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### COVID-19 Academic Integrity Violations and Trends: A Rapid Review

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Systematic Review

# COVID-19 Academic Integrity Violations and Trends: A Rapid Review

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**Abstract:** The rapid shift from classroom course delivery to online education modalities during the COVID-19 pandemic has had significant impacts on academia. Student loss of face-to-face interaction, the lost social benefits of the educational milieu, and restricted instructor ability to control both the learning environment and assessment process have been significant. The purpose of this paper is to discover if due to the unplanned shift to online course delivery, educators and researchers experienced impacts to academic integrity during the peak of the online shift. A systemic review utilizing the PRISMA methodology of peer reviewed literature published during the period of March 2020 till September 2021 demonstrated that violation types continued to fall within the existing academic integrity constructs of inappropriate information sharing, cheating on exams and assignments, incidents of plagiarism, and falsifying or fabricating information. The results showed that pre-COVID concerns with academic integrity were amplified with previous concerns moving to the forefront. In addition, the rapid shift opened doors for greater opportunity for violations and increased instructor concern especially within the hard sciences and courses with lab-based components. Reinforcing the importance of providing formal academic integrity student and faculty training can be a beneficial intervention to ensure students understand the ethical implications of student behavior and performance during the assessment process. Given the emerging trend pre-COVID that skyrocketed during the pandemic, ensuring academic integrity should remain a key priority for learning institutions.

**Keywords:** cheating; plagiarism; academic dishonesty; higher education; college; university; undergraduate; COVID-19



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## 1. Introduction

The COVID-19 global pandemic continues to present challenges in higher education across all institutions, including upholding academic integrity across a variety of competency testing and assessment methods [1]. Faculty continue to adapt teaching and assessment initiatives with online, hybrid, and/or other content delivery methods, while students work to seek value in the educational experience. With the compulsory move to online education because of public health mandates, students who were initially enrolled in traditional (in-person) courses immediately were transitioned to fully online course delivery methods without lead time or preparation. Further, ongoing physical distancing and related pandemic precautions have continued to utilize online course delivery methods for many institutions of higher education with some course delivery permanently being transitioned to online delivery. With this initial transition to online andragogy and the ongoing use of remote content delivery and assessment comes the moral hazard of students engaging in academic integrity violations [1–3].

### 1.1. Rationale and Objective

The objective of this systematic review was to assess the impact of the rapid shift to online educational modalities due to the COVID-19 pandemic and the impact on academic integrity in higher education and to further comprehend the type and frequency of academic violations across multiple institutions of higher learning. The purpose of the study was to increase understanding of the possible trends which occurred because of the shift to online modalities and increase available knowledge about the issues and offer recommendations for future study. Such information will further help course instructors adapt andragogy methods for content delivery and assess challenges and potential best practices to limit future academic integrity violations in their courses. With more faculty now utilizing online teaching and assessment methods as compared to pre-pandemic practices, ongoing assessment of formal academic integrity violations, and identified trends will support course instruction and assessment strategy development.

### 1.2. Academic Integrity Violations and Operational Definitions

The research team consists of academic educators across many disciplines and multiple higher education institutions. Significant collaborative discussions occurred surrounding the distinct types of actual and potential academic integrity violations being experienced as related to the respective honor code policies at the various institutions. As identified in each institution's formal honor code policy, a variety of potential behaviors by the student may qualify as a violation at an institution of higher education [4,5]. Defining and acknowledging distinctions between various academic integrity infringements provides clarity and understanding to facilitate codification, measurement, and evaluation. Table 1 provides a summary of category constructs and operational definitions of academic integrity violations and related examples building upon prior scholarship in this area [6].

**Table 1.** Category Constructs and Operational Definitions.

Academic Integrity Violation	Example
Cheating on exams	Copying on a test, using unauthorized materials during an exam, receiving any additional/unauthorized aid during an assessment.
Cheating on assignments	Collaboration or collusion Conversing (in any form) with someone else in the preparation of an individual academic product.
Cheating via plagiarism	Submitting self-authored work (or partial work) from a prior course or failing to attribute (cite) or doing so improperly.
Falsifying/fabricating lab or research data	Submitting Creating, altering, omitting, hiding and/or falsely reporting, information/data intentionally, misrepresenting academic work.
Sharing	Providing work in a way that enables academic integrity violation(s), failing to take precautions to keep individual work private.

