

Student's Utilization and Assistance of AI Tools in Assessment Completion: Perceptions and Implications

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Received: December 22, 2023; Accepted: December 27, 2023; Published: October 14, 2024

Abstract

The study investigates the utilization and impact of AI Tools' usage by students for their assessment completion. It also explores students' perceptions and examines the implications of using AI technology on students' learning and development process. A total of 145 students majorly between 21-25 of age studying in Higher Education Institutions in the Sultanate of Oman participated in the survey. Data was collected employing non-probability convenience sampling. Results indicated that improving writing skills, critical thinking and analysis were the top 3 ranked skills which get enhanced in students by AI tools. As to fairness in AI tools' usage, the majority of the students agreed that these tools should only be used for generating ideas and structuring assessments. Results also revealed that 50% of the students were of the opinion that their institutions do not effectively regulate the use of AI. However, responses to questions on utilizing AI indicated that out of the students who had been penalized, 35% had a reduction in marks, 30% were asked to resubmit the assessment, 26% were given warnings, while 10% were given a 'fail' grade. Formulating standardized policies and regulations on AI usage, proper dissemination, and their implementation were the general recommendations obtained from the study.

Keywords: artificial intelligence, AI tools, AI tools in assessment

1. Introduction

Artificial Intelligence (AI) has been utilized by Higher Education Institutions (HEIs) in research, evaluation as well as teaching and learning (Nassuora, 2022). Various AI tools are available assisting personalized learning especially in students' assessments preparation, report writing and analysis. Regulating the usage of these tools pose challenges among HEIs in formulating appropriate policies on their proper utilization. Different institutions have formulated different policies regulating AI usage for academic assessments. However, geographically, the usage of AI and its regulations are varied depending on the HEI's academic and assessment requirements. Learning Managements systems have also integrated AI detection tools to monitor students' academic work in terms of its originality and structure. Students were found to utilize these tools enhancing their summarizing, paraphrasing, analytical and critical thinking skills.

This paper aims to investigate the utilization and impact of usage of AI tools by students for their assessment completion, with a focus on exploring students' perceptions and examining the implications of using AI technology on students' learning and development process. Below are the specific objectives to provide more enlightenment on academic usage of these tools, challenges in assessments, as well as evaluating teaching and learning practices.

1. To identify some of the most used AI tools by students in educational institutions around the world.
2. To discuss the benefits and challenges of using AI tools in HEIs in the Sultanate of Oman.
3. To analyse the impacts of student's utilization of AI tools in assessments in the Sultanate of Oman.
4. To analyse student's perspective on fair and unfair usage of AI Tools in the Sultanate.

2. Literature Review

The origin of automated learning is based on B.F. Skinner's teaching machine and programmed learning, but a big evolution has been observed ever since. Despite the differences between human and artificial intelligence, this systematic research shows the potential to facilitate and improve education, both face to face, blended or in virtual environments. However, despite the substantial technological progress in AI, studies often fail to incorporate robust pedagogical models. A majority of the studies basically involve authors who are linked to STEM or health

science degrees, disciplines in which pedagogy is not very much considered. (Calatayud, Prendes, and Roig-Vila, 2021).

There are many pedagogical frameworks which allows the use of Educational Artificial Intelligence (EAI) with students being the center of focus. This allows students to take an active role in constructing knowledge and have a lasting understanding of what they gather. This essentially means that EAI focuses on students' engagement and interaction. An important element of this approach is that there will be a focus on utilizing different modalities like VR and AR educational games etc.(García-Martínez, Fernández-Batanero, Jernández-Cerero and León, 2023).

The AI system's answer is nothing more than an algorithm based on accumulated data, yet students typically expect the AI system to be accurate. These misconceptions can be barriers to the effective use of AI systems by students and instructors. To address this, it is important to foster AI literacy in students and instructors without a technical background (Long & Magerko, 2020). For example, recent studies have published guides on how to incorporate AI into K-12 curricula (Touretzky et al., 2019), and researchers are exploring how to engage young learners in creative programming activities involving AI (Zimmermann-Niefeld et al., 2019).

