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## Research on Some Anti-Cheating Methods in Online University Exams and Ways to Deal with These Issues



**Abstract:** - In response to the burgeoning trend of online education, ensuring the integrity of university exams conducted remotely has emerged as a critical concern. This study aims to investigate various anti-cheating methods employed in online university exams, particularly focusing on their effectiveness, benefits, and drawbacks. Utilizing a mixed-method approach comprising qualitative and quantitative analyses, the research explores the landscape of anti-cheating strategies in the context of online exams. Plagiarism detection software, remote proctoring systems, biometric authentication, lockdown browsers, and AI-driven behavior analysis are among the methods under scrutiny. Preliminary findings suggest that these anti-cheating measures have shown promising results in deterring and identifying instances of academic dishonesty among students at FPT University. The benefits include the preservation of academic integrity, the promotion of fair assessment practices, and the maintenance of credibility in online learning environments. However, challenges such as technological limitations, concerns about student privacy, and the potential for biases in detection algorithms warrant careful consideration. Overall, this research endeavors to provide valuable insights into the efficacy and ethical implications of anti-cheating methods in online university exams. By understanding the benefits and drawbacks of these measures, educators and administrators can make informed decisions to uphold academic integrity while ensuring a fair and conducive learning environment for all students.

**Keywords:** Anti-cheating, education, exam, method, University

### 1. Introduction

In the wake of the COVID-19 pandemic, online learning has become an integral part of higher education. While the advancement of technology has opened up new opportunities for students and educators alike, it has also introduced significant challenges, particularly in maintaining academic integrity during online exams. Universities around the world are striving to find and implement effective anti-cheating methods to ensure fairness and honesty in their assessments. This research paper explores various strategies that educational institutions can adopt to prevent cheating in online exams [1]. One of the primary methods being explored is the use of facial recognition technology. This approach involves verifying the identity of the student throughout the exam period, ensuring that the person taking the test is indeed the enrolled student. Additionally, some universities are implementing advanced proctoring software that monitors students' activities through their webcams, detecting suspicious behaviors such as looking away from the screen or having unauthorized materials nearby.

Another effective strategy includes browser lockdown tools, which restrict students' ability to access other websites, applications, or digital resources during the exam. These tools can prevent students from searching for answers online or communicating with others during the test. Furthermore, some institutions are adopting question randomization and time limits to reduce the chances of collaboration and cheating. By presenting each student with a unique set of questions in a limited timeframe, the opportunities for dishonest behavior are significantly minimized.

Moreover, academic institutions are increasingly focusing on promoting a culture of integrity and ethical behavior among students. This includes educating students about the importance of academic honesty and the potential consequences of cheating. By fostering a sense of responsibility and ethical conduct, universities aim to encourage students to adhere to the principles of integrity in all their academic endeavors. In conclusion, as online exams become more prevalent, universities must continuously evolve their anti-cheating strategies to uphold the integrity of their assessments. Through a combination of technological solutions and ethical education, institutions can effectively combat cheating and maintain the credibility of their academic programs.

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## 2. Literature Reviews

The literature on anti-cheating methods in online university exams encompasses a wide range of technological and procedural strategies. Facial recognition technology has emerged as a prominent tool, with studies indicating its effectiveness in verifying student identities and reducing instances of impersonation. For instance, a study by Bawarith et al. (2017) demonstrated that facial recognition systems could maintain high accuracy rates, thus ensuring that the person taking the exam is indeed the registered student. Advanced proctoring software is another widely discussed method. Research by Rios and Liu (2021) highlights how these systems utilize webcams and artificial intelligence to monitor students' behaviors in real-time, flagging any suspicious activities for further review. This method has shown promise in maintaining exam integrity, though it also raises concerns about privacy and the potential for technical issues.

Browser lockdown tools are also prevalent in the literature. A study by Harmon and Lambrinos (2020) explores how these tools prevent students from accessing unauthorized websites and applications during exams. Their findings suggest that such measures significantly reduce the likelihood of cheating by limiting students' ability to search for answers or communicate with peers. Question randomization and timed exams are additional strategies discussed in academic literature. Research by Dendir and Maxwell (2020) indicates that randomizing questions for each student and implementing strict time limits can effectively deter collaboration and cheating. Their study found that these methods created a more challenging environment for students attempting to engage in dishonest behavior.