These definitions, while not encompassing all potential academic integrity violations, entail a broad range of categorical behaviors that students may easily fall into during their learning experiences. It is essential as researchers continue to explore the construct of academic integrity and related implications to continue to define and identify more precisely the various types of violations. Codifying and clarifying academic integrity operational definitions will further facilitate the ability to systematically measure, evaluate and address the various types of violations.

Bretag et al. [7] highlight a very thin line or distinction between sharing behaviors in higher education and cheating behaviors. The research team acknowledged classification challenges and the need for definition clarity. Such a perspective was taken during this review to ensure definition clarity and that violation types were carefully codified. The research team also only included and analyzed academic integrity concerns related to online education and assessment during the COVID-19 pandemic.

Another need for operational definition clarification and codification was the impact around information sharing. One study identified students became more disengaged over time with remote instruction and as a result had a reduced sense of accountability and began to increase collaboration and information sharing to earn points [8]. Clarifying what is information sharing and when information sharing is and is not appropriate can occur with clearer operational definitions.

Another scenario demonstrating the need for clear definitions was the impact of academic integrity challenges for instructors of science and lab-based courses. The shift presented an assessment challenge given traditional lab-based courses were forced to move away from hands on application and assessment to written assessment tools. In-person lab-based science courses using more quantitative assessment approaches are not typically aligned the written assessments to demonstrate competency [9,10]. The movement from instructor oversight of hands on application and assessment to online written assessments provided opportunity for cheating behaviors not possible in the laboratory setting. Typically, assessment approaches in more analytic based science-based courses are more heavily weighted on knowledge of complex concepts as opposed to writing skills [9–11]. Unfortunately, particularly in the early onset of the online transition, there was limited instruction and skill building for lab-based faculty to quickly design online assessments activities or address academic integrity considerations in these settings.

## 2. Methods

### 2.1. Eligibility and Search Criteria

Studies were included in this review if they were written in English, centered on college or university level students in the United States, and published 2 March 2020, through 2 September 2021. Search criteria included cheating or plagiarism or “academic dishonesty” and “higher education” or college or university or undergraduate both in the abstract with limiters of scholarly Peer Reviewed Journals. The full text only searching criteria option was not used as it allowed for discovery of the best articles for the study. Full text articles not recovered were interlibrary loaned from other universities.

