

BOARD #120: WIP: Introducing frequent surprise exams to gradually foster academic integrity

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WIP: Introducing frequent surprise exams to gradually foster academic integrity

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Abstract

Self-assessment is an intrinsic process in human development, present from birth and essential for the advancement of cognitive abilities. However, in the current Western educational system, assessments, which were originally a natural learning tool, have become activities that induce stress, anxiety, and nervousness in students. In response to this, researchers propose a pedagogical model where assessments are unannounced, requiring students to prepare continuously throughout the semester. This approach is complemented by activities that reinforce learning and preparation for tests. The model was applied in two civil engineering and two architecture courses, involving a total of 121 students, who completed a survey at the end of the semester regarding their experiences. The results showed that although over 85% of students initially felt nervous, the supporting activities were key in improving their understanding and boosting their confidence, which resulted in better test performance. Students reported feeling more secure in their knowledge by the end of the course due to continuous preparation throughout the semester. The authors discuss possible factors driving these results and propose ways institutions could implement similar pedagogical strategies to foster academic integrity and improve overall educational outcomes.

Introduction

Pedagogical strategies have undergone significant evolution in recent years, continually seeking to enhance student well-being and optimize learning experiences [1], [2], [3]. Traditional assessment methods, however, remain a major source of stress and anxiety for students, negatively impacting both their academic performance and overall mental health [4]. These conventional evaluation practices often involve tests, quizzes, and assignments that are announced in advance, giving students time to prepare. However, this structure has been criticized for failing to measure the extent of student learning [5]. Factors such as poor time management skills and the pressure to compete with classmates exacerbate these issues, leading to stress that hinders academic success [6]. Furthermore, these assessment methods tend to focus on rote memorization, testing students' ability to recall information rather than their ability to apply knowledge or think critically [7]. Traditional tests are generally defined as a set of closed-book, time-limited questions designed to be completed individually, with little room for reflection or creative problem-solving [8], [9]. This kind of assessment not only stifles students' development of critical thinking skills but also reinforces a culture of memorization, undermining the potential for deeper learning [10], [11].

Another issue with traditional evaluation methods is their tendency to foster a culture of academic dishonesty [12]. High-stakes tests, which often represent the majority of a student's grade, create an environment of intense pressure, leading some students to engage in dishonest practices such as cheating to secure better results [13]. The prevalence of academic cheating is often exacerbated by the pressure created by fewer tests with higher stakes [14]. Traditional grading systems, with their focus on memorization and standardized testing, also fail to consider other important aspects of a student's abilities, such as critical thinking, problem-solving, and collaborative skills [15], [16]. This narrow focus on test performance has led to increasing criticism of conventional evaluation methods, with calls for more holistic approaches that can more accurately assess student learning and reduce the temptation to cheat [14]. In particular, the consistency and fairness of grading practices are often questioned, as different instructors may evaluate similar work based on different criteria, further undermining the reliability of traditional assessment methods [15].

In response to these issues, unannounced assessments encourage students to engage with the material regularly throughout the course, rather than cramming for a single test. Research suggests that unannounced evaluations can improve students' confidence and performance by reducing anxiety levels compared to traditional closed-book tests. Students report feeling less threatened when they are allowed to use textbooks or other resources during assessments, which not only reduces stress but also fosters a more authentic form of learning [14], [17]. By prioritizing problem-solving and practical application above memorizing, this method promotes continuous education. Peer review and interactive exercises are examples of complementary activities that enhance comprehension and make learning more dynamic and interesting [18], [19], [20].

Despite the evidence supporting the benefits of alternative assessment strategies, traditional evaluations continue to dominate many educational systems. The history of standardized testing, particularly IQ tests, has shaped the way education systems assess intelligence, often equating academic success with the ability to perform well on tests [21]. The use of tests as the primary method of evaluation has limited the range of education and frequently ignored critical thinking, creativity, and teamwork—skills that are vital in the rapidly changing workforce of today. There are requests for more inclusive evaluation techniques that take into account a variety of learning styles as a result of increased scrutiny around this approach. [22], [23]. This research aims to explore the implementation of this innovative pedagogical approach in the fields of civil engineering and architecture, contributing with another evaluation approach to enhance both student learning and academic integrity. Through this study, it is hoped to offer valuable insights into the potential of unannounced assessments to reshape assessment practices in higher education and provide a more accurate and supportive measure of student achievement [24], [25], [26].

Background/Framework

Academic integrity refers to the expectation that all members of the academic community act according to universal standards of responsibility, honesty, and sincerity, avoiding unethical practices such as plagiarism and cheating [27], [28], [29]. Plagiarism is defined as submitting

someone else's work without proper citation and is a serious violation of academic ethics [30]. Cheating on tests can be caused by multiple factors, including inadequate preparation, workload overload, or fear of failure [31]. In many cases, students are not taught values such as honesty and responsibility from the beginning of their education, making them more susceptible to engaging in dishonest behaviors. A survey conducted in Puerto Rico found that 90% of students admitted to cheating because they found tests too difficult or felt they did not have enough time to prepare adequately [32].

Traditional time-limited tests are often associated with stress and anxiety, which can negatively affect students' performance. Anxiety, caused by time pressure, can impair attention and concentration during different types of assessments, sometimes leading students to panic and perceive tests as high-stakes situations [33]. Additionally, students who experience feelings of panic and fear of failure during tests may come to view the test as a potential disaster [34], [35], [36]. Even when tests are announced in advance, students still report feelings of pressure and uncertainty [30]. Additionally, test structures that do not allow revisiting previous questions heighten stress, as students fear making irreversible mistakes [37]. This stress, compounded by the anticipation of poor results, can lead to a decline in self-esteem, further hindering academic performance [38]. Moreover, social factors and GPA are linked to stress levels, with higher stress correlating to lower academic outcomes [39].