Furthermore, the literature emphasizes the importance of fostering a culture of academic integrity. Studies like those by McCabe et al. (2012) argue that educating students about the value of honesty and the repercussions of cheating can lead to a decrease in dishonest practices. These findings suggest that a holistic approach, combining technological solutions with ethical education, is crucial for effectively combating cheating in online exams. In summary, the literature presents a multifaceted view of anti-cheating strategies, highlighting the need for a balanced approach that incorporates both technological and educational measures to maintain academic integrity in online assessments.

## 3. Methodology of research

This research involves a comprehensive review of existing literature on anti-cheating methods in online university exams. The study utilizes a qualitative approach, analyzing various academic papers, case studies, and reports published between 2010 and 2024. The primary sources include peer-reviewed journals, conference proceedings, and publications from educational institutions and technology firms specializing in online learning and assessment technologies. Data collection involves identifying and selecting relevant studies that discuss specific anti-cheating strategies such as facial recognition technology, advanced proctoring software, browser lockdown tools, question randomization, and time limits. Additionally, literature focusing on the promotion of academic integrity through ethical education is also reviewed.

The analysis process includes summarizing key findings from each source, comparing different approaches, and evaluating their effectiveness and potential drawbacks. The research also considers the practical implications of implementing these methods in various educational contexts, taking into account factors such as cost, accessibility, and student privacy concerns. By synthesizing the findings from multiple sources, the research aims to provide a comprehensive overview of effective anti-cheating strategies and offer insights into best practices for maintaining academic integrity in online university exams.

## 4. Content of the research

### 4.1 Ensuring academic integrity in Online exams through technological solutions

The rise of online education has significantly impacted assessment practices, prompting a reevaluation of how academic integrity can be maintained in a virtual environment. As more institutions adopt online learning models, the challenges of ensuring fair and honest evaluations have become increasingly apparent.

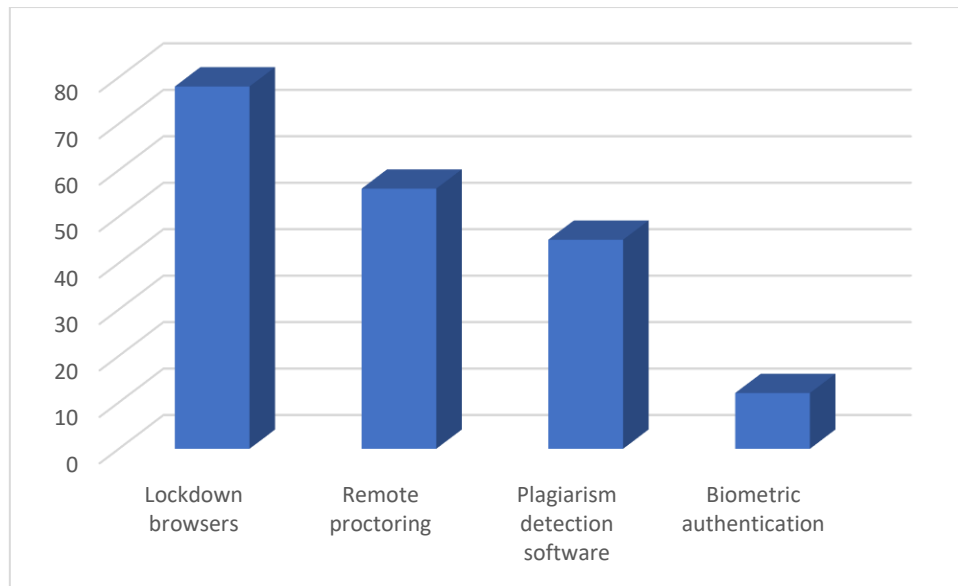


Figure 1. Technology solutions to prevent cheating in online exams that universities in Ho Chi Minh City apply

Traditional in-person exams, which allow for direct supervision, have given way to remote assessments, raising concerns about the potential for academic dishonesty. This shift necessitates the development and implementation of robust anti-cheating methods to uphold the credibility of academic qualifications and ensure that all students are assessed equitably [2]. Maintaining academic integrity in online exams is crucial for preserving the value of educational credentials. Cheating undermines the fairness of the assessment process, devalues honest students' hard work, and ultimately compromises the institution's reputation. Common cheating methods in online exams include unauthorized collaboration with others, using external resources such as textbooks or the internet, and identity fraud, where someone other than the registered student completes the exam. These practices pose significant threats to the reliability of assessment outcomes, necessitating the adoption of effective anti-cheating strategies.

