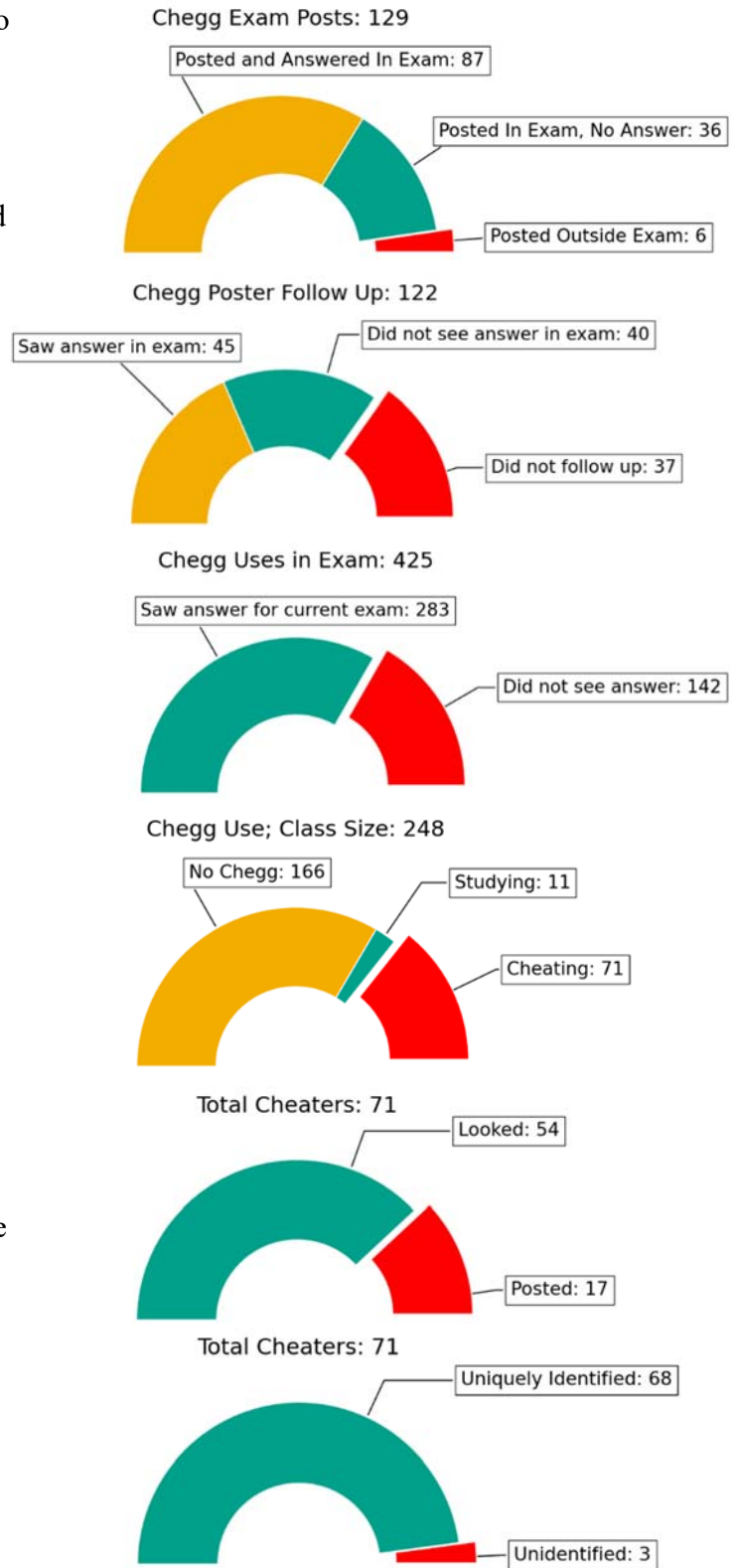

Figure 1 – Detailed Data on Chegg usage by posts and views. Images are referred to from top to bottom as A-F.

university student, but not one enrolled in the class. This was the only post that occurred before the COVID lockdown. The other two, looked at solutions only. They accounted for 11 views, and could not be identified by IP addresses or other account data.

How effect is Chegg as a tool for cheating?

Effectiveness can be answered a few ways. For this paper view cheating is considered effective if the student has access to the answer before the end of the exam. No effort was taken to determine if exam solutions could be positively linked to the posted Chegg solution.