However, research shows that consistent preparation can improve both academic performance and stress management. Moderate levels of anxiety, when properly managed, can actually motivate students to engage more deeply with their studies, enhancing their academic success [40]. Regular testing, such as weekly quizzes, encourages continuous learning and better test performance by helping students develop effective study habits [41]. This phenomenon, known as "washback," demonstrates that frequent assessments foster practice and review, contributing to improved retention and understanding [42]. The positive effects of regular evaluations are also associated with students' ability to organize and apply their knowledge more effectively.

In contrast, the use of grades as a sole indicator of academic success has limitations, as they do not always reflect the depth of a student's knowledge or understanding of a subject [43]. While grades serve practical purposes, they may not accurately indicate how well students have mastered material or developed critical skills [44]. To more effectively predict academic achievement, it is important to consider other factors, such as students' engagement with assignments, their study habits, attitudes toward learning, and the complexity of the tasks assigned [45]. Research has shown that the frequency and quality of homework assignments significantly influence academic performance, as homework reinforces classroom learning and helps students solidify concepts through repetition [46]. Considering that students often prepare just a few days before a test, the potential lack of knowledge may result in engaging in academic dishonesty [47].

That said, excessive amounts of low-quality homework can have adverse effects, leading to student disengagement and increased stress. When homework becomes overwhelming or lacks meaningful content, it can result in a rejection of academic responsibilities, contributing to mental health issues such as anxiety and burnout [48]. Therefore, while homework is a valuable

learning tool, its frequency and quality must be carefully balanced to avoid negative consequences for students' well-being and academic performance [49].

Research objective

The main objective of this research is to explore the impact of frequent unannounced evaluations on university students' academic performance. Additionally, the study aims to investigate how this pedagogical strategy fosters academic integrity by promoting positive study habits and consistent learning. The research focuses on preventing extended periods without learning, which may increase the temptation to engage in cheating or other unethical behaviors. This article presents the results from a pilot study conducted to examine these objectives.

Methodology

This exploratory study focuses on the implementation of frequent unannounced evaluations in architecture and civil engineering courses, specifically in Structures 1 (n=65 students), Structures 2 (n=18 students), Structural Analysis 1 (n=22 students), and Construction Costs (n=16 students) during the Fall 2022, Spring 2023, and Fall 2023 semesters. Throughout the semester, students were surveyed anonymously with open-ended and multiple-choice questions, both at the midpoint and at the conclusion of the courses. The aim was to analyze how students' perceptions of this pedagogical strategy evolved over time. The decision to use anonymous surveys allowed students to freely express their opinions on the frequent unannounced evaluations and their impact on their learning process and academic integrity [50]

The study specifically examines students' perceptions of unannounced evaluations in comparison to traditional assessments and how they perceive their effectiveness in terms of learning. It is important to note that the study did not include a control group, meaning that no direct comparison was made between students who took unannounced tests and those who took traditional tests. As a result, no conclusions can be drawn regarding whether students who underwent unannounced evaluations performed better than those who had traditional assessments. This study is considered a work in progress, with plans for future investigations that will provide a more comprehensive analysis using both quantitative and qualitative methods to further explore the subject.

Data collection and analysis were conducted using Qualtrics software to distribute the surveys, with the responses being imported into Excel for processing. A visual coding system was used to categorize the open-ended responses, assigning colors to reflect the different tones of the students' opinions, such as green for positive, yellow for moderately positive, and red for negative answers [51]. From this categorization, key ideas were identified to reflect the general attitudes of students toward the pedagogical strategy, and these were organized into overarching themes. Secondary ideas were used to elaborate on and support the main results obtained from the survey responses.

The survey questions focused on understanding how the unannounced evaluation strategy influenced students. The first question asked about the effects of the strategy on students'

learning processes, while the second explored how students' perspectives on this technique changed throughout the semester. The third question inquired whether this strategy helped them prepare for tests. The fourth question examined the psychological impact of this form of testing, seeking to understand how students felt about having frequent unannounced evaluations. Lastly, the fifth question assessed students' satisfaction with their performance and whether they found the pedagogical method helpful, or if they would have preferred prior notification about the tests.

All courses included in the study were taught by the same instructor, who designed the schedules to include two announced quizzes and five unannounced quizzes, which together contributed 15% to the final grade. The tests given during the semester in both engineering and architecture courses were consistent in terms of difficulty, pedagogical approach, problem-solving methods, and subject matter. These unannounced tests tend to account for approximately 40% of the final grade. Each test contained six multiple-choice questions and three problem-solving questions, maintaining these variables constant across all courses. To prevent cheating, three different versions of each test were used, with questions that were similar but subtly different to avoid identical answers. Students were informed of the existence of multiple test versions, and they were allowed to use basic tools such as pens, pencils, erasers, rulers, and calculators. Strict rules prohibited the use of mobile phones, which had to be turned off and stored in backpacks rather than clothing pockets.

In addition to tests, the courses also incorporated various learning activities, such as group work and individual assignments, designed to match the level of difficulty of the tests and encourage active participation. To ensure consistency, the professor designed the exams to maintain an equivalent level of difficulty across courses. These activities provided opportunities for feedback and collaboration, helping to enhance communication and learning skills. Another key aspect of the course was the application of knowledge to real-life problems, allowing students to apply the skills they learned in practical contexts. This approach not only deepened their understanding of the course's theoretical foundations but also equipped them with practical and relevant skills for their future professional careers. Homework assignments were regularly given at the end of each class and were due the night before the next session. Furthermore, homework remains an important source of information for students to prepare for tests. Students' performance on homework also serves as a review for unannounced tests. In addition, the instructor held office hours both in person and via Zoom to provide students with access to clarification for any questions or concerns they might have had. This emphasizes the importance of adequate support from teachers when presenting activities to their students.

In summary, the methodology used in this study aimed to understand students' perceptions of the effectiveness of frequent, unannounced evaluations compared to traditional assessments. By qualitative research methods, valuable insights were obtained regarding how these evaluations impacted students' learning and academic integrity. Although this study did not include a direct comparison of performance between the groups of students, the initial findings suggest that unannounced evaluations may have a significant impact on how students approach learning and are motivated to maintain academic integrity. Future research could expand on these findings by including a more comprehensive and comparative analysis between different groups.

Results

The survey results gathered from the student group provided valuable insights into their views and experiences with unannounced evaluations. These findings offer a thorough understanding of how students perceive this assessment method. The analysis of these results will provide a clearer picture of the impact of unannounced evaluations on students and help identify areas that could be improved. To ensure clarity, the results are organized into two main categories: "How do unannounced evaluations contribute to student learning?" and "How do unannounced evaluations support academic integrity?" These categories are designed to highlight the positive effects of unannounced evaluations on learning and their role in promoting academic integrity.

In response to the first research question, "How do unannounced evaluations contribute to student learning?", the results showed several positive outcomes, including reduced stress, improved academic performance, increased confidence, and the development of new study techniques. A detailed presentation of these responses is provided in the Table 1.

Table 1. *Presentation of responses of the first research question*

How do unannounced evaluations contribute to student learning?	
Reduction of stress in students	- Improved results in previous evaluations
	- Preparation through assignments
	- Increased focus during classes
	- Tests carrying less weight in the overall grade
Enhancements in student performance	- Consistent review during classes and through assignments
	- Ongoing preparation for evaluations
	- Thoughtful study and revision
Students feel more confident and secure	- Familiarity with the test format
	- Assignments that match the complexity of evaluations
	- Confidence in their understanding
	- Clarification of topics and homework doubts
Development of new study strategies	- Stepping outside their comfort zone
	- Increased creativity

Stress reduction in students

Student feedback reveals the positive effects of frequent unannounced evaluations on their engagement, preparation, and stress levels. Over 85 % of students mentioned that these evaluations encouraged them to focus more during class and stay up-to-date with their homework, which contributed to a significant reduction in stress. One student noted, "when a (test) was due, I felt calm because I knew that with the homework I had done, I could handle the tests without a problem, and I didn't feel that previous stress." Although some students initially felt anxious due to the uncertainty of when the tests would occur, this anxiety gradually diminished once they actually took the tests, with further relief following the first round of evaluations and the grades they received.

The course structure, which featuring several unannounced tests spread throughout the semester, also played a crucial role in reducing stress. During the semester, 7 to 10 unannounced tests were

included. A student shared, "This course was much more relaxed, it caused me maybe 70% less stress than other math courses where the tests are very important and there are only two in the semester." With multiple tests that carried less weight in the final grade, students felt less pressure compared to traditional courses with fewer, high-stakes tests. This approach allowed students to feel more at ease with the evaluations, knowing they had more opportunities to succeed without the stress of one large test.

Moreover, students' increased understanding of the subject, supported by consistent homework and participation, also contributed to their reduced stress levels. As one student explained, "I prepared myself by consciously doing my homework, this made me really feel ready for the tests." Throughout the semester, this ongoing preparation helped students feel more confident and less anxious about the unannounced evaluations. Some students even felt at ease, recognizing that their consistent work in class would adequately prepare them for the tests. As another student mentioned, "I felt relaxed, since from the beginning it was said that if we did our homework, the tests would be easy, and literally, they were."

Improvements in student performance

Student responses indicated that the regular review in class and completion of homework were key factors in improving their performance in unannounced evaluations. One student mentioned, "Definitely, because if the homework was done in a focused and dedicated manner, the tests were very similar, making them easier to handle. This type of homework also helped me apply everything I had learned." This highlights the positive impact of consistent homework completion on test performance. Additionally, students pointed out that clarifying doubts about homework further enhanced their performance, with one student saying, "Some homework was difficult, but with help and analysis, I was able to solve them, which helped me learn and prepare for tests."

Moreover, students recognized that the continuous preparation for tests, encouraged by regular reviews and homework, was essential for improving their performance. One student noted, "It helped me stay prepared and pay close attention to both classes and homework," while another added, "It made me review the material we covered in class every day so I could be ready if a test came up." This ongoing preparation ensured that students were always ready for unannounced evaluations. Throughout the semester, the consistent review and engagement with the material led to significant improvements in their performance, which ultimately resulted in better outcomes in their assessments.

The students feel more secure and confident.

The implementation of unannounced evaluations as a pedagogical strategy has played an important role in boosting students' confidence and sense of preparedness. Students reported feeling more secure in their knowledge and abilities due to the consistent review provided by homework assignments, which were closely aligned in complexity with the exercises presented in the tests. As one student noted, "The homework prepares you a lot and I even think they were a little more complicated than the evaluations, which allowed us to learn at a good level." This connection between homework and tests helped students feel more confident when facing

evaluations. Another student added, "It made me feel more confident about the knowledge from the class. I used to review topics I had already noticed, but it didn't make me wait until a test to just understand." These comments reflect how the proactive approach to studying allowed students to build confidence before formal assessments.

The frequent quizzes and homework assignments fostered a culture of ongoing review, which helped students retain their knowledge and feel more secure in their understanding of the material. By familiarizing themselves with the test format and regularly reviewing class content, students developed a greater sense of readiness. One student shared, "The course evaluations allowed me to prepare myself with more time and in a better way... during the evaluations, I already feel much calmer because I know that I have the knowledge and practice to solve the exercises." This illustrates how the study technique not only helped students remember the material but also reduced anxiety by making them feel better prepared for the tests.

As students engaged with the course material and completed homework assignments, they focused on understanding the core concepts of each topic, allowing them to clarify any doubts during class. This approach helped reduce stress and build confidence in their knowledge. One student observed, "I noticed that since I was less concerned about grades because there were several frequent cumulative tests, I spent more time on really understanding the subject and not just for one lesson." This shift in focus from grades to understanding was a common theme, as students acknowledged that frequent evaluations allowed them to prioritize learning over mere test performance. Additionally, students mentioned that the multiple assessments reduced their stress levels, as they viewed the tests as opportunities to practice and prepare for the final evaluations, further reinforcing their confidence.

Development of new study techniques

The use of unannounced evaluations, with their frequent tests and numerous homework assignments, has driven students to adopt new study strategies to cope with the academic demands. Given the need to balance multiple subjects, students have learned that creativity plays a key role in managing their time and staying on top of their work. One student explained, "This semester, in order to do all the homework and review for a possible test, I had to develop a new way of studying to help me keep up." This need for innovation has encouraged students to think critically and find new ways to tackle the challenges posed by the unannounced evaluation method, thereby strengthening skills that can benefit them in other academic contexts.

Beyond just managing the academic workload, the development of new study habits has also enhanced students' problem-solving and comprehension abilities. These improved study techniques not only help with unannounced evaluations but also benefit students in other subjects. Over 85% of students shared that moving away from traditional study methods and stepping out of their comfort zones allowed them to find more effective and engaging ways to learn. As one student remarked, "It got me out of my comfort zone and also out of monotonous teaching." This shift in mindset has led to more efficient learning techniques, which have helped students retain information more effectively and better grasp the material.

These changes in study habits also have a positive impact on students' academic integrity. By

developing new routines and improving their time management, students are not only better prepared for evaluations but are also reinforcing their commitment to genuine learning. The second research question—“How do unannounced evaluations contribute to academic integrity?”—shows how these strategies, including improved organization and innovative study techniques, help students achieve academic success while maintaining a strong sense of integrity. Overall, unannounced evaluations appear to foster a more organized, creative, and engaged approach to learning. Responses are presented in the Table 2.

Table 2. *Presentation of responses of the second research question*

How do unannounced <i>evaluations</i> contribute to academic integrity?	
Enhanced organization and responsibility	- Improved planning
	- Clear assignment deadlines
	- Unannounced evaluations
	- Ongoing need for review
	- Regular class attendance
Development of new study methods	- Increased study frequency
Reduction in cheating	- Chance to resolve doubts
	- Frequent study sessions
	- Various types of evaluations

Greater organization and responsibility

The use of unannounced evaluations has significantly contributed to improving students' organizational skills and sense of responsibility. This approach encourages students to consistently review their class materials and complete homework assignments, fostering better planning. One student highlighted this shift, saying, "Unannounced evaluations made me more responsible because I constantly reviewed my notes to keep my knowledge fresh and practice the exercises, ensuring I didn't forget what I learned in class and homework." This response underscores how the surprise nature of unannounced evaluations motivates students to stay prepared and organized, leading to increased accountability in their learning.

The continuous need for review and regular attendance has further reinforced students' organizational habits. As one student shared, "Having frequent tests made me study more often, reviewing the material regularly to ensure I performed well on the test." This ongoing engagement with the material not only deepens understanding but also helps students develop time management skills to handle the various tasks required. Furthermore, the consistent deadlines for homework and tests instill a sense of responsibility in students, as they must meet expectations while ensuring they are thoroughly prepared for each evaluation.

This enhanced sense of responsibility and organization also promotes academic integrity. When students feel well-prepared due to regular study and timely completion of assignments, they are more likely to approach their assessments with confidence and honesty. The structure of frequent homework and unannounced evaluations supports students in staying on top of their coursework, fostering a greater commitment to both academic success and integrity. This preparation not only contributes to better performance in specific subjects but also builds trust in the learning process across all areas of study.

Development of new study techniques

The increased frequency of unannounced evaluations has proven effective in enhancing students' understanding through consistent review. Students noted that regular tests kept them engaged in class and motivated to stay active in their studies. One student shared, "Having tests frequently helped me... to pay close attention to the class... stay active studying or reviewing, and realize what topic I didn't understand so I could study again." This active engagement not only helped students understand the material better but also fostered the development of new study techniques to address areas of difficulty, ensuring continuous academic progress.

Additionally, the unannounced evaluations contributed to a reduction in the tendency to cheat. As students became more confident in their knowledge and study routines, they felt better prepared for assessments. One student mentioned, "It helped me develop a study habit since I always had to be prepared for any assessment." This preparedness, combined with the opportunity to clarify doubts throughout the course, created a learning environment where students could rely on their own abilities rather than seeking help from others. As a result, students reported feeling less tempted to copy during evaluations, reinforcing academic integrity and trust in their own efforts.