### 2.2. Information Sources

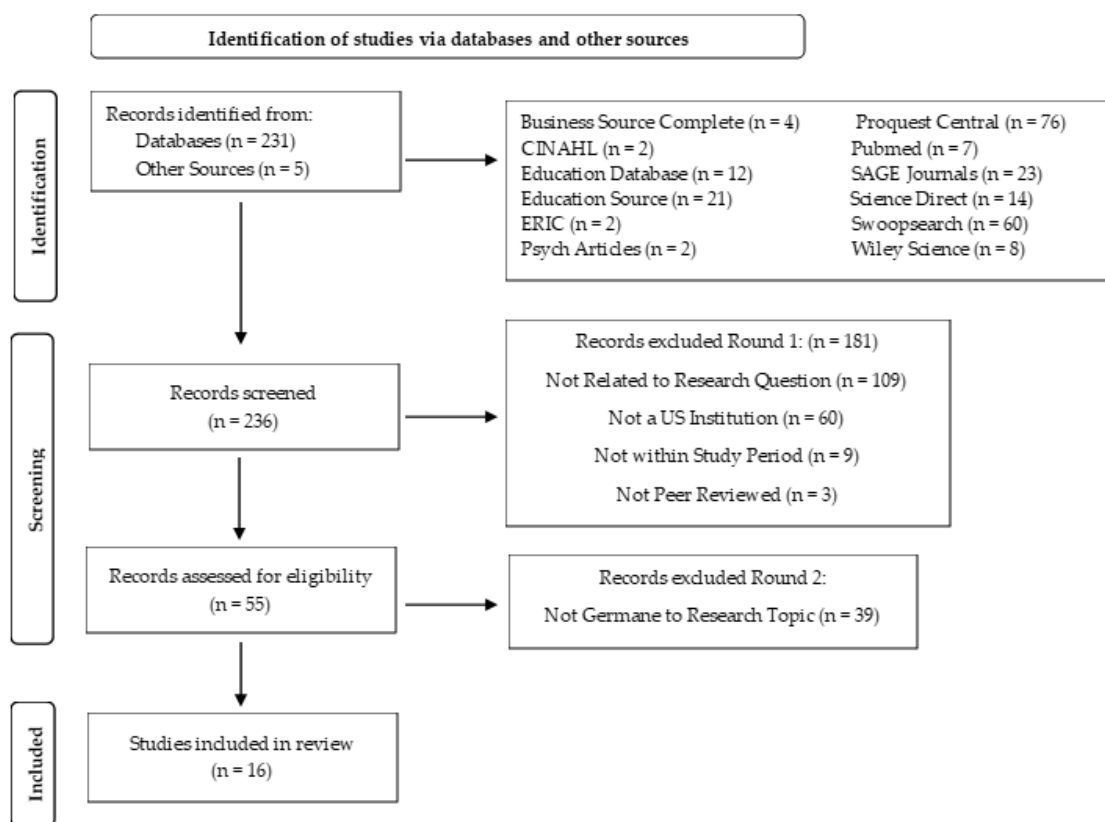
To meet the multi-disciplinary needs of this study, thirteen databases were individually searched to identify the articles for review: Academic Search Complete, APA PsycArticles, APA PsycINFO, EBSCOhost Psychology & Behavioral Sciences Collection, CINAHL, Computer Science Database, Computer Source, Education Database, Education Source, Proquest Central, SAGE Journals, Web of Science, and SCOPUS. In addition to the already mentioned databases, the UT Tyler Discovery Tool was used to do an overview search of all the databases UT Tyler subscribes. Google Scholar was also queried under the same parameters with library links set to The University of Texas at Tyler.

### 2.3. Initial Study Selection

The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 methodology and matrix. The initial database search was conducted by a university research librarian. Titles, article metadata including keywords, abstracts, and geographical location of the study were scanned to identify appropriate articles. The initial search resulted in 236 articles. Utilizing the Sciwheel reference management system, the university accessible databases, and interlibrary loan, the full text of all identified articles was accessed using a collective process.

Through the Microsoft Teams platform, virtual meetings were held, and data and files were collected and organized. Excel was used for data collection and to categorize and rate each article regarding inclusion criterion from full-text article reviews. An affinity matrix was used by all researchers to identify and codify themes within each article. There was a round two exclusion screening to identify the most appropriate articles for this review

to eliminate bias and reader fatigue. Figure 1 provides the schematic flow of the sample identification and selection process.



**Figure 1.** Preferred reporting items for rapid reviews and meta-analysis (PRISMA) figure that demonstrates the study selection process.

### 3. Results

The rapid review process identified applicable publications that addressed the COVID-19 pandemic challenges to academic institutions moving from the rapid, unplanned scenario of face-to-face classroom course delivery and assessment to online and bi-modal (a mix of face to face, synchronous, and asynchronous) formats. Table 2 shows the total sample selected and gives an overview of the sample data.

**Table 2.** Study Sample Article title, authors, and a summary of findings.

Title	Authors	Findings/Summary
Community college chemistry instruction and research in the time of COVID-19 [12]	Kolack, K.; Hemraj-Benny, T.; Chauhan, M.	This paper reviews an institution’s rush to transition to online instruction and resulting academic integrity challenges. The authors cite lower test scores during the online instructional period.
Contract cheating: An increasing challenge for global academic community arising from COVID-19 [13]	Hill, G.; Mason, J.; Dunn, A.	The paper contributes to the discourse on contract cheating by reporting on an investigation of the scope and scale of the growing problems related to academic integrity exacerbated by an urgent transition to online assessments during the COVID-19 pandemic.
COVID-19 campus closures in the United States: American student perceptions of forced transition to remote learning [8]	Parker, S.W.; Hansen, M.A.; Bernadowski, C.	This paper discusses student engagement and satisfaction with both in-person instruction and remote instruction. Undergraduate students experienced feelings of increased frustration, decreased accountability and engagement during remote learning, and turned to peer collaboration to earn points during the assessment process.