Technological solutions play a pivotal role in combating cheating in online exams. Plagiarism detection software is one such tool, designed to identify instances where students copy text from other sources without proper attribution. These programs scan submissions against vast databases of academic works and online content, highlighting similarities that suggest plagiarism. By detecting copied material, these tools help ensure that students submit original work and adhere to academic standards. Remote proctoring systems offer another layer of security by monitoring students during exams through their webcams [3]. Live proctoring involves human proctors who watch students in real-time, looking for suspicious behavior, while recorded proctoring captures the exam session for later review. These systems can detect signs of cheating, such as students looking off-screen or interacting with unauthorized materials. Remote proctoring helps recreate the oversight present in traditional exam settings, deterring dishonest behavior through constant surveillance.

Lockdown browsers further secure the online exam environment by restricting students' computer activities. Once an exam begins, these browsers prevent access to other applications, websites, or digital resources, ensuring that students cannot seek external help. This creates a controlled environment similar to a physical exam room, where students are limited to the exam content alone. Lockdown browsers thus play a critical role in preventing cheating by eliminating opportunities for unauthorized assistance. Biometric authentication methods add an additional layer of security, verifying the identity of students before and during exams. Facial recognition technology, for example, ensures that the person taking the exam matches the enrolled student. Fingerprint scanning and other biometric tools provide similar verification, reducing the risk of identity fraud. By confirming that the correct student is present, biometric authentication helps maintain the integrity of the examination process.

These technological solutions collectively enhance the security of online exams, addressing various cheating methods and ensuring a fair assessment environment. However, while technology offers powerful tools for preventing academic dishonesty, it is essential to balance these measures with considerations for student privacy

and the ethical implications of constant surveillance. As online education continues to evolve, the integration of these technologies with a commitment to ethical standards will be key to maintaining academic integrity in the digital age.

#### 4.2 Implementation challenges

The implementation of anti-cheating measures in online exams presents several challenges, spanning technical, acceptance-related, and financial dimensions. Technical issues and limitations of current anti-cheating technologies are a primary concern. Many tools, such as remote proctoring systems and biometric authentication, rely heavily on stable internet connections and high-quality hardware. In regions with limited internet infrastructure or among students lacking access to advanced technology, these requirements can lead to significant disparities. Additionally, advanced AI-driven tools designed to detect suspicious behaviors might produce false positives or fail to account for legitimate variations in student behavior, thereby undermining their reliability and effectiveness.

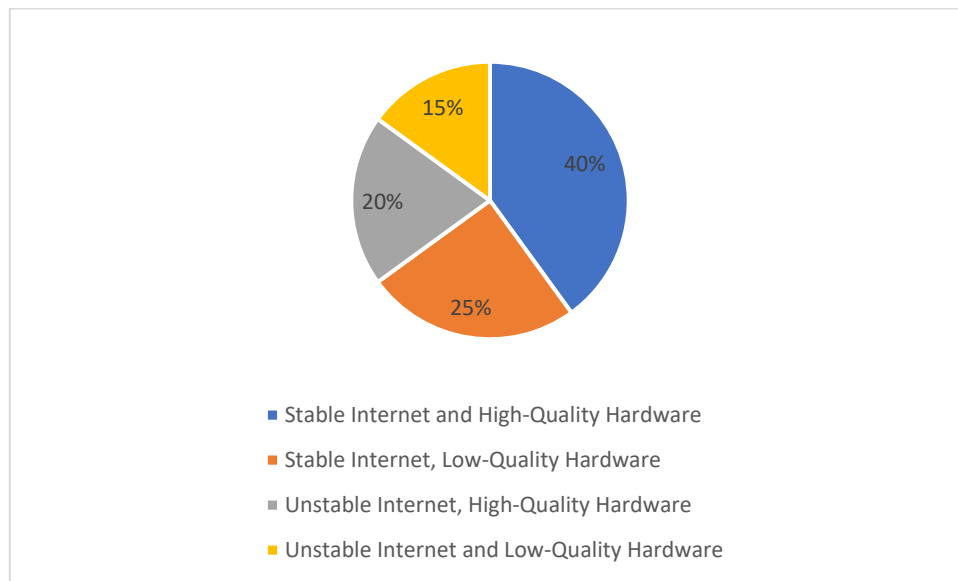


Figure 2. Availability and Quality of Internet Infrastructure in Online Exams

Student and faculty acceptance of anti-cheating measures also poses a significant challenge. Students often express concerns about privacy and the intrusive nature of certain technologies, such as continuous video monitoring and biometric scans. This discomfort can lead to resistance against such measures, with students feeling their personal space and rights are being violated [4]. Faculty members, on the other hand, might face difficulties adapting to new systems and integrating them into their existing workflows. The need for training and the additional time required to manage these technologies can strain resources and add to the workload of already busy educators. Both groups may also question the ethical implications of such stringent monitoring, leading to debates over the balance between academic integrity and personal freedoms.