Figure 2 shows the time delay between when an exam question is posted and when a Chegg tutor uploads a solution. Longer response times were clipped from the graph to better show the immediate response behavior. All of the questions were answered within 24 hours of the original post. However, most questions (>50%) were answered within 60 minutes of the original post. This agrees with Chegg's claim that most questions are answered within 46 minutes [11]. 25% of the solutions were available within 30 minutes. Notably, a few questions were answered within 10 minutes of being posted.

The difficulty of the questions did affect the delay between post and solution. In this class, questions were divided into four categories, simple (requiring only 1 or 2 mathematical operations), concept (primarily based on conceptual understanding), average (requiring multiple computations) and challenge (typically requiring a full solution process). All of the problems on these exams are free response problems. Figure 3 shows the range of time that Chegg tutors took to answer each of these problem types. Again,
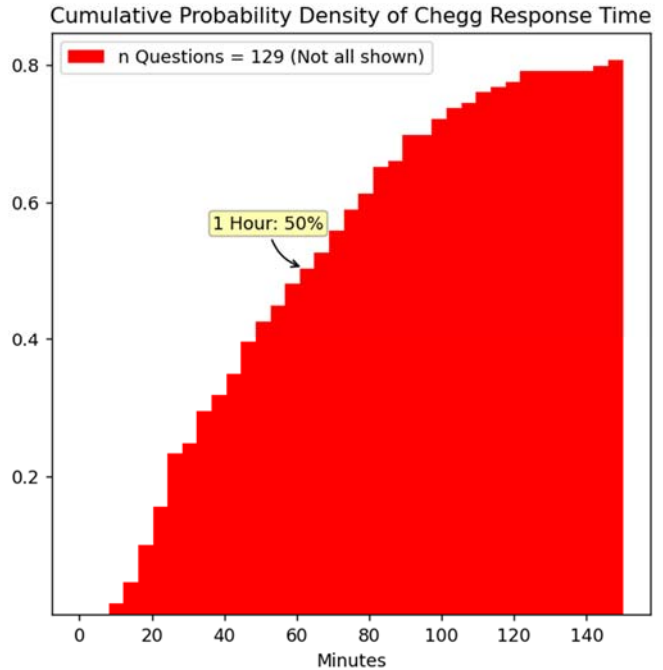

Figure 2 – How long does it take for a tutor to post a solution when a question is asked on Chegg?
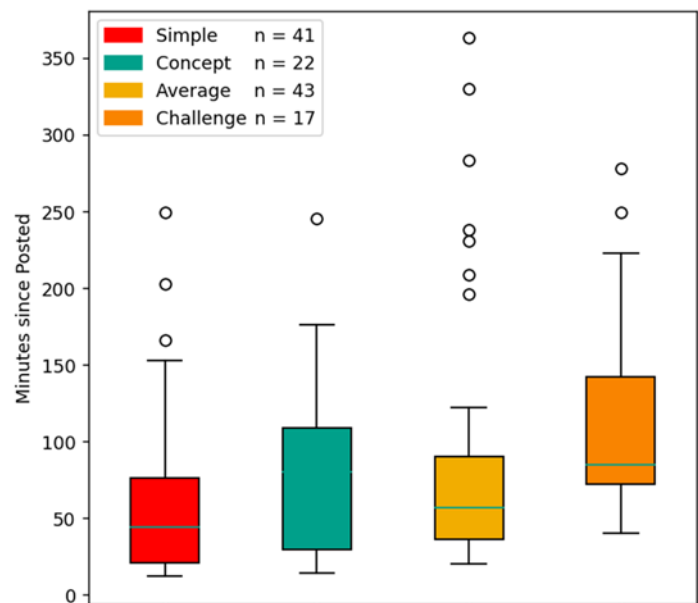

Figure 3 – How long does it take for a tutor to post a solution when a question is asked on Chegg? (based on difficulty)

longer response times (~5% of this data) were clipped from the graph to better show the immediate responses. Simple, concept, and average questions were answered fastest (many in 20-30 minutes). The quickest response time for a challenge problem was 40 minutes.