Table 2. Cont.

Title	Authors	Findings/Summary
First year students' preparedness for an online dental curriculum [14]	Patterson, E.; Bourdin, T.B.; Stephens, M.	This paper identifies fear of cheating on online exams as a distance learning concern.
Homemade virtual clinical: A low-cost, high-impact solution for clinical [15]	Van Der Wege, M.; Keil, S.	This paper explores the use of virtual simulation for nursing education and identified the potential for cheating online.
How to teach online? Recommendations for the assessment of online exams with university students in the USA in times of pandemic [16]	Rivera-Mata, J.	This paper suggests the levels of cheating are not higher in online vs. in-class exams and made recommendations regarding online exams in times of pandemic.
Implementing remotely proctored testing in nursing education [17]	Castano, M.; Noeller, C.; Sharma, R.	This paper suggests how to implement remotely proctored exams in nursing education, including issues such as academic dishonesty.
Minimize online cheating for online assessments during COVID-19 [18]	Nguyen, J.G.; Keuseman, K.J.; Humston, J.J.	This paper presents strategies that effectively minimize cheating while addressing learning outcomes to minimize rising academic integrity issues during the COVID-19 pandemic.
Online-cheating-amid-COVID-19 [19]	Bilen, E.; Mastros, A.	This paper compares online exams to online chess. The authors argue that cheating in online exams will increase post COVID-19. They show evidence of cheating in online exams through Access time records and argue that uniform and secret rules for cheating should be implemented in universities.
Optimized collusion prevention for online exams during social distancing [20]	Li, M.; Luo, L.; Sikdar, S.; Nizam, N.I.; Gao, S.; Shan, H.; Kruger, M.; Kruger, U.; Mohamed, H.; Xia, L.; Wang, G.	This paper suggests there is a way to limit the benefits of colluding on multiple choice tests using assessment testing strategies.
Plagiarism in graduate nursing program: Occupation stress or lack of knowledge? [21]	Kratovil, A.	The unrelenting work of nurses during the pandemic can lead to more plagiarism as students "take a break" from ethical decisions due to fatigue. Training students in academic dishonesty and requiring them to state their lack of cheating could remind students they must continue being ethical.
Programming in a pandemic: Attaining academic integrity in online coding courses [22]	Goldberg, D.	This paper identified weaknesses and shortfalls in online exam proctoring and related academic integrity initiatives in remote education. The abandonment of video proctoring, elimination of few high-stakes exams (versus frequent quizzes), not using publisher-generated questions, and use of randomized question pools were assessment tools that were impacted.
Promoting academic integrity and student learning in online biology courses [10]	Hsu, J.L.	This paper provided an instructor's thorough research of four research questions: (1) what types of cheating are prevalent with the shift to online instruction? (2) should instructors make assessments open book and open notes? (3) how does cheating occur in biology lab courses? (4) what strategies can biology instructors take to uphold academic integrity with online learning?
The relationships between personal values, justifications, and academic cheating for business vs. non-business students [23]	Parks-Leduc, L.; Guay, R.P.; Mulligan, L.M.	This paper's purpose was to understand why and how students cheat in relation to the student's personal values, justification, and college major. The results indicated that values are positively related to cheating behaviors and can be mediated by justification and the major area of study.
Video surveillance of online exam proctoring: Exam anxiety and student performance [24]	Woldeab, D.; Brothen, T.	This paper discusses student anxiety and negative impacts of being wrongly flagged during online proctoring and levels of anxiety about online proctoring correlation with a student's general level of anxiety.



Table 2. Cont.

Title	Authors	Findings/Summary
With anchors aweigh, synchronous instruction preferred by naval academy instructors in small undergraduate chemistry classes [11]	O'Carroll, I.P.; Buck, M.R.; Durkin, D.P.; Farrell, W.L.	This paper discusses faculty concerns about cheating using class assessments based on synchronous discussion and problem-solving exercises.

From the total sample ( $n = 16$ ), each researcher read assigned articles in the sample and all six reviewers worked to establish a consensus on the major themes (constructs) identified from their individual research initiatives. Each article was coded based on the theme(s) identified by the group. Five high level constructs were identified by the research team. These constructs include cheating on exams, cheating on assignments, cheating via plagiarism, falsifying, or fabricating lab or research data and inappropriate sharing of information. Figure 2 displays the academic integrity construct categories that were identified during the systematic review. Articles that referenced the various themes and a numerical hierarchy are listed to demonstrate construct type and frequency identified during the study. The percentage of occurrence of the overall construct is also shown, as compared to the total sample.

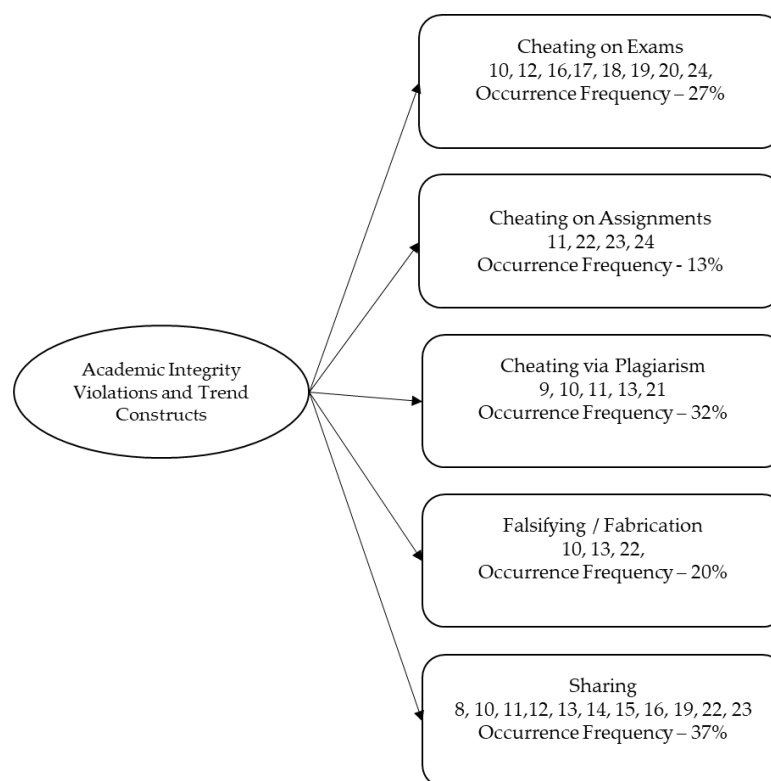


Figure 2. Academic integrity construct categories that were identified during the systematic review.

#### 4. Discussion—High Level Trends and Constructs

##### 4.1. Cheating on Exams

Cheating on examinations was a concern long before COVID, but the movement of all instruction to online modalities due to the pandemic brought these concerns to the forefront [16,18–20].



Using live remote proctoring of examinations is a widely practiced method for deterring cheating on exams. Various companies provided proctoring using “Safe Browsers” and live video feeds [17,19,24].

There were persistent concerns, from both students and professors, about issues of cost, privacy, and effectiveness within proctoring protocols. Further concerns about heightened student anxiety with proctoring made its problems seem to outweigh its advantages [17,24].

Without proctoring, there have been instances of outright cheating on exams through using the internet, having someone else take an exam for them, and gaining access to additional resources [12]. Strategies such as time constraints on exams limited the ability for students to cheat in proctored exams [25].

Whether proctoring is used or not, other solutions to cheating concerns have been the use of higher-level thinking questions and the use of question banks [10,18,20]. Question banks are designed to prevent students from receiving the same questions while covering the same topics and concepts. The idea is that students would be less able to share information or answers with question bank use; however, the number of questions needed to achieve this required significant faculty resources to develop and did not do enough to prevent inappropriate collaboration [18].

Making all exams open book and open note was proposed as the most effective way to prevent cheating. The issue is that the purpose of an examination—assessing what students know on a topic—may not be achievable with open note exams [10,25].

#### 4.2. Cheating on Assignments

Assignments are academic products that are to be completed at either an individual or group level. If the assigned work is an individual effort to assess the student’s competency for a particular set of required course outcomes, the assignment and demonstration of learning and knowledge becomes an important record of the student’s learning progress in the course. The types of assignments most likely to be associated with academic misconduct cases included individual writing assignments [21], as well as group-level or even individual-level practical laboratory exercises [22] in higher education.

Plagiarism is often identified as a common academic integrity violation for individual writing assignments with best practices and tips surfacing during the pandemic [9]. Making the writing prompt unique to the student and the current environmental situation are one effort, while also allowing for additional metacognition by the student and allowing for individual creativeness in the written response further add to the individualistic nature of the academic product, all less likely to involve academic misconduct by requiring personalized comments, thoughts, and reflections [9].

The review team also identified ‘illegal services’ as a common violation for assignments in higher education [13]. Here, external third parties (such as Course Hero and other online collusion websites) offer pay-to-play access to online resources such as notes for use by current and future students in that same course at that same institution. Often mapped directly to the course section and even course instructor, such inappropriate services are often marked as “collusion” [9,13].

The research team immediately identified an underlying sub-construct that specifically referenced the type of students who engage in cheating behaviors related to assignments [26,27]. Often, behavioral characteristics and related trends have been identified to delineate the type of student and/or type of situation the student is presented with that leads to academic misconduct on individual assignments [27].

#### 4.3. Cheating via Plagiarism

According to The Purdue Writing Lab (2021), plagiarism is the passing of someone else’s ideas or words as one’s own and can be intentional or unintentional [21]. Plagiarism is also defined as the act of copying material from another source completely verbatim without assigning credit to that original source, providing similar or unattributed text, or improper paraphrasing and citation [28]. Examples of acts of plagiarism include but

are not limited to; (1) Copying material almost word for word from a written source without citation, (2) Paraphrasing or copying a few sentences from a written source without references, (3) Fabricating a bibliography.

As previously discussed in the “Cheating on Assignments” section, this section addresses plagiarism as it relates to longer pieces of writing such as essays or lab reports.

While plagiarism was noted as being more commonly observed in “lecture-based courses over lab-based courses” before COVID-19, with the COVID-initiated transition from in-person to online there was increased observations of plagiarism particularly among students enrolled in lab-based science courses [9–11,21]. The transitions to online modality may have proven challenging to instructors of lab-based courses who had limited skills in online course delivery to adapt to online limitations. Therefore, these instructors may have relied more heavily on testing students’ knowledge through written assessments. Instructors identified the motivations for cheating via plagiarism among science or lab-based students as related to stress as well as a commitment to achievement of goals [10,21].

An increase in plagiarism among graduate nursing students was also observed. This increase was attributed to stress associated with working during a pandemic as well as meeting academic obligations using new online modalities [21]. Unfortunately, this combination of stressors may have led to academic dishonesty practices which superseded ethical obligations to their coursework [21]. Other studies reporting on plagiarism behaviors of students enrolled in lab-based online courses like, Biology, Chemistry and Ecology attributed their motivations for cheating on the new emphasis on writing skills as compared to their knowledge of content [9–11].

Suggestions on how to curb plagiarism among students enrolled in online lab-based science courses included placing emphasis on ethical standards [21] as well as shifting the focus from writing to mastery of concepts [9,10]. Observances among the faculty of both upper and lower-level chemistry students at the U.S (United States) Naval Academy reported that there was little to no evidence of academic dishonesty [11]. These faculty utilized learning activities that required synchronous discussion and group problem solving. Additionally, assessments were multiple-choice exams that tested knowledge of concepts and, less dependence on writing [11].

Additional suggestions on curbing plagiarism among students enrolled in online lab-based science courses include more collaboration with the appropriate resources to support academic writing [9].

#### 4.4. Sharing

Sharing is a student behavior that may constitute cheating, depending upon the context [7]. When students share work in ways that can lead to academic integrity violations learning outcomes are not achieved. In addition, students may incur academic penalties if instructors become aware students have shared materials to positively impact a course grade. The growth of online platforms that enable anonymous sharing of course materials and student work has focused scholarly attention on how sharing can constitute academic dishonesty and what can be done to reduce its occurrence.

Research suggests the shift to online education during the pandemic provided more opportunities for students to cheat. The impacts to academia were global in scale with online cheating services developing faster than controls to monitor and prevent cheating could be developed [13].