The financial implications for institutions further complicate the adoption of anti-cheating technologies. High-quality proctoring services, advanced AI systems, and secure browsers often come with substantial costs. For many institutions, especially those with limited budgets, investing in these technologies may not be feasible. Additionally, the ongoing costs of maintaining, updating, and troubleshooting these systems can strain financial resources. Smaller institutions or those in developing regions might struggle to afford these tools, leading to inconsistencies in the implementation of anti-cheating measures across different educational settings. Despite these challenges, the need to uphold academic integrity remains a priority. Institutions must navigate these complexities to find solutions that are both effective and equitable. Balancing technical capabilities, user acceptance, and financial constraints will be crucial in developing a comprehensive approach to combating cheating in online exams. This balance is necessary to ensure that measures taken do not disproportionately affect any group of students and that academic standards are maintained without compromising ethical considerations.

#### 4.3 Comparative analysis, and student perceptions of Anti-cheating measures in Online exams

Case studies and real-world applications provide valuable insights into the efficacy and challenges of implementing anti-cheating measures in online exams. Several universities have successfully integrated various technologies to uphold academic integrity [5]. For example, the University of Central Florida has implemented a comprehensive remote proctoring system that includes live monitoring, AI analysis of behavior, and secure lockdown browsers. This multi-faceted approach has significantly reduced instances of cheating, ensuring fairer assessment outcomes. Similarly, the University of New South Wales utilizes plagiarism detection software coupled with biometric authentication to verify student identities, thereby enhancing the security of their online exams. A comparative analysis of different anti-cheating strategies reveals varied effectiveness depending on the context. Institutions like the University of California, Berkeley, have found success with AI-driven proctoring tools that monitor for suspicious behavior patterns, while others, like Harvard University, emphasize the use of honor codes supplemented by periodic live proctoring. These differences highlight the importance of tailoring anti-cheating measures to specific institutional needs and student populations. Furthermore, lessons learned from these implementations underscore common challenges such as technical glitches, student resistance, and the need for continuous updates to keep up with evolving cheating tactics.

Student perceptions and experiences with anti-cheating measures are crucial for their acceptance and effectiveness. Many students express concerns about privacy and the invasive nature of continuous surveillance. For instance, a survey conducted at the University of Arizona revealed that a significant percentage of students felt uncomfortable with webcam monitoring, viewing it as a breach of their personal space. However, when institutions like Georgia Tech implemented transparent communication strategies, explaining the necessity and functioning of these technologies, student trust and engagement improved. Clear guidelines and open discussions about the ethical use of surveillance tools can mitigate negative perceptions and enhance cooperation. The impact of anti-cheating measures on student trust is profound. While these technologies are essential for maintaining academic standards, their implementation can sometimes lead to distrust if perceived as overly intrusive [6]. Ensuring transparency and fairness is key. Institutions that involve students in the decision-making process, provide clear rationales for chosen measures, and offer assurances about data security tend to fare better in gaining student support. Strategies such as pilot testing new technologies, seeking student feedback, and adjusting policies based on their input can foster a more collaborative and trusting academic environment.

Overall, real-world applications and case studies highlight the complexities of implementing anti-cheating measures in online exams. Success depends not only on the effectiveness of the technologies used but also on how these measures are communicated and perceived by the student body. Balancing robust security with respect for student privacy and engagement remains a critical challenge for educational institutions striving to maintain integrity in the digital age.

#### 4.4 Advancements in cheating prevention and recommendations for academic integrity in Online education

Future directions and innovations in cheating prevention are shaping the landscape of online education. Emerging technologies offer promising solutions to combat academic dishonesty. For instance, advancements in AI and machine learning are enabling more sophisticated detection algorithms capable of identifying subtle cheating behaviors with greater accuracy. Additionally, blockchain technology shows potential in securing online exams by providing a tamper-proof and transparent record of student submissions and exam results, thus minimizing the risk of fraud and manipulation. In the future of academic integrity in online education is expected to be influenced by a combination of technological advancements, regulatory frameworks, and shifts in educational practices [7]. Predictions suggest that institutions will continue to refine their anti-cheating strategies, leveraging a mix of preventative measures and detection technologies to maintain fairness and credibility in online assessments. Moreover, the increasing adoption of remote learning modalities may necessitate the development of standardized protocols and accreditation standards to ensure consistency and quality across online programs.

Table 1. Adoption Rates of Emerging Anti-Cheating Technologies

Year	AI Detection Algorithms (%)	Blockchain Technology (%)	Remote Proctoring (%)	Biometric Authentication (%)
2020	20	5	60	15
2021	30	10	65	20
2022	45	15	70	25
2023	55	25	75	30
2024	65	35	80	40

In terms of best practices and recommendations, institutions are advised to establish clear guidelines for implementing effective anti-cheating measures. This includes defining acceptable behaviors, outlining consequences for violations, and providing support resources for students and faculty [8]. Furthermore, it is crucial to strike a balance between security and student privacy by prioritizing transparency and consent in the use of monitoring technologies. Effective training programs should be implemented to familiarize faculty and students with the functionalities and ethical considerations of anti-cheating tools, empowering them to uphold academic integrity collaboratively. By embracing innovative technologies and adopting proactive measures, educational institutions can create a more resilient and trustworthy online learning environment. As the landscape of online education continues to evolve, ongoing research, collaboration, and adaptation will be essential in safeguarding academic integrity and promoting equitable assessment practices for all learners.

## 5. Discussion

The research surrounding the implementation of anti-cheating measures in online university exams encompasses various considerations, including the effectiveness of technological solutions, ethical implications, and best practices for ensuring academic integrity.

Firstly, the effectiveness of technological solutions such as plagiarism detection software, remote proctoring systems, and biometric authentication methods is a subject of debate. While these tools offer valuable capabilities in detecting and deterring cheating behaviors, their efficacy may vary depending on factors such as technical limitations, student acceptance, and the adaptability of cheating tactics. Moreover, the rapid advancement of technology necessitates continuous evaluation and refinement of these solutions to stay ahead of evolving cheating methods.

Ethical considerations are central to the discussion, particularly regarding the balance between security measures and student privacy rights. The intrusive nature of certain anti-cheating technologies, such as continuous video monitoring, raises concerns about privacy infringement and the potential for creating a surveillance culture within educational institutions. It is imperative for institutions to implement transparent policies, obtain informed consent from students, and prioritize data protection to mitigate these ethical concerns.

Furthermore, best practices and recommendations for promoting academic integrity in online exams revolve around the need for comprehensive policies, faculty training, and student engagement. Establishing clear guidelines for acceptable behavior, providing support resources for faculty and students, and fostering a culture of academic honesty are essential components of effective anti-cheating strategies. Additionally, ongoing training and professional development programs can empower faculty to utilize anti-cheating tools effectively while addressing ethical dilemmas sensitively.

Finally, on anti-cheating measures in online university exams underscores the multifaceted nature of maintaining academic integrity in digital learning environments. While technological solutions offer valuable support, their implementation must be accompanied by ethical considerations, transparency, and a commitment to student privacy. By adopting a holistic approach that combines technology with robust policies, training initiatives, and student engagement efforts, institutions can foster a culture of academic honesty and uphold the credibility of online education.

## 6. Conclusion

The implementation of anti-cheating measures in online university exams represents a critical endeavor in maintaining academic integrity and ensuring the credibility of assessments conducted in virtual environments. The rise of online education has necessitated a reevaluation of traditional assessment practices and the development of innovative solutions to combat academic dishonesty effectively. Throughout this research, it becomes evident that technological solutions, such as plagiarism detection software, remote proctoring systems, and biometric authentication methods, play a significant role in enhancing the security of online exams. However, the effectiveness of these tools must be balanced with ethical considerations, including student privacy rights and the potential for surveillance culture within educational institutions. Transparent policies, informed consent, and data protection measures are essential in mitigating these ethical concerns and fostering trust among students and faculty.

Furthermore, best practices and recommendations for promoting academic integrity in online exams emphasize the importance of comprehensive policies, faculty training, and student engagement. Establishing clear guidelines, providing support resources, and fostering a culture of academic honesty are critical components of effective anti-cheating strategies. Moreover, ongoing training initiatives can empower faculty to utilize anti-cheating tools effectively while addressing ethical dilemmas sensitively.

As online education continues to evolve, it is essential for institutions to remain vigilant in their efforts to uphold academic integrity. By adopting a holistic approach that combines technological solutions with robust policies, training initiatives, and student engagement efforts, institutions can create a conducive learning environment that fosters trust, fairness, and credibility in online assessments. In essence, the successful implementation of anti-cheating measures in online university exams requires a collaborative effort involving stakeholders at all levels, including educators, administrators, policymakers, and students. By working together to address the challenges and complexities inherent in online education, we can uphold the integrity of academic qualifications and ensure that all students are assessed equitably in the digital age.

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