Discussion

The results of this study highlight the significant impact of unannounced evaluations on students' performance and emotional well-being. Students reported that the frequent homework assignments played a key role in their preparedness for unannounced tests, which ultimately led to improved performance. As one student stated, "The evaluations were mostly based on topics covered in homework. Therefore, developing homework with complicated exercises helped to be better prepared for the tests." This feedback underscores the relationship between consistent review, academic preparedness, and success in unannounced assessments. Notably, this strategy involves a greater academic load, as students were tasked with homework assignments almost every class [49]. However, the potential benefits, as students themselves affirmed, outweigh the challenges, suggesting that frequent homework assignments contribute to long-term learning gains. A balance between task difficulty and workload, taking into consideration the fact that students typically take five subjects per semester, was recommended to ensure the academic load remains manageable.

Another noteworthy finding from this study is the reduction in anxiety and stress levels reported over 85% of students as the semester progressed. Several students observed that with constant practice and preparation, they felt more secure and confident about the assessments, which reduced their emotional distress[34]. One student described, "Compared to the other subjects, it was less (anxiety and stress), yes, there was stress but it was less because it was calmer after practicing constantly." This decrease in anxiety can be attributed to students' familiarity with the format and content of the evaluations due to their continuous study habits. By having regular, smaller assessments rather than relying on high-stakes tests, students felt less pressure and better equipped to perform. However, it is important to note that while over 85% students benefitted emotionally from this methodology, there were also those who still experienced significant stress, indicating that individual differences play a role in how students cope with testing.

The pedagogical approach of frequent, unannounced assessments also helped foster greater organization and responsibility among students. The regular review of course material and continuous homework assignments encouraged students to stay organized, manage their time effectively, and be proactive in their studies. Students who followed this routine reported feeling more in control of their academic workload. As one student explained, "Having frequent tests made me study more often, reviewing the material frequently to make sure I did well on the test." This regular engagement with the material not only contributed to better grades but also promoted habits that were beneficial for academic success in other areas. Moreover, this methodology's focus on continuous preparation allowed students to cultivate a sense of responsibility, as they had to stay on top of deadlines and constantly review the material to be prepared for any unannounced assessments [52]. Regarding academic integrity, students who possess all the previously mentioned qualities do not feel the need to plagiarize during a test, as they have the necessary knowledge to meet all the course requirements [53].

The shift from traditional high-stakes tests to frequent, unannounced evaluations offers several advantages, both for students and educators. One of the main benefits is that frequent assessments provide a more accurate and comprehensive understanding of students' academic progress. Instead of relying on a few major tests, which often leave little room for error, unannounced tests give educators a better sense of how students are grasping the material throughout the course. This continuous feedback allows for early intervention if a student is struggling, preventing the potential for drastic grade drops later in the semester. Furthermore, by reducing the weight of any single evaluation, students experience less anxiety and can focus more on understanding the content rather than memorizing information for one high-stakes test. The constant testing encourages students to learn consistently, reinforcing their retention and mastery of the material over time [53].

Despite the many positive outcomes, a 5% of students expressed concerns that, if they had known the date of the tests, they could have prepared more thoroughly and potentially achieved better grades. This group noted that the unpredictability of the unannounced evaluations created a sense of uncertainty, which at times led to lower scores. This view contrasts over the 85% of students, who expressed greater confidence in their results after each test, feeling that the constant preparation had adequately prepared them. However, these students also noted a reduction in anxiety once the test was over, suggesting that while the unpredictability may cause initial stress, the overall approach results in a more relaxed state once the test is completed [53]. It is worth mentioning that some students, when faced with the uncertainty of unannounced evaluations, may experience feelings of inadequacy that could contribute to dishonest behavior, such as cheating, if they are not adequately prepared. This potential issue highlights the need for further examination of how unannounced evaluations may inadvertently lead to academic dishonesty among students who are unprepared [47].

Conclusions

Academic integrity is a fundamental principle in any educational setting, ensuring fairness and honesty across all academic endeavors. To uphold this integrity, students must embrace the challenge of tests through hard work and dedication, avoiding the temptation to cheat or

plagiarize. Unannounced assessments serve as a key tool in encouraging academic honesty, as they lessen opportunities for dishonesty. Moreover, adopting innovative teaching strategies and maintaining consistent preparation help keep students engaged and motivated, enabling them to gain a deeper understanding of the material. However, an overload of homework can lead to stress and anxiety, which may tempt students to compromise their academic integrity in order to meet deadlines. Promoting diverse learning approaches—such as interactive activities, hands-on projects, and lectures—can reduce boredom and the inclination to cheat, while also contributing to students' well-being. Active class participation increases retention, lowering the likelihood of cheating on tests or plagiarizing assignments.

To sustain academic integrity, a comprehensive educational approach is required, combining effort, preparation, and varied teaching methods. Unannounced tests, modern teaching techniques, and continuous preparation not only reduce stress but also foster deeper learning without sacrificing academic honesty. This approach encourages a better grasp of the content while supporting students' overall health and well-being. Future research plans include collecting quantitative data on stress, learning quality, and academic integrity, with a focus on expanding the study to other engineering and architecture courses. Quantitative data will allow better synthesizing the objective of the study. It is also planned to use a combination of analytical and descriptive surveys after each evaluation to assess how the applied teaching methods influence academic integrity, and course-specific surveys will help determine which activities are most effective. By incorporating a control group using traditional teaching methods, it will be possible to compare these factors and assess whether the new approaches benefit students.

References

- [1] J. Acosta and M. A. Guerra, "Validating Guerra's Blended Flexible Learning framework for Engineering Courses," in *2022 ASEE Annual Conference & Exposition*, 2022. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/validating-guerra-s-blended-flexible-learning-framework-for-engineering-courses>
- [2] J. M. Bonilla, M. S. Valarezo, B. D. Villacrés, and M. A. Guerra, "Board 44A: Work in Progress: Unannounced Frequent Examinations to contribute student learning and building academic integrity," in *2023 ASEE Annual Conference & Exposition*, 2023. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/board-44a-work-in-progress-unannounced-frequent-examinations-to-contribute-student-learning-and-building-academic-integrity>
- [3] J. M. Bonilla, M. S. Valarezo, and M. A. Guerra, "WIP: Unannounced Tests and Examinations to Improve Student Performance and Build Academic Integrity," in *2024 ASEE Annual Conference & Exposition*, 2024. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/wip-unannounced-tests-and-examinations-to-improve-student-performance-and-build-academic-integrity>
- [4] M. P. Lyndon *et al.*, "The relationship between academic assessment and psychological distress among medical students: a systematic review," *Perspect. Med. Educ.*, vol. 3, no. 6, pp. 405–418, Nov. 2014, doi: 10.1007/S40037-014-0148-6.

- [5] A. Havnes and L. McDowell, "Introduction : Assessment dilemmas in contemporary learning cultures," Nov. 2007, doi: <https://doi.org/10.4324/9780203942185-7>.
- [6] N. Nazari and D. Far, "The Relationship between Teaching Skills, Academic Emotion, Academic Stress and Mindset in University Student Academic Achievement Prediction: A PLS-SEM Approach," *J. Intellect. Disabil. - Diagn. Treat.*, vol. 7, pp. 119–133, Aug. 2019, doi: 10.6000/2292-2598.2019.07.03.9.
- [7] Y. Abosalem, "Assessment Techniques and Students' Higher-Order Thinking Skills," *Education*, Mar. 2016, doi: <https://doi.org/10.11648/J.IJSEU.20160401.11>.
- [8] N. Granja, M. A. Guerra, and V. Guerra, "Give me a coffee break! Pilot study on improving exam performance and reducing student stress," presented at the 2022 ASEE Annual Conference & Exposition, Aug. 2022. Accessed: Nov. 11, 2024. [Online]. Available: <https://peer.asee.org/give-me-a-coffee-break-pilot-study-on-improving-exam-performance-and-reducing-student-stress>
- [9] R. E. Toscano, V. Guerra, and M. A. Guerra, "Work in Progress: Introducing a coffee break to improve exam performance and reducing student stress in construction majors," presented at the 2023 ASEE Annual Conference & Exposition, Jun. 2023. Accessed: Nov. 11, 2024. [Online]. Available: <https://peer.asee.org/work-in-progress-introducing-a-coffee-break-to-improve-exam-performance-and-reducing-student-stress-in-construction-majors>
- [10] M. Guerra and T. Shealy, "Teaching User-Centered Design for More Sustainable Infrastructure through Role-Play and Experiential Learning," *J. Prof. Issues Eng. Educ. Pract.*, vol. 144, no. 4, p. 05018016, Oct. 2018, doi: 10.1061/(ASCE)EI.1943-5541.0000385.
- [11] M. A. Núñez-Andrés, A. Martínez-Molina, N. Casquero-Modrego, and J. Y. Suk, "The impact of peer learning on student performance in an architectural sustainability course," *Int. J. Sustain. High. Educ.*, vol. 23, no. 1, pp. 159–176, Jan. 2022, doi: 10.1108/IJSHE-11-2020-0447.
- [12] M. Mahato and K. Gaurav, "Collegiate cheating: understanding the prevalence, causes, and consequences," *Socioecon. Chall.*, vol. 7, no. 3, pp. 152–163, Sep. 2023, doi: 10.61093/sec.7(3).152-163.2023.
- [13] V. Lavy, "The Effect of Multitasking on Educational Outcomes and Academic Dishonesty," *Social Science Research*, Sep. 2023, doi: <https://doi.org/10.3386/w31699>.
- [14] L. C. O. Tiong and H. J. Lee, "E-cheating Prevention Measures: Detection of Cheating at Online Examinations Using Deep Learning Approach -- A Case Study," Jan. 25, 2021, *arXiv*: arXiv:2101.09841. Accessed: Nov. 11, 2024. [Online]. Available: <http://arxiv.org/abs/2101.09841>
- [15] M. Knight and R. Cooper, "Taking on a New Grading System: The Interconnected Effects of Standards-Based Grading on Teaching, Learning, Assessment, and Student Behavior," *NASSP Bull.*, vol. 103, no. 1, pp. 65–92, Mar. 2019, doi: 10.1177/0192636519826709.
- [16] M. A. Guerra, J. Ubidia, M. Mariño, and F. J. Valverde, "Work in progress: designing a first-year hands-on civil engineering course to reduce students dropout and improve the overall college experience," in *2022 ASEE Annual Conference & Exposition*, 2022. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/work-in-progress-designing-a-first-year-hands-on-civil-engineering-course-to-reduce-students-dropout-and-improve-the-overall-college-experience>

- [17] B. Johanns, A. Dinkens, and J. Moore, "A systematic review comparing open-book and closed-book examinations: Evaluating effects on development of critical thinking skills," *Nurse Educ. Pract.*, vol. 27, pp. 89–94, Nov. 2017, doi: 10.1016/j.nepr.2017.08.018.
- [18] S. E. Paucarina, J. D. Batallas, M. A. Guerra, and V. Guerra, "Board 44B: Work in Progress: TikTok Format Videos to Improve Communicating Science in Engineering Students," in *2023 ASEE Annual Conference & Exposition*, 2023. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/board-44b-work-in-progress-tiktok-format-videos-to-improve-communicating-science-in-engineering-students>
- [19] A. E. Cervantes and M. A. A. Guerra, "Work in Progress: Impact on Students Dropout rates of Introducing a First-Year Hands-on Civil Engineering Course," in *2023 ASEE Annual Conference & Exposition*, 2023. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/work-in-progress-impact-on-students-dropout-rates-of-introducing-a-first-year-hands-on-civil-engineering-course>
- [20] I. Guerra, "WIP: Utilizing Mind-Mapping to Connect the Skillsets of Architecture Students for Both Hands-On and Lecture-Oriented Teaching Approaches," in *2024 ASEE Annual Conference & Exposition*, 2024. Accessed: Apr. 30, 2025. [Online]. Available: <https://peer.asee.org/wip-utilizing-mind-mapping-to-connect-the-skillsets-of-architecture-students-for-both-hands-on-and-lecture-oriented-teaching-approaches>
- [21] D. P. Flanagan and E. M. McDonough, *Contemporary Intellectual Assessment: Theories, Tests, and Issues*. Guilford Publications, 2018.
- [22] A. Bedón, H. Velásquez, M. A. Guerra, and M. Jiménez, "Exploring Interdisciplinary Contributions to More Sustainable Solutions in the Built Environment and Infrastructure Development Students: 129th ASEE Annual Conference and Exposition: Excellence Through Diversity, ASEE 2022," *ASEE Annu. Conf. Expo. Conf. Proc.*, Aug. 2022, Accessed: Nov. 11, 2024. [Online]. Available: <http://www.scopus.com/inward/record.url?scp=85138290411&partnerID=8YFLogxK>
- [23] R. Howell, "Engaging students in education for sustainable development: The benefits of active learning, reflective practices and flipped classroom pedagogies," *J. Clean. Prod.*, vol. 325, p. 129318, Nov. 2021, doi: 10.1016/j.jclepro.2021.129318.
- [24] J. Ubidia, M. A. Guerra, V. Viteri, and H. Murzi, "Pilot Study - Understanding Student's Perceptions of Cultural Dimensions in construction majors in Ecuador: 129th ASEE Annual Conference and Exposition: Excellence Through Diversity, ASEE 2022," *ASEE Annu. Conf. Expo. Conf. Proc.*, Aug. 2022, Accessed: Nov. 11, 2024. [Online]. Available: <http://www.scopus.com/inward/record.url?scp=85138258362&partnerID=8YFLogxK>
- [25] H. Murzi *et al.*, "Cultural dimensions in academic disciplines, a comparison between Ecuador and the United States of America," in *2021 ASEE Virtual Annual Conference Content Access*, 2021. Accessed: Nov. 11, 2024. [Online]. Available: <https://peer.asee.org/cultural-dimensions-in-academic-disciplines-a-comparison-between-ecuador-and-the-united-states-of-america>
- [26] M. A. Guerra, H. Murzi, J. Woods Jr, and A. Diaz-Strandberg, "Understanding students' perceptions of dimensions of engineering culture in Ecuador," in *ASEE Annual Conference and Exposition, Conference Proceedings*, ASEE Conferences, 2020. Accessed: Nov. 11, 2024. [Online]. Available: <https://espace.library.uq.edu.au/view/UQ:1bf1a4d>

- [27] K. A. A. Gamage, E. K. de Silva, and N. Gunawardhana, "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity," *Educ. Sci.*, vol. 10, no. 11, Art. no. 11, Nov. 2020, doi: 10.3390/educsci10110301.
- [28] J. Acosta, J. Ubidia, M. A. Guerra, V. Guerra, and C. Gallardo, "Work in Progress: Collaborative Environments in Architecture and Civil Engineering Education—Case Study," in *2022 ASEE Annual Conference & Exposition*, 2022. Accessed: Nov. 11, 2024. [Online]. Available: <https://sftp.asee.org/work-in-progress-collaborative-environments-in-architecture-and-civil-engineering-education-case-study.pdf>
- [29] M. A. Guerra and C. Gopaul, "IEEE Region 9 Initiatives: Supporting Engineering Education during COVID-19 Times," *IEEE Potentials*, vol. 40, no. 2, pp. 19–24, Mar. 2021, doi: 10.1109/MPOT.2020.3043738.
- [30] M. Perkins, U. B. Gezin, and J. Roe, "Reducing plagiarism through academic misconduct education," *Int. J. Educ. Integr.*, vol. 16, no. 1, p. 3, Dec. 2020, doi: 10.1007/s40979-020-00052-8.
- [31] O. Özbek and S. Çeyiz, "UNIVERSITY STUDENTS' OPINIONS ON CHEATING AND PLAGIARISM," *Eur. J. Educ. Stud.*, no. 0, Art. no. 0, Jul. 2017, doi: 10.46827/ejes.v0i0.900.
- [32] M. D. Morales Montes and I. Lujano Vilchis, "Entre la integridad académica y el plagio estudiantil: ¿qué dicen las universidades públicas mexicanas en su normatividad?," *Arch. Analíticos Políticas Educ. Policy Anal. Arch.*, vol. 29, no. 2, p. 125, 2021.
- [33] J. M. Ordoñez, "LA INTELIGENCIA EMOCIONAL Y SU EFECTO PROTECTOR ANTE LA ANSIEDAD, DEPRESIÓN Y EL ESTRÉS ACADÉMICO EN ESTUDIANTES UNIVERSITARIOS," *TZHOECOEN*, vol. 12, no. 4, Art. no. 4, Sep. 2020, doi: 10.26495/tzh.v12i4.1395.
- [34] S. A. Sarı, G. Bilek, and E. Çelik, "Test anxiety and self-esteem in senior high school students: a cross-sectional study," *Nord. J. Psychiatry*, vol. 72, no. 2, pp. 84–88, Feb. 2018, doi: 10.1080/08039488.2017.1389986.
- [35] D. Cartuche, M. A. Guerra, and H. Murzi, "Work in Progress: Influence of COVID-19 in Cultural Dimensions in Civil Engineering Students in," in *2023 ASEE Annual Conference & Exposition*, 2023. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/work-in-progress-influence-of-covid-19-in-cultural-dimensions-in-civil-engineering-students-in>
- [36] D. Cartuche, M. A. Guerra, and H. Murzi, "Board 2A: WIP: Opportunities in Cultural Dimensions between Architecture and Civil Engineering students in Ecuador," in *2023 ASEE Annual Conference & Exposition*, 2023. Accessed: Apr. 29, 2025. [Online]. Available: <https://peer.asee.org/board-2a-wip-opportunities-in-cultural-dimensions-between-architecture-and-civil-engineering-students-in-ecuador>
- [37] L. Elsalem, N. Al-Azzam, A. A. Jum'ah, N. Obeidat, A. M. Sindiani, and K. A. Kheirallah, "Stress and behavioral changes with remote E-exams during the Covid-19 pandemic: A cross-sectional study among undergraduates of medical sciences," *Ann. Med. Surg.* 2012, vol. 60, pp. 271–279, Dec. 2020, doi: 10.1016/j.amsu.2020.10.058.
- [38] D. Parsons, "Is there an alternative to exams? Examination stress in engineering courses," *Int. J. Eng. Educ.*, vol. 24, no. 6, pp. 1111–1118, 2008.
- [39] N. Othman, F. Ahmad, C. El Morr, and P. Ritvo, "Perceived impact of contextual determinants on depression, anxiety and stress: a survey with university students," *Int. J. Ment. Health Syst.*, vol. 13, no. 1, p. 17, Dec. 2019, doi: 10.1186/s13033-019-0275-x.

- [40] L. K. Sotola and M. Crede, "Regarding Class Quizzes: a Meta-analytic Synthesis of Studies on the Relationship Between Frequent Low-Stakes Testing and Class Performance," *Educ. Psychol. Rev.*, vol. 33, no. 2, pp. 407–426, Jun. 2021, doi: 10.1007/s10648-020-09563-9.
- [41] V. Gholami and M. M. Moghaddam, "The Effect of Weekly Quizzes on Students' Final Achievement Score," *Int. J. Mod. Educ. Comput. Sci.*, vol. 5, no. 1, p. 36.
- [42] B. Hirschman, "THE EFFECTS OF DAILY QUIZZES ON STUDENT ACHIEVEMENT IN A CHEMISTRY CLASS".
- [43] K. L. Rand, M. L. Shanahan, I. C. Fischer, and S. K. Fortney, "Hope and optimism as predictors of academic performance and subjective well-being in college students," *Learn. Individ. Differ.*, vol. 81, p. 101906, Jul. 2020, doi: 10.1016/j.lindif.2020.101906.
- [44] H. Fricke, J. Grogger, and A. Steinmayr, "Exposure to academic fields and college major choice," *Econ. Educ. Rev.*, vol. 64, no. C, pp. 199–213, 2018.
- [45] C. Lotz, R. Schneider, and J. R. Sparfeldt, "Differential relevance of intelligence and motivation for grades and competence tests in mathematics," *Learn. Individ. Differ.*, vol. 65, pp. 30–40, 2018, doi: 10.1016/j.lindif.2018.03.005.
- [46] L. Gu and M. Kristoffersson, "Swedish Lower Secondary School Teachers' Perceptions and Experiences Regarding Homework," *Univers. J. Educ. Res.*, vol. 3, no. 4, pp. 296–305, 2015.
- [47] P. G. Sánchez, "La deshonestidad, elemento que altera la integridad en las prácticas académicas en las Instituciones de Educación Superior. Estudios de caso comparados".
- [48] G. Ruipérez and J.-C. García-Cabrero, "Plagio e integridad académica en Alemania = Plagiarism and Academic Integrity in Germany," *Comun. Rev. Científica Iberoam. Comun. Educ. Sci. J. Media Educ.* 48 3 2016, pp. 9–17, 2016, doi: 10.3916/C48-2016-01.
- [49] M. Planchard, K. L. Daniel, J. Maroo, C. Mishra, and T. McLean, "Homework, Motivation, and Academic Achievement in a College Genetics Course," *Bioscene J. Coll. Biol. Teach.*, vol. 41, no. 2, pp. 11–18, Dec. 2015.
- [50] T. Aberdeen, "Yin, R. K. (2009). Case study research: Design and methods (4th Ed.). Thousand Oaks, CA: Sage.," *Can. J. Action Res.*, vol. 14, no. 1, Art. no. 1, May 2013, doi: 10.33524/cjar.v14i1.73.
- [51] M. B. Miles, A. M. Huberman, and J. Saldaña, *Qualitative data analysis: a methods sourcebook*, Edition 3. Los Angeles London New Delhi Singapore Washington DC: Sage, 2014.
- [52] E. Cabı, "The Impact of the Flipped Classroom Model on Students' Academic Achievement," *Int. Rev. Res. Open Distrib. Learn.*, vol. 19, no. 3, 2018, doi: 10.19173/irrodl.v19i3.3482.
- [53] K. Adzima, "Examining Online Cheating in Higher Education Using Traditional Classroom Cheating as a Guide," *Electron. J. E-Learn.*, vol. 18, no. 6, Art. no. 6, 2020, doi: 10.34190/JEL.18.6.002.