Finally, one can examine when students post questions or look for the solutions. Figure 4 shows that most question posts occur at the outset of the exam. These posts were likely a planned method for passing the exam, rather than impulsive acts of (like the posts that occur near the end of the exam). Notably, students are looking for answers at the outset of the exam as well, but views increase over the duration of the exam. Because of limitations of the data set, it is not known if looking truly increases over the exam time because that is how students behave or if it appears that way because the data only covers looking at questions that were on the exam and more are available as time goes on. In other words, our data set will not catch students searching or looking at material that is outside the questions that were posted of exact exam questions. This data was requested of Chegg during the initial and subsequent data requests, but they did not provide the data or acknowledge that aspect of the request.

Figure 4 – Timing of students posting (red) or looking (green) at Chegg during the 2-hour exam period for the whole semester. Chegg tutors respond with solutions (yellow) during the exam.

Figure 4 indicates that the majority of cheaters posting to Chegg did so immediately at the start of an exam. Figures 2-4 show that this is an effective strategy for cheating with the online platform. Posting immediately maximizes the time for a tutor to post a solution, and since most solutions were put up within an hour, the cheater(s) have time to read the solution and copy it on their exam if they chose.

An exam window shorter than the 2 hours allowed in this class may be a way to reduce the effectiveness of cheating seen here. Shorter exam windows would give less time for solutions to be posted, and less time for students to look for and copy those solutions. Exams could also be timed on a per-problem basis with no opportunity to return to previous questions. This would decrease the window for Chegg to provide a useful response. Another way to minimize the effectiveness of this cheating could include exams with only longer problems. The challenge problems in this class typically require the student to give free-body diagrams and equilibrium equations for the initial structure and any beam cuts, as well as a stress-state solution for a point in the structure. As shown by Figure 3, the tutor response time for these problems is longer due
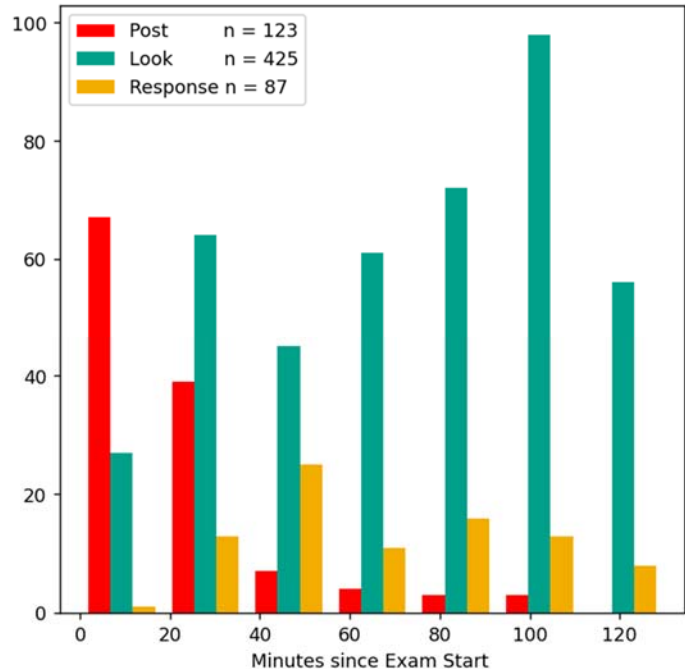
to their complexity; so long exam problems may be a strategy for delaying tutor assistance. Although, long problems are commonly broken up into parts on exams, so students may circumvent this strategy by posting small parts of a long problem to Chegg.

What does cheating look like as the semester progresses?

Perhaps the most surprising discovery in the Chegg data is that one instance of cheating, using Chegg, occurred before the COVID lockdown. This instance of cheating involved a cellphone photo of the work in question.

Once the lockdown took students out of the invigilated classroom, cheating increased, but not right away. The first exam to take place after the campus was shutdown had only a few instances of students posting problems and fewer students looking. As the time in lockdown increased, so did students' familiarity with online testing and ways to circumvent invigilation. Figure 5 shows the increase in cheating over the semester. In the 6 mid-COVID exams, the number of students posting went from 4 to 11 and the number of posts per student increased. Very few students tried to look at solutions in Chegg early on in the pandemic, however this number increased dramatically by the 4th exam.

It should be noted, that cheating increased in April despite a university wide announcement towards the end of March that students could select a pass / no-pass option instead of a letter grade for the spring semester.

Who are the students that are cheating?

Students cheat to improve their grade in a class or avoid a failing grade. This begs the question: Which students are trying to improve
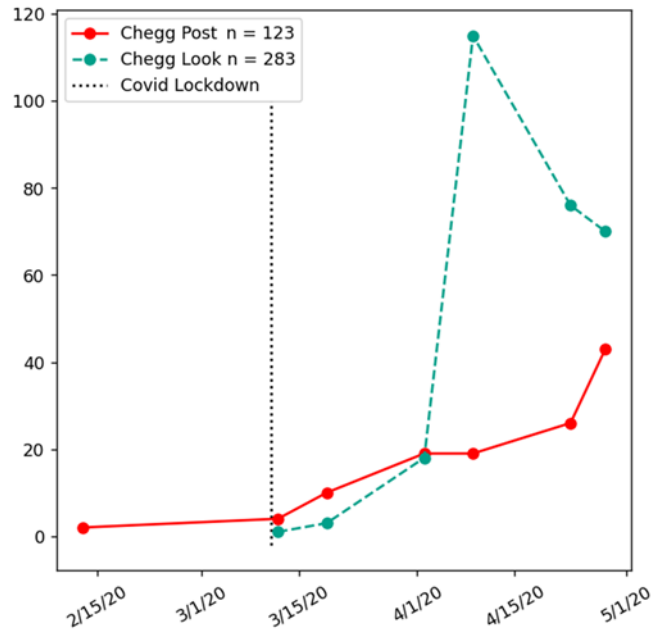

Figure 5 – Timeline of Chegg usage in exams across the semester. Students increasingly posted exam questions (red line). Questions with tutor solutions were often seen by students while still in the exam (green dashed).
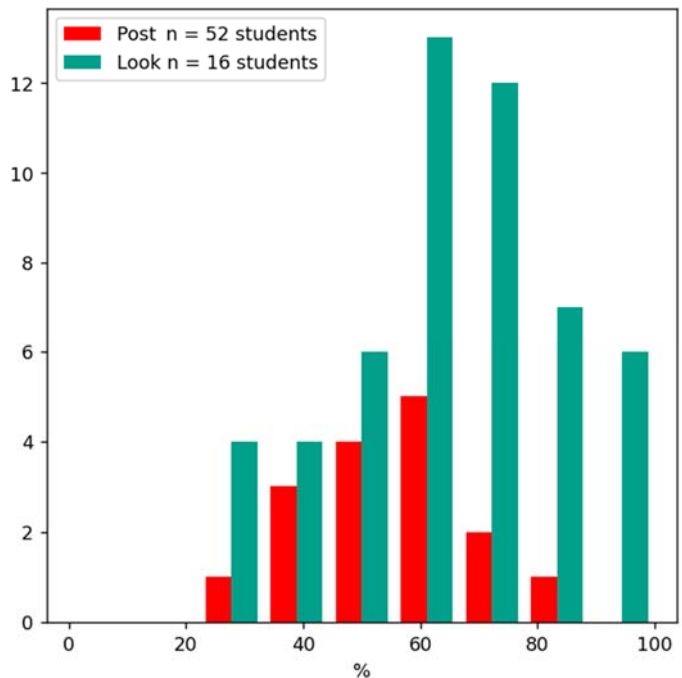

Figure 6 – Course grade of students caught cheating during an exam. Students posting (red) are shown separate from those only looking at Chegg (green).

their grades? In this retrospective, students who cheat are distributed normally (Figure 6). However, when compared to the class as a whole, students who cheated tend to be more represented in the lower half of the class (Figure 7).

Figure 8 shows a similar distribution between students who cheated using Chegg and those that didn't, but specifically focused on the final exam. Comparisons between Figure 7 and Figure 8 indicate that students who cheated on the final exam scored higher than would be expected based on their prior course grades, indicating that cheating was somewhat helpful to students.

Figure 9 displays the frequency of students using Chegg on an exam across the whole semester. Some students relied substantially on Chegg, a couple of students posted as many as 18-20 exam questions, and a couple different students looked

Figure 7 – Students who cheated compared to students didn't cheat on the basis of end-of-semester grades. The top figure shows the stacked histogram of student grades at the end of the semester. The bottom graph shows the same data, but proportionally.
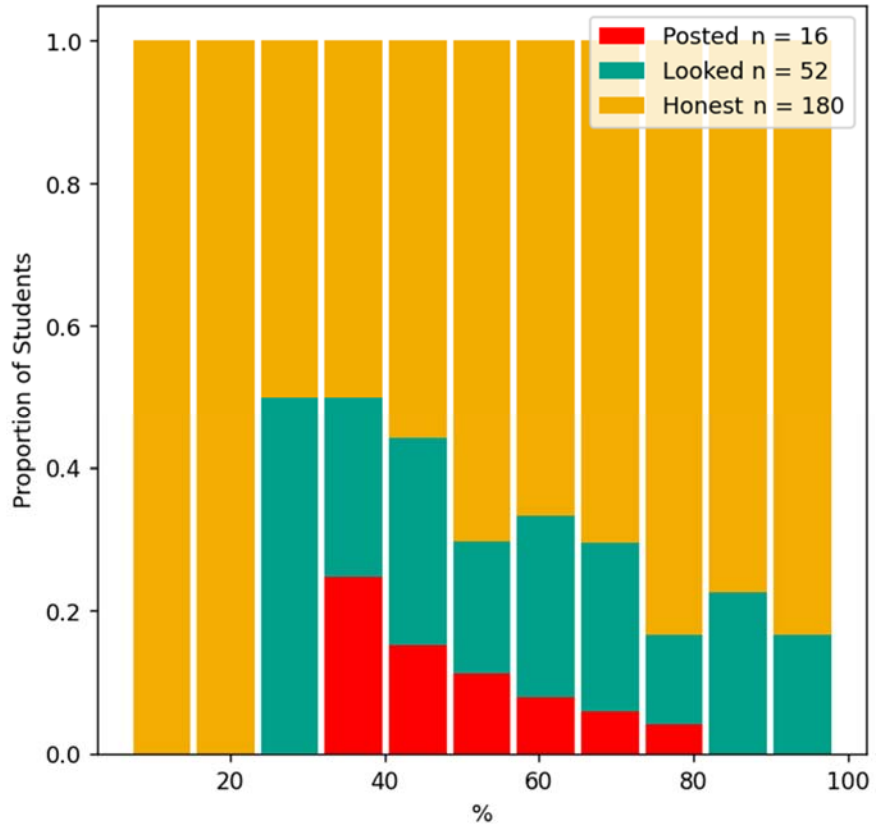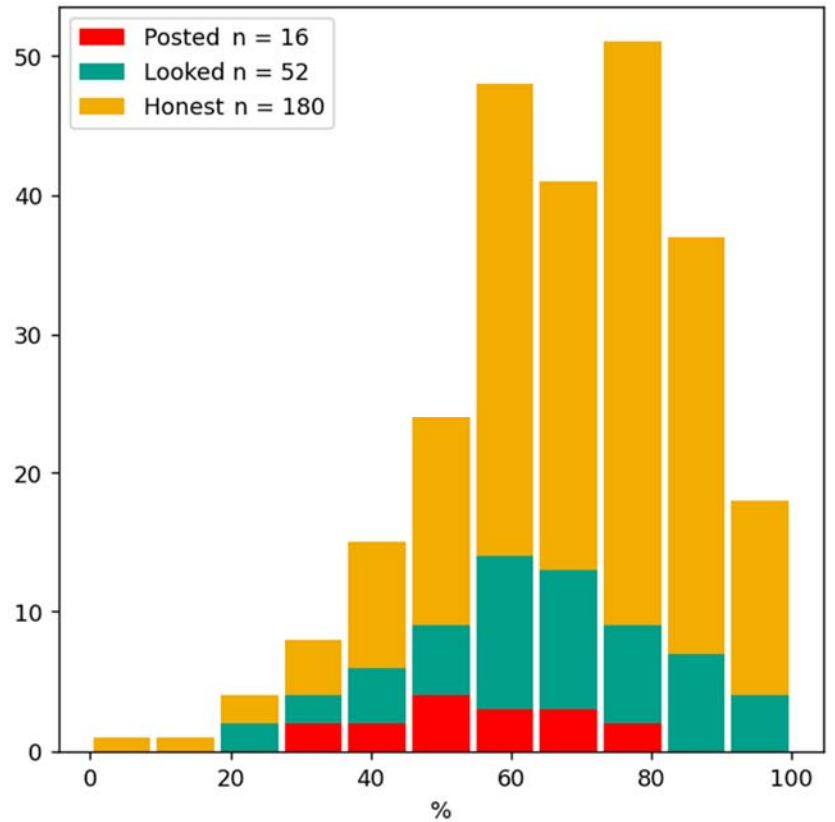
at just as many tutor solutions, all while taking exams. These are the exception. From this data, the majority of students posted or looked at questions on Chegg less than 5 