Furthermore, in order to minimize the negative impact of AI systems on learner–instructor interaction, it is important to address tensions where AI systems violate the boundaries between students and instructors. (Seo, Tang, Roll, Fels and Yoon, 2021).

Students and instructors perceive the impact of AI systems as double-edged swords. Consequently, although AI systems have been positively recognized for improving the quantity and quality of communication, for providing just-in-time, personalized support for large-scale students, and for improving the feeling of connection, there were concerns about responsibility, agency, and surveillance issues. In fact, what students and instructors perceive negatively often stemmed from the positive aspects of AI systems. (Seo, Tang, Roll, Fels and Yoon, 2021).

According to the University of Melbourne's Student Academic Integrity Policy, all work submitted by an individual student must be their own. In the case of group work, the individual contribution of each student must be their own work as well.

As per the University of Melbourne, if students use artificial intelligence software like ChatGPT or Quill Bot for their assessments, research or analysis of any type and pose it to be their work, then they are deemed not to have submitted their own work. Asking someone else to write in any manner, paid or unpaid, or knowingly using any AI technology for assessments amounts to 'deliberate cheating' and is considered academic misconduct. Just like this, if students have used any AI platform during the preparation for any assessment, then students are supposed to properly refer to the used platform as per the Assessments and Results Policy. (University of Melbourne, 21 Apr 2023).

According to the study, "Student Perceptions of Academic Integrity: A Qualitative Study of Understanding, Consequences, and Impact", Students should be approached by the perception that the breaches of academic integrity was unintentional wherever possible. Imposing intentionality may lead some students to employ a defensive coping mechanism, or to withdraw, which would lead to limiting their ability to benefit from the intervention. This will lead to a decrease in their continuing to engage with their study and this will lead to decreasing of student retention which is not beneficial to the institution.

It will help in avoiding the phenomenon of catastrophizing if individual students have the perception that the institution supports and cares by offering re-engagement.

Notwithstanding concerns about authorship and academic integrity, the use of these tools especially in second and foreign language teaching prompt us to question future definitions of what it means to write, to learn to write and to teach writing in a digital world. Teachers need to be aware of ways in which the latest educational technology tools can help or hinder us and embrace the learning possibilities they bring (Yeo, 2023)

Gilmore et.al (2016 cited in Blau et.al. 2020), suggests different strategies for preventing and addressing Violations of Academic Integrity (VAI). He suggests establishing clear institutional policies with repercussions and punishments, improving teaching and evaluation methods, and further improving the understanding and application of ethical standards among students and faculty. Blau et.al. (2020) also refers to more studies where stringent application of rules, punishments and understanding of consequences are referred to as means of ensuring students do not indulge in VAI.

Additionally, research underscores the importance of strengthening students' ethical beliefs and integrating ethics education in higher education (e.g., Christensen Hughes and Bertram Gallant, 2016). Supporting this notion, Blau and Eshet-Alkalai (2016) found that students' ethical beliefs accounted for an additional 13% of the variance in digital VAI after controlling for various sociodemographic factors. Moreover, ethical beliefs mediated the impact

of intrinsic motivation and ethnicity on VAI. Specifically, incorporating students' ethical beliefs into the analysis nullified the advantage of students with high intrinsic motivation, who typically engaged in less VAI compared to those with lower motivation levels. Similarly, including ethical beliefs in the regression analysis mitigated the disadvantage of ethnic minority students, who otherwise committed more academic offenses than ethnic majority students.

Other scholars, such as Harkins and Kubik (2010), propose reevaluating what constitutes ethical and unethical behavior. They argue that in the context of modern digital learning environments, traditional views of VAI are outdated and introduce the concept of "ethical cheating." This term encompasses learning practices involving information and idea exchange, peer assistance in collaborative learning, participation in online learning communities, and the use of open-source information to construct knowledge as acceptable and integral parts of the learning process. Recognizing these acceptable learning practices and distinguishing them from VAI is crucial, as some VAI behaviors are perceived by students as "not cheating." Consequently, when students engage in these behaviors, they may not believe they are doing anything wrong (De Lambert et al., 2016). The authors stress the importance of providing clear guidance to students, leaving no room for ambiguity regarding the legitimacy of actions, particularly in the context of new technologies.

According to Artificial Intelligence Implementation in Omani Higher Education; Logistics Studies, IMCO as a case study, recommend various applications and systems in Oman's higher education logistics programs. Some recommendations have already been used in logistics learning like computers, phones, smart boards, Outlook, Moodle, and Teams. The top suggestion is using Virtual Reality Learning (VR) in a simulator class where logistics students feel that they are in a natural work environment and live the experience before getting the actual job. Another recommendation is to use robots and assistant teachers to support teachers and attract students' attention within the classroom (Alghaithi, Slimi, Al Kalbani & Ben 2022).

3. Method

This study employed a descriptive research design and quantitative approach. An online survey was administered using Microsoft Forms. The questionnaire was structured according to the study's objectives. Demographic profiles were included along with open-ended questions to address specified objectives. The survey's QR code was forwarded to higher education institutions students in Muscat through their emails and social media accounts.

The respondents were students of higher education institutions in Muscat. A good sample of 145 students participated in the survey using non-probability convenience sampling technique. Research Ethics approval form was filled in by the authors and presented for approval in the Research Committee. Apart from this a section in the questionnaire was made available for anonymity and confidentiality of responses.

4. Results and Discussion

Unidimensional Reliability

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point estimate	0.868
95% CI lower bound	0.832
95% CI upper bound	0.897

Frequentist Individual Item Reliability Statistics

Item	If item dropped		
	Cronbach's α	mean	sd
Writing	0.853	2.083	1.158
Critical Thinking	0.849	2.414	1.234
Analysis	0.847	2.110	1.068
Summarizing	0.850	1.924	1.055
Paraphrasing	0.854	2.000	1.000
Language Acquisition and Translation	0.854	1.876	1.020
Referencing .	0.856	2.248	1.176
Using AI to completely write your assessment. ...	0.869	2.890	1.501
Using AI to partially write your assessment	0.859	2.476	1.161
Using AI for generating ideas only	0.866	1.841	0.948
Using AI for structuring the assessments only	0.864	1.972	1.040

Cronbach's alpha analysis was conducted to ensure internal consistency in the survey instrument. Results reflect an overall "Good" consistency where values range between 0.8 to 0.9.

A total of 145 students responded to the survey with an average response time close to nine minutes. 97% of the

students who took the survey were Omani's, majorly between 21 to 25 years of age. Male and female participation was almost even. As the survey was sent to students in different colleges thus, their specializations were different but most of the students were from Tourism, Management and Business studies.

Table 1. Demographic Profile

Demographic Profile		Frequency	Percent
Nationality	Omani	141	97%
	Non-Omani	4	3%
	Total	145	100.00
Gender	Male	73	50%
	Female	72	50%
	Total	145	100.00
Age	18-20 years old	5	3.4%
	21-25 years old	79	54.5%
	26-30 years old	52	35.9%
	31-35 years old	7	4.8%
	36-40 years old	1	0.7%
	41-45 years old	1	0.7%
	46-50 years old	0	0%
	Above 50 years old	0	0%
Total	145	100.00	
Programme	Tourism	57	39.3%
	Management	40	27.6%
	Business Studies	48	33.1%
	Total	145	100.00

4.1 Most Utilized AI Tools

Chat GPT was the most used AI tool while Google scholar was also the topmost used platform. Grammarly was the third most used AI tool for language correction by the students while Google Bard, which is one of the most recent AI tools, was ranked as the fourth most used AI platform.

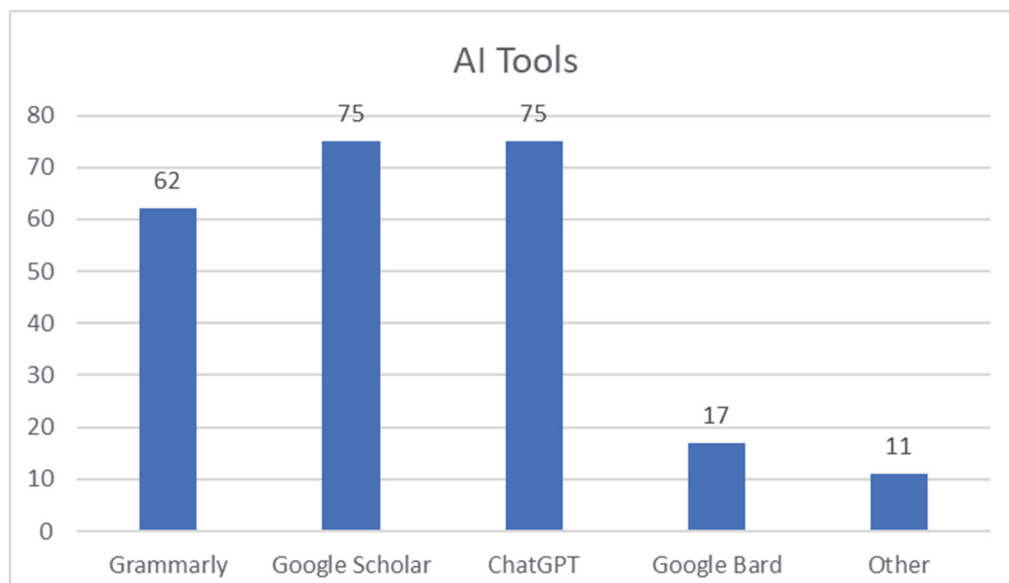


Figure 1. AI Tools Utilized by Students

4.2 AI Tools Benefits

Students ranked saving time as the topmost benefit of using AI tools while ease of work and flexibility of use were put on second and third ranks respectively. One of the striking features of this question was that students ranked dependability as the lowest and reliability second from the bottom in terms of benefits of AI tools. This shows that students have a clear understanding that AI tools are somewhat not reliable and dependable in academic settings, especially where they are asked to reference their sources used for their work.



Figure 2. Ranking of AI Tools according to Benefits

4.3 AI Tools Enhancing Students Skills

It was also important to check students’ understanding regarding certain skills and how can AI tools polish these skills in students. The data received in response to this question shows that improving writing skills, critical thinking and analysis were the top 3 ranked skills which get polished in students by AI tools. Surprisingly, students had a clear understanding of AI and thus ranked referencing to be the least most skill getting polished by AI tools.

Table 2. Students’ level of agreement on AI Tools Polishing Skills

Parameter	Strongly Agree (1)		Agree (2)		Neutral (3)		Disagree (4)		Strongly Disagree (5)	
	No	%	No	%	No	%	No	%	No	%
Writing	57	39%	45	31%	25	17%	10	7%	8	6%
Critical Thinking	37	26%	54	37%	23	16%	19	13%	12	8%
Analysis	48	33%	54	37%	28	19%	9	6%	6	4%
Summarizing	64	44%	45	31%	24	17%	7	5%	5	3%
Paraphrasing	50	34%	63	43%	18	12%	10	7%	4	3%
Language Acquisition and Translation	63	43%	54	37%	16	11%	7	5%	5	3%
Referencing	44	30%	54	37%	23	16%	15	10%	9	6%

4.4 Perceptions on Fair and Unfair Means of AI Tools

It was also felt that it would be important to check students’ perception on fair and unfair use of AI, thus a quantifiable question was asked regarding the same. In response to this, 46% of the students felt that it would be fair if an AI tool completely writes assignments for a student. Only 37% felt it to be unfair while 17% remained neutral to the question. Just like this 52% of the students were of the opinion that if AI is used for partially writing assessments, then that would be fair. Only 18% felt it to be otherwise. 30% of the respondents opted for neutrality as an option on this. 76% of the students were of the opinion that AI should only be used for generating ideas, while only 7% felt otherwise and 17% stayed neutral to the question. 74% of the students opined that AI should only be used for structuring assessments. 17% stayed neutral while 9% differed on this.

Table 3. Fair an Unfair Means of AI Tools Utilization

Statement	Absolutely Fair (1)		Fair (2)		Neutral (3)		Unfair (4)		Absolutely Unfair (5)	
	No	%	No	%	No	%	No	%	No	%
Using AI to completely write your assessment	37	26%	29	20%	23	16%	25	17%	31	21%
Using AI to partially write your assessment	37	26%	37	26%	43	30%	21	14%	7	5%
Using AI for generating ideas only	67	46%	44	30%	25	17%	8	6%	1	1%
Using AI for structuring the assessments only	59	41%	48	33%	25	17%	9	6%	4	3%

4.5 AI Tools Utilization Regulation

A qualitative question was placed towards the latter half for getting some generic thematic analysis. This question was preceded by a question asking students whether their institutions effectively regulate the use of AI tools or not. It did not come as a surprise that more than 50% of the students feel that their institutions do not effectively regulate the use of AI. This may be due to lack of knowledge on part of the students, lack of communication on part of the HEIs or the fact that AI is seen to be a relatively recent development and thus policies are still developmental in nature.

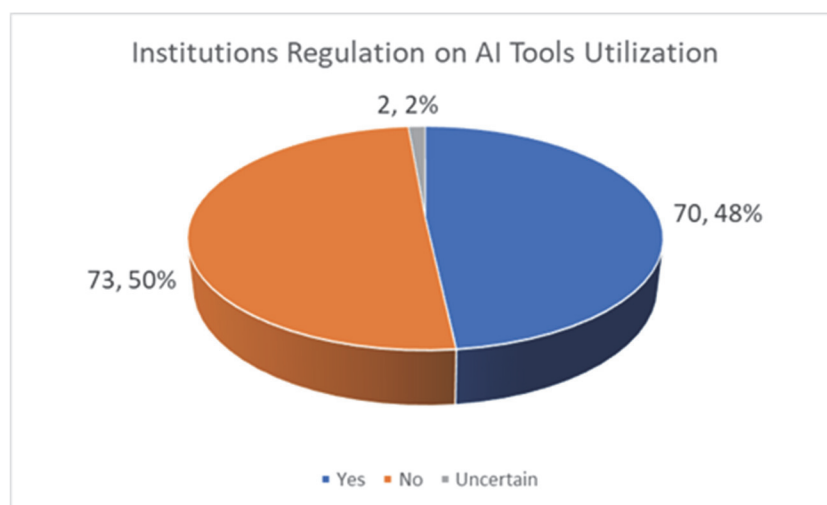


Figure 3. Institutions Regulations on Using AI Tools

4.6 Penalty on AI Tools Usage

Since students had responded that their institutions had not regulated AI use, so some students also had a notion that HEIs need to adapt and accommodate themselves to the use of AI tools in a manner that they support students positively, while those who abuse are caught and dealt with according to their respective regulations. Some respondents wanted to keep the onus of governance and implementation of AI usage on institutions as well as governments. A very important question regarding penalization was placed at the end of the questionnaire. Respondents were filtered with a Yes/No question on whether they were ever penalized for using AI. 44% of the participants responded in negation. The next question after being filtered was put in place to check the mode of penalty. Out of the students who had been penalized, 35% had a reduction in marks, 30% were asked to resubmit the assessment, 26% were given warnings, while 10% were given a ‘fail’ grade.

Different similarity detection software uses different algorithmic combinations for identifying AI similarities. AI and its use in student assessment is a new and emerging field of study, thus things have not gone to the stage where we may get a standardized or acceptable approach in relation to penalties. Due to the same, service providers even advise users/teachers to take a careful look at the detected percentages. They are also asked to compare real student

capacity and the level of assessments submitted. Some sort of corrective penalties may be put in place in case of a huge mismatch between the real capability of students and the level of submitted assessment.

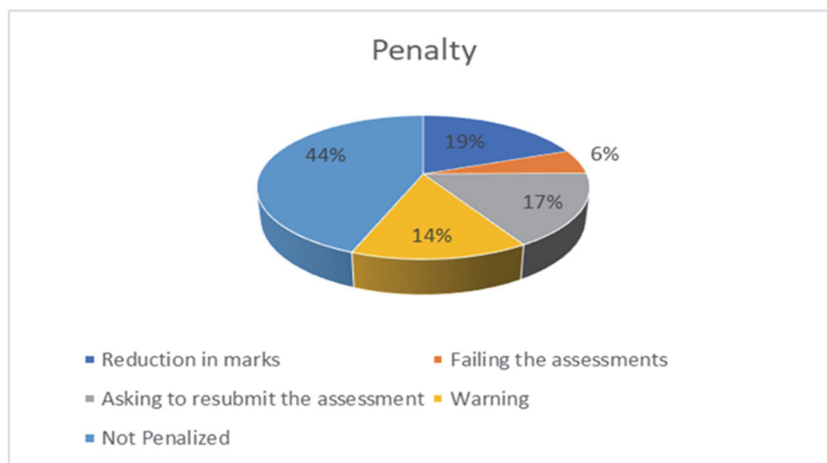


Figure 4. Institutions Penalty on AI Tools Usage

4.7 Students View on AI Tools Effective Regulation

A qualitative question was placed towards the latter half for getting some generic thematic analysis. This was preceded by a question asking students whether their institutions effectively regulate the use of AI tools or not. It did not come as a surprise that more than 50% of the students feel that their institutions do not effectively regulate the use of AI. This may be due to lack of knowledge on part of the students, lack of communication on part of the HEIs or the fact that AI is seen to be a relatively recent development and thus policies are still developmental in nature.

Responses to the open-ended question where students were asked whether the use of AI tool is being regulated in their institution were very diverse. A respondent mentioned that 'I'm not sure about the specific regulations in my institution...' while another mentioned that 'There should be much clearer guidelines on the use of AI tools in writing assessments'. This shows that there is a lack of clarity on regulations regarding AI and its usage in institutions. There were students who believed their institutions have gone with very strict measures in relation to regulating AI tools. On the other hand, most of the students were of the opinion that their institutions are not properly regulating AI use and that they (HEIs) need to give some space for technological development and innovation. There are students who are of the opinion that since tools like Turnitin are already available so institutions need to give some space to students and those who misuse it in any case will get caught. Responses also suggest that there are teachers who regulate AI use in line with the limited regulations available to them while in some places policies were properly available for regulating its use.

Since students had responded that their institutions had not regulated AI use, so some students also had a notion that HEIs need to adapt and accommodate themselves to the use of AI tools in a manner that they support students positively, while those who abuse are caught and dealt with according to their respective regulations. Some respondents wanted to keep the onus of governance and implementation of AI usage on institutions as well as governments.

As artificial intelligence in the academic field concerns students as well as teachers, it was deemed necessary that a question be asked as to how students wish AI to be regulated in their educational institutions. The question generated some interesting data regarding the use of AI in educational institutions and regulations put in place by the managements of these respective institutions. There were students who were of the opinion that they required clear guidelines on the use of AI. It came out that policies regulating AI were either nonexistent or ambiguous and were not clearly communicated and this was an area of concern amongst students. Students also wanted to have clear regulations demarcating academic and unacademic borders. Considering the benefits of AI tools, students also wanted some use of AI to be permitted but within academically accepted ranges for better learning experience.

There were students who were of the opinion that AI clearly enhances student learning while there were students who believed institutions need to block its use till it is fully established that the uses of AI have outweighed its misuse. As discussed above there were students who wanted a monitoring system where plagiarism gets checked

by AI tools and that students who do not have the appropriate skills and capacities do not get undue advantage by using these tools. Looking at the responses of this qualitative question and after thematically analyzing student responses, it can easily be gathered that there is some concern amongst students regarding the misuse of these platforms. The biggest being the fact that students having lesser level of capacities might come in a position of competition (grade wise) or might even overtake them.

5. Conclusion

Looking at the data wholistically, there are a few concerns which have emerged out of the study while some areas of satisfaction, in terms of students' understanding, have also come to the front. The following are the main areas of concern.

1. There are a good number of students who consider the use of AI in any form to be fair.
2. There are students who feel that if AI completely writes their assessments for them then that should be considered as fair.
3. There are also students who do not seem to have any issue with the lack of guidelines and regulations on the use of AI by institutions.

On the other hand, some positive aspects that emerged from the study are as under:

1. There are students who are concerned that weaker students might get better grades if their assessments do not get properly detected by plagiarism detection tools or if student work is not regulated by policies and regulations of institutions as well as the teaching faculty.
2. Another positive aspect that came out of the study was that a very healthy number of students understand that AI tools are not reