

Cheating in Higher Education in the Age of Artificial Intelligence¹

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Abstract

In this study, cheating behaviors of higher education students and the changes in these behaviors due to developments in the field of artificial intelligence were examined based on the literature. The investigations show that the cheating behavior of the students is at a level that disrupts the accuracy of the decisions made about the students and academic honesty, which is one of the cornerstones of higher education. Cheating in exam, plagiarism and contract cheating are the most common of these behaviors. The way cheating behavior is displayed has also changed from past to present, depending on educational programs, measurement approaches, and developments in technology and artificial intelligence. Tremendous developments in the field of artificial intelligence in the last three years have caused students to make artificial intelligence tools an indispensable part of their cheating processes. This situation requires the development and implementation of new methods to detect and prevent cheating in higher education. Therefore, structuring new studies that address the cheating problem and its solutions in various aspects, including the technology and especially artificial intelligence dimension, is important in terms of its contribution to relevant people and institutions. It is thought that this study is important in terms of drawing attention to the issue.

Key words: Artificial intelligence, cheating, higher education, academic integrity.

Introduction

Higher education institutions are the most important institutions that ensure the training of skilled and qualified workforce required for the welfare of societies (Ekinci et al., 2018; Voronkova and Dolgova, 2021). In these institutions, where undergraduate and graduate education is provided, students' success levels are tested and very important decisions are made about them, such as passing a course, passing a class, and being eligible to receive a certificate/diploma. In this process, different measurement techniques are used depending on the structure of academic programs and courses. Exams, assignments, term projects and dissertations are some of these techniques (Haladyna, 1999; Nitko, 1996, Turgut and Baykul, 2021). The accuracy of the decisions made about students is closely related to the validity of the chosen technique and the reliability of the measurement results obtained (Atilgan et al., 2016).

Cheating is one of the important variables that negatively affects the reliability of measurement results. Cheating can be defined in general terms as "a student exhibiting dishonest/deceptive behavior/s in order to gain an undeserved score or advantage in decision-making processes related to him/her, such as passing a course, passing a class, or being entitled to receive a certificate/diploma". Cheating is an important problem that disrupts academic integrity in higher education as well as other levels of education, and this problem continues to exist every period (Baijnath and Singh, 2019). Cheating in exams, plagiarizing homework, term projects, dissertations etc or resorting to contract cheating are the main traditional cheating behaviors shown by students (McCabe and Trevino, 1997; Claire et al., 2017). The rate

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of students exhibiting unethical behavior, which can be considered within the scope of cheating, is quite high, although it varies depending on the level of education, the structure of the courses and the type of measurement practices (Dee and Jakob, 2012; Koç and Memduhoğlu 2021; Topçu and Gürer, 2019).

With the tremendous developments in the field of artificial intelligence (AI) in the last few years, changes have been observed in the cheating behavior of students. With artificial intelligence-supported natural language processing tools such as ChatGPT, exam questions can be answered within seconds, and human-like texts and contents such as photographs, videos, graphics, etc can be produced in short periods of time. Therefore, although students still use classical cheating approaches in exams and in the preparation of studies such as assignment, term projects, and theses, they have been using AI applications more in recent years (Lee, et al., 2024; Xie et al., 2023).

When the relevant literature is examined, although there are many studies that address the cheating problem from different aspects from past to present (Çakmak, 2015; Chirikov, 2020; Etter and Finn, 2006; McCabe and Trevino, 1997; Tight, 2024; Ünal and Uçak, 2017) it seems that there are a limited number of studies examining the development in the field of AI and its relationship with cheating (Lee et al., 2024; Xie, 2023; Sweeney, 2023). Therefore, it is thought that new studies on the subject will make significant contributions to relevant people and institutions in redefining the problem and producing solutions.

In this study, cheating in higher education institutions; it was discussed and examined based on the literature, i) in terms of the cheating behaviors shown by the students, ii) in terms of the changes in the cheating behaviors of the students with the developments in the field of artificial intelligence, and iii) in terms of the steps to be taken on an institutional and individual basis to detect and prevent cheating behaviors.