times during exams in this semester. It could be that these students felt guilt and remorse from cheating, as mentioned above. Other possibilities for these low-frequency cheaters may be that they discovered universities can open dishonesty investigations with Chegg and so they stopped using the platform, or that they didn't find Chegg's solutions helpful or high quality so it wasn't worth their time to post or look there.
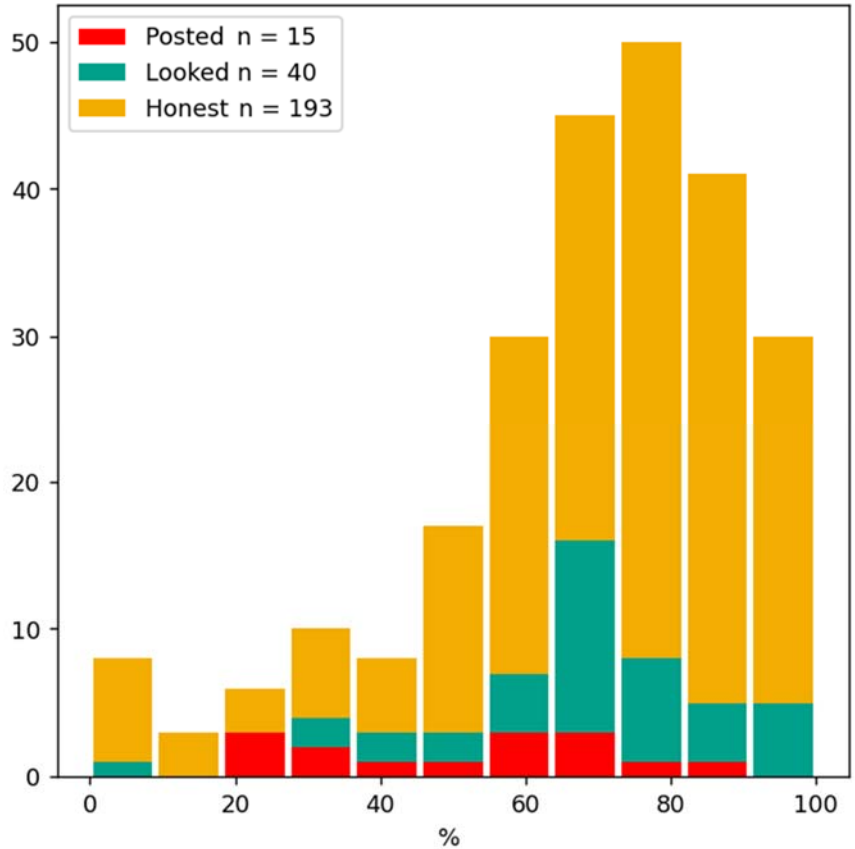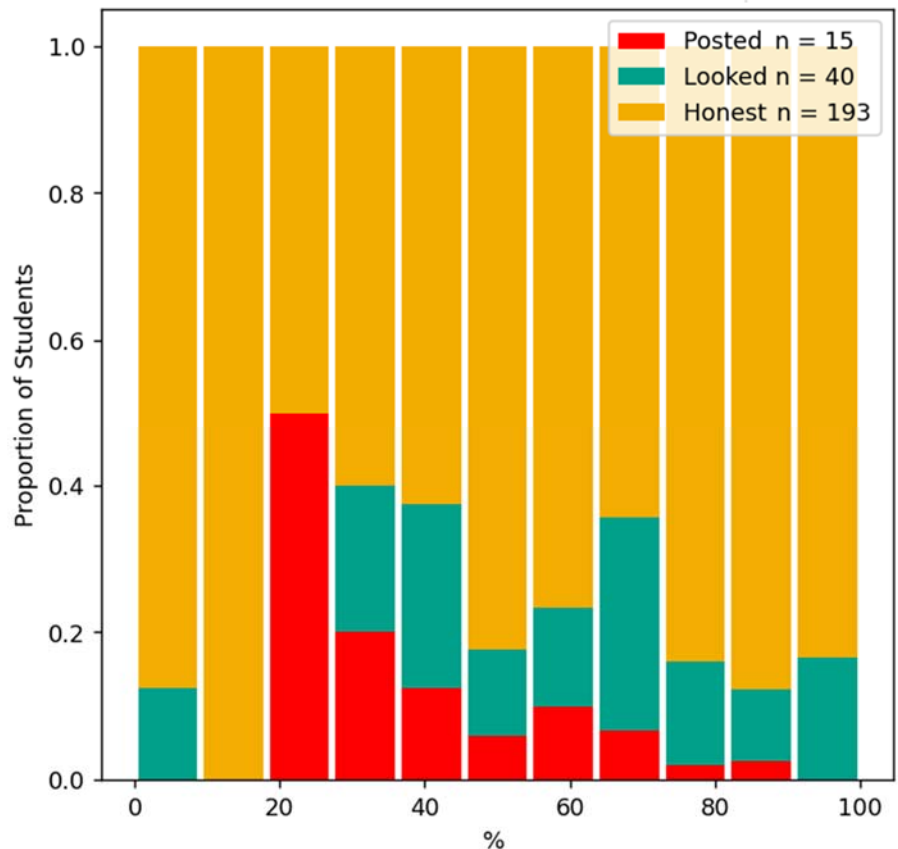

Figure 8 – Students who cheated on the final compared to students didn't cheat on the basis of final exam grades. The top figure shows the stacked histogram of student grades on the final exam. The bottom graph shows the same data, but proportionally.
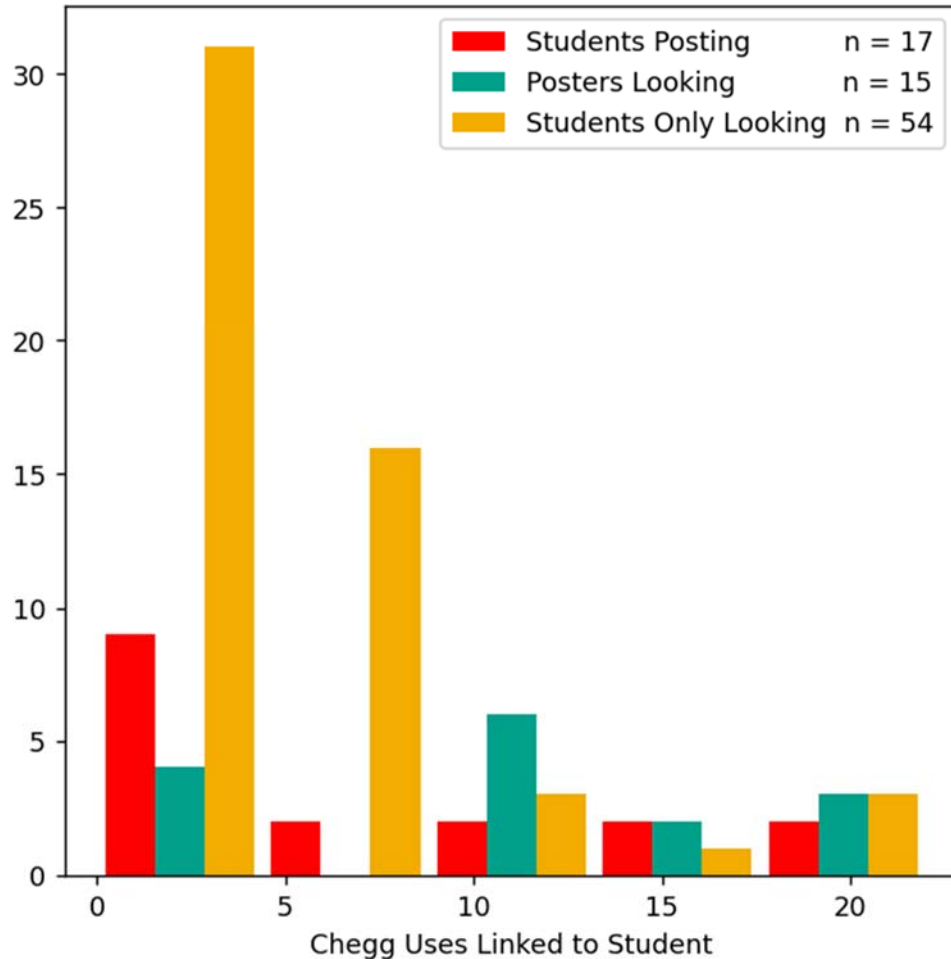
Figure 9 – Frequency of students using Chegg in an exam for the semester. Separated by category: student postings on Chegg (red), those posters looking at Chegg (green), and students only looking at Chegg (yellow). The majority of students appear to use Chegg only a small number of times to cheat.

Conclusions

Several conclusions can be drawn from this retrospective. First, as seen from Figure 1 and 4, Chegg is used primarily for cheating and not studying. Of the 82 students identified as Chegg users in this analysis, 86% of them used Chegg to cheat. Second, students use Chegg with intentionality. Figure 4 clearly shows that most students anticipate a delay in getting answers and post questions as soon as possible. Third, only a few students in a class (the question posters) enable a significant amount of cheating for their peers. In this study, the ratio of posters to viewers was 1:4.

Cheating, especially in online remote exams, is a challenging problem that can be approached in a number of ways. This paper is not intended to grapple with solutions to the problem—rather

the intent is to clearly show that online cheating is effective and widespread in this particular class setting. Shorter exams with longer problems could make this type of cheating less effective, although that would have to be explored. A better understanding of the behavior and motivation of students who cheat may reveal different strategies for combating academic dishonesty. Clearly, there are many students that cheat only a few times and a few students that cheat many times. Effective responses to cheating may be different for these two groups.

It should be noted again that Chegg is one of many places students can post questions and get answers. Chegg is only one of many places where students can access solutions to similar homework problems.

References

1) Bowers, W. J. "Student dishonesty and its control in college" *New York: Bureau of Applied Social Research*, Columbia University, 1964.
2) Anderman E.M. & Koenka A.C. "The Relation Between Academic Motivation and Cheating" *Theory Into Practice,* 56:2, 95-102, 2017.
3) McCabe, Donald L., et al. "Cheating in College : Why Students Do It and What Educators Can Do about It", *Johns Hopkins University Press*, 2012.
4) Lang, J. M. "Cheating Lessons", *Cambridge: Harvard University Press*, 2013.
5) Davis B, Rettinger D, & McConnel K. "Ep. 38: Combating Cheating in the COVID Era" *The Key, Inside Higher Ed*. [Online]. https://www.insidehighered.com/audio/2021/02/16/ep-38-combatting-cheating-covid-era [Accessed April 19, 2021].
6) Redden E. "Rejecting Remote Proctoring" *Inside Higher Ed*, April 14, 2021. [Online]. https://www.insidehighered.com/news/2021/04/14/um-dearborn-closed-door-remote-proctoring [Accessed April 19, 2021].
7) Shanahan, E. "West Point Scraps Second-Chance Program After Major Cheating Scandal" *The New York Times,* April 16, 2021. [Online]. https://www.nytimes.com/2021/04/16/nyregion/west-point-cheating-scandal.html [Accessed April 19, 2021].
8) Moon, M. "'Call of Duty: Warzone' bans 60,000 confirmed cheaters" *engadget*, February 3, 2021. [Online]. https://www.engadget.com/call-of-duty-warzone-bans-60000-confirmed-cheaters-071107304.html [Accessed April 19, 2021].
9) Adams, S. "This $12 Billion Company Is Getting Rich Off Students Cheating Their Way Through Covid" *Forbes*, January 28, 2021. [Online]. https://www.forbes.com/sites/susanadams/2021/01/28/this-12-billion-company-is-getting-rich-off-students-cheating-their-way-through-covid [Accessed April 19, 2021].
10) Supiano, B. "Students Cheat. How Much Does It Matter?" *The Chronicle of Higher Education,* October 21, 2020. [Online]. https://www.chronicle.com/article/students-cheat-how-much-does-it-matter [Accessed April 19, 2021].
11) Chegg.com, "Chegg Study Pack" Website: www.chegg.com/study-pack/ Accessed 3-8-2021

12) Chegg.com, "Chegg Honor Code" Website: https://www.chegg.com/honorcode Accessed 4/20/2021

13) Chegg.com, "Chegg Academic Integrity" Website: https://www.chegg.com/about/academic-integrity/ Accessed 4/20/2021

14) Chegg.com, "Chegg Faculty Resources" Website: https://help.chegg.com/Faculty-Resources/2181340071/ Accessed 4/20/2021

15) Chegg.com, "Chegg Honor Code investigation request". Website: https://www.chegg.com/honorcode/investigation-request/ Accessed 3-8-2021

16) Chegg.com, "Privacy Policy". Website: chegg.com/privacypolicy/ Accessed 4/20/2021

17) Chegg.com, "Response to Honor Code Request" – Private communication June 2020