In addition, nursing education research explored the development of virtual simulations that provided online clinical experience and suggested the possibility of cheating occurring given the availability of online answers. The behavior obviously undermines the effectiveness of assessment of important virtual clinical experience [15]. Research in the computer science discipline found that the rapid transition of many courses to online formats created new academic integrity concerns due to ineffective anti-cheating approaches [29].

Much of the literature reviewed by the research team suggested ways instructors and institutions can ensure student understanding of the circumstances in which sharing constitutes academic dishonesty, the penalties that can ensure, along with recommendations on how to reduce the likelihood that students will cheat by sharing/using shared work [10,11,14,16,19,23]. It is important to note in business education, a study suggested that cheating was already widespread before the pandemic and not unique to an online learning environment [16].

#### 4.5. Falsifying/Fabrication Lab or Research Data

The construct of fabrication and falsification in the academic integrity context involves falsification of data, information, or citations [26]. Deception, also a component of this construct, involves providing false information connected to academic effort [10,26]. Ghost writing and the misrepresenting of academic work created by either non-authorized source is also included in this section [13].

Several examples of fabrication and falsification have been previously identified in the literature and increased incidence specifically during the pandemic has been unremarkable. When fabrication and falsification do occur they include, (1) manufacturing data when it should be collected from an actual experiment, altering or falsification of data, documents, images, music, art or other work products created by others, (2) unauthorized omission of data, information, or results in documents, reports and presentations, (3) hiding data, results, or information using inappropriate scales, magnification and representation in charts, graphs and other forms of representation (4) falsifying information pertaining to the subjects participating in an experiment (5) falsely recruiting subjects for experiments without revealing the purpose of the experiments or receiving institutional approval for involving subjects in the experiment (6) fabricating sources of information, (7) unauthorized impersonation of another person to complete an academic activity, (8) unauthorized use of another individual's computer login ID and password, or (9) unapproved deviation from a predetermined experimental procedure [30].

The Falsification and Fabrication construct was the least prevalent occurrence construct identified in this study. It is noted by the researchers that if the study period expanded beyond the time box of this project and if the study only targeted research or quantitative lab-based student academic activities, the fabrication of lab or research occurrences may have been more prevalent.

### 5. Study Limitations

Several study limitations are noted in the research project. The review was limited to studies conducted by and in U.S. (United States) institutions. The study was also limited to articles published 2 March 2020, through 2 September 2021. Exploring studies outside of the United States would provide a broader understanding of pandemic-related academic dishonesty but would have been beyond the resource capacity of this project. The narrow publishing date range provided a laser focus on emerging pandemic related issues but may have omitted larger academic integrity trends particularly within the construct of falsification and fabrication.

### 6. Conclusions and Recommendations for Future Research

The switch in instruction from in person to online modalities due to COVID-19 significantly impacted students and opened doors for greater opportunity for academic integrity violations. Concerns over academic dishonesty have been paramount because of this shift and movement away from the classroom to independent, virtual, and remote settings.

While the types of cheating observed since the pandemic have not changed, there have been increases in those behaviors, particularly in lab-based courses. Increased incidence has also occurred in various disciplines related to the overall complexity of the pandemic and the impact on both full-time and working students pursuing baccalaureate and graduate level degrees. Instructors must consider how their assignments, whether tests, lab reports,

or other kinds of assignments, are measuring student success and adjust their assessment approaches. Reinforcing the complexities and importance of providing formal academic integrity student and faculty training can be a beneficial intervention to ensure students understand the ethical implications of student behavior and performance during the assessment process.

Further study on post-pandemic trends will most likely show a richer understanding of the long-lasting impact of the pandemic and the shift to online education. These impacts should include not only additional types of violations, but the learner impacts from the pandemic and the shift to online delivery which may drive academic integrity violations. In addition, as educational andragogy becomes both more digital and remote based a more robust solutions approach will be needed both from an intervention and academic institutional governance perspective to ensure graduates are legitimately obtaining the necessary competencies upon graduation into their field of studies.

The outcome of this further research will further enable faculty to adapt andragogy methods for content delivery and assess challenges and potential best practices to limit future academic integrity violations in their courses. With more faculty now utilizing online teaching and assessment methods as compared to pre-pandemic practices, ongoing assessment of formal academic integrity violations, and identified trends will support course instruction and assessment strategies.

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