Cheating behaviors of higher education students

Higher education

The general purpose of higher education is to ensure the development of human capital, advancement of knowledge and meeting social needs through scientific research and advanced education (Pretti-Frontczak and Bricker, 2000; Voronkova and Dolgova, 2021). Achieving this general goal is only possible with qualified workforce/expertise. From this perspective, the aim of higher education is to ensure specialization in all relevant fields of study through institutions such as universities. As a result of the education provided at undergraduate and graduate levels in higher education institutions, students are entitled to receive bachelor's degree, science specialist and Phd titles. In addition, higher education institutions offer advanced education in various fields of expertise through their centers and the certificate programs they offer. The education offered by these institutions encourages students to use and develop more intensively the skills required by the current age (e.g. critical thinking, analytical thinking, scientific research abilities, etc.). Supporting the personal development of students during the specialized education process, reinforcing their ethical values, increasing their global awareness, contributing to their making lifelong learning a basic behavior and ensuring that they prioritize contribution to society are among the important areas of responsibility of higher education (Yükseköğretim Kanunu, 2024).

Cheating in higher education

Cheating is completely contrary to the purpose and nature of higher education, which emphasizes quality, competence and individual development. The high risk that higher education institutions face due to cheating is alarming. Increasing cases of cheating disrupt the high standards of universities and damage their institutional reputation (Bajinath and Singh, 2019).

Cheating is the biggest enemy of academic integrity, which is of great importance for higher education institutions offering advanced education (Sozon, 2024). Cheating is one of the most important variables that negatively affects the validity and reliability of the measurements that form the basis for decisions about students (Atılğan et al., 2016). Therefore, it causes students' success grades, diplomas and even higher education itself to be questioned by all stakeholders (e.g. private/public employers, etc.). Cheating is also an important ethical problem that negatively affects students' psychosocial and moral development (Dodeen, 2012).

Cheating in exams, plagiarism and contract cheating are the most common cheating methods among higher education students. There are many educational, psychological and sociological factors underlying students' cheating actions. Fear of failure, desire to be more successful, parents' expectation of high

grades, anxiety about not completing school, laziness, etc are some of the main reasons for cheating by students (McCabe et al., 2001; Semerci 2004).

Cheating in exams

Numerous studies have shown that cheating in exams is a behavior that is common at every stage of education and continues to be a problem (Koç and Memduhoğlu, 2021). The rate of student cheating in exams has been increasing all over the world, from past to present (Bajinath ve Singh, 2019; Lanier, 2006). In particular, increasing distance education programs due to technological developments/Covid 19 pandemic reasons and the fact that exams related to these programs are held remotely on computers have further increased the rates of cheating in exams (Newton and Essex, 2023; Özalkan, 2021; Valizadeh, 2022).

As in other levels of education, there are many studies examining the cheating problem in higher education from different perspectives, such as the methods used in the cheating process in exams, its reasons and solutions. Some of the common results emerging from these studies are as follows: (Dodeen, 2012).

1. Cheating on exams is a common and serious problem in schools and universities.
2. The percentage of students who admit to cheating on exams during their university years varies between 40% and 80%.
3. Male students cheat more than female students.
4. Students with low academic success cheat more than students with high academic success.
5. Cheating on exams increases in large and crowded classes.
6. Cheating is more common in multiple-choice exams than in structured-answer exams.
7. Rates of being caught cheating are low, and universities and faculty do little to prevent cheating on exams.
8. Anxiety about passing the course, anxiety about graduation, desire to get good grades, etc are the main reasons why students cheat on exams.

Plagiarism

Studies that require conducting and presenting research, such as assignment, term projects, and dissertations, are among the important measurement approaches used in higher education. This measurement approach, which requires the use of advanced mental skills, is compatible with the nature of higher education. In order to complete such studies, students are expected to be proficient in scientific research and analysis methods as well as field knowledge. Completing these works requires high effort and long time. Therefore, instead of fulfilling the requirements of this process, some students may take the easy way out and resort to unethical methods such as plagiarism.

Plagiarism is defined as "taking sections or lines from other people's writings and presenting them as one's own or adopting other people's topics and telling them in a different way; plagiarism" in current Turkish dictionary (sozluk.gov.tr, 2024). It is defined in the Cambridge English Dictionary as "the behavior of using/showing another person's ideas or works as one's own" (Dictionary.cambridge.org, 2024). According to Harvey (1995), plagiarism is "the act of lying, cheating and stealing by using someone else's information, thoughts or words as one's own sentences without placing quotation marks" (cited in Eminoğlu, 2008). The Council of Higher Education defines plagiarism as "presenting the original ideas, methods, data or works of others as one's own work, in whole or in part, without citing them in accordance with scientific rules." (Yükseköğretim Kurulu, 2024).

There are many different behaviors that can be considered within the scope of plagiarism (Rayhan and Amer, 2021). Some of these behaviors can be listed as follows: (Nedir.com, 2024)

- Taking some or any part of the books, articles, etc written by others and presenting it as if he/she wrote it himself/herself.
- Changing the text written by someone else and writing it as one's own.
- Using a piece of text taken from someone else's work without citing the source.
- Taking someone else's work and presenting it as a newly prepared work.
- Presenting an existing product or intellectual work as if it were new and one's own.

Anxiety about failure, anxiety about graduation, parental/peer pressure, lack of knowledge of scientific research methods are some of the reasons why students plagiarize (Rayhan and Amer, 2021; Abbasi et al., 2021). Plagiarism rates among higher education students are quite high. The fact that students can easily

access literature and related documents for every possible subject area via smart devices, the internet and search website is an important factor in the increase in plagiarism behaviors (Ünal and Uçak, 2017).

Apart from the general reasons, other important factors that push higher education students to plagiarize are as follows: (Abbasi et al., 2021; Gullifer and Tyson, 2010; Kent.edu, 2024).

- Students are not confident about the adequacy of their work. They are reluctant to take risks.
- Students cannot receive sufficient consultancy support from instructors during the preparation of the assigned homework.
- Students' lack of time management skills. They cannot plan the time and effort required for research-based studies well and therefore believe that they have no choice but to plagiarize.
- Students' inadequacy in terms of the rules of preparing academic documents/research reports.
- Faculty members and institutions do not monitor whether student works contain plagiarism.
- Institutions do not impose appropriate penalties upon detection of plagiarism, and therefore students consider the consequences of plagiarism unimportant.

Contract cheating

Contract cheating is when students have their work done by someone else for a fee or without payment, take a ready-made work and act as if they did it themselves. The person referred to as “someone else” here may be someone you know, such as a friend or family member, or it may be a ghostwriter working for a company/writing firms that do this work for a fee (Baird and Clare, 2017; Ellis, Zucker and Randall, 2018). The reasons why students use contract cheating are like the reasons for cheating and plagiarism in the exam. The abundance of agencies offering contract cheating services and their easy accessibility greatly increases the rate of contract cheating by students (Lee, 2024; Sweeney, 2023). 16% of students admit to paying others to complete their studies. 67% of instructors say they do not have enough evidence to support their claims and therefore cannot act. There is a \$15 Billion contract cheating industry that has been described as predatory by The Better Business Bureau (Turnitin.com, 2024). This industry has become a growing threat to academic integrity in higher education (Ali et al., 2021; Sozon, 2024).

Cheating behavior of higher education students in the age of artificial intelligence

ChatGPT and similar artificial intelligence tools can train themselves with the information they obtain from very large databases. In this way, it is possible to write texts and produce content such as photos, videos, etc that are indistinguishable from those produced by humans. These tools stand out for their ability to perform a wide range of language tasks, including answering questions, summarizing texts, chatting, and performing advanced translation (openai.com, 2024). These tools perform such language tasks in seconds, almost like a magic wand (Klshybekova and Abbott, 2024). This tremendous development in the field of artificial intelligence has brought about an incredible transformation in all areas of life, including industry, health, sports, arts and education. There is no doubt that the well-intentioned use of the development will be for the benefit of humanity.

However, as always, it is inevitable that this innovation will be used by someone for unacceptable purposes. The use of artificial intelligence tools for cheating purposes in the education process is one of these malicious uses. Looking specifically at higher education, research on cheating shows that there have been significant changes in the cheating behavior of students due to developments in smart devices such as computers and phones, the internet and especially artificial intelligence, and that students have made these an important part of the cheating process (Lee, 2024; Xie, 2023).

While taking exams with small notes containing cheating information, looking at your friends' answers during the exam, and changing exam papers are traditional cheating behaviors that are common in exams (Akdağ and Güneş, 2002; Çeliköz, 2016; Dam, 2013), cheating in exams by exchanging questions and answers through technological tools with messaging features has become popular (Etter et al., 2006). Artificial intelligence tools have made it very easy for students to cheat in exams without even having to make this purchase. Artificial intelligence applications such as ChatGPT can answer almost all exam questions correctly. This situation has now made artificial intelligence tools an indispensable element of the cheating process in exams (Lee, 2024). So much so that the use of these tools, especially in online exams, has increased significantly and has dealt a serious blow to academic integrity (Susnjak and McIntosh, 2024).

Studies that require writing research-based text, creating content and presenting it as a report, such as assignment, term projects and dissertations, which have an important place in measuring student success in higher education, can now be completed in a very short time with artificial intelligence tools. Qualified prompts ensure that products have low plagiarism rates and make it difficult to determine whether the

product contains plagiarism. Therefore, cheating-prone students now prefer to have artificial intelligence tools do this kind of work, which requires great effort and time, and present it as if they did it themselves, instead of doing it themselves (Lee, 2024; Sweeney, 2023).

Artificial intelligence tools have made the work of contract cheating services much easier and enabled them to provide the text/report they want to those who request it in a short time. This situation has led to an increase in the number of centers providing relevant services and ultimately to a further deterioration of academic integrity in higher education institutions (Carmichael and Weiss, 2019).

Steps to be taken on an institutional and individual basis to detect and prevent cheating behavior in higher education - General and AI related

Some of the institutional and individual steps (Chirikov et al., 2020; Malgwi and Rakovski, 2009) that can be taken in the process of identifying and preventing cheating in exam (Bajjnath and Singh, 2019; Eraslan, 2011; Tan, 2001; Tight, 2024;), plagiarism (Çakmak, 2015; Ersoy and Özden, 2011; Ünal and Uçak, 2017) and contract cheating (Lines, 2016; Sweeney, 2023) behaviors in higher education institutions are as follows:

- To organize trainings for all stakeholders (administrators, academic staff, students, administrative staff) within higher education institutions on academic integrity, academic dishonesty, cheating and ethics.
- To include in detail the scope of behaviors that violate academic integrity such as cheating and the penal sanctions that will be applied to these behaviors in the student disciplinary regulations of higher education institutions.
- Signing a contract with students at the beginning of the education process stating that they will not cheat. These agreements can be made on a program basis or on a course basis by each faculty member.
- To include practical and oral exams, as well as other measurement approaches, in the process of measuring student success.
- Conducting paper-pencil exams face to face and with proctor support.
- To purify the exam environment from elements that enable cheating in the exam (spaced seating arrangement, use of different test forms, prohibition of the use of technological tools-smart devices, etc.).
- In online exams, preventing the use of other tabs of the computers, taking screen recordings, ensuring that the cameras remain on, etc.
- Scanning student papers for plagiarism using plagiarism checking tools like Turnitin or Grammarly.
- Analyzing whether student papers were written by AI with tools like GPTZero and Originality AI, which are specifically designed to detect AI-generated texts.
- To ensure that the content of assignment, term projects, etc. given to students is original. To organize relevant studies in a way that requires students to use high-level mental skills such as creativity, critical thinking, etc.
- To hold interim meetings at every stage of the process of preparing students' assignment, term projects, etc., and to control and guide what has been done.
- To determine the similarity rate of studies prepared by students (assignment, term project, dissertations, etc.) with plagiarism detection tools.
- To examine the citation-source harmony in studies prepared by students (assignment, term project, dissertations, etc.).
- Having students prepare similar works to AI tools, analyzing the resulting product in terms of its typical features, and comparing the students' work with these typical features.
- To analyze the students' old works, which are known to have been prepared by them (sentence order, compliance with spelling rules, etc.) and compare them with the new works they present.

Results Discussion and Suggestions

In this study, cheating behaviors of higher education students and the changes in these behaviors due to developments in the field of artificial intelligence were examined based on the literature.

Cheating is an important problem that has existed in higher education institutions from past to present (Koç and Memduhoğlu, 2021). It appears in different forms depending on the change in measurement approaches. Cheating in exams, plagiarism and contract cheating are cheating behaviors frequently seen at

the higher education level (McCabe et al., 2001). Studies show that in the last few years, students have made artificial intelligence tools an important part of their cheating processes (Klyshbekova and Abbott, 2024).

The scores obtained because of cheating negatively affect the accuracy of the decisions made about students (Atılğan et al., 2016). Therefore, the existence and frequency of these behaviors cause higher education and related institutions to be questioned and lose prestige. On the other hand, cheating causes great harm to academic integrity, which is an indispensable part of higher education. Where academic integrity is broken, individual, institutional and social degeneration is inevitable (Bajinath and Singh, 2019).

Cheating behaviors are constantly changing depending on educational programs, measurement approaches, developments in technology and artificial intelligence. For this reason, it is of great importance to maintain the continuity of studies that address the solutions to this important problem, which is always up to date, in terms of both reducing the destructive impact of the problem and showing the relevant people and institutions the steps they need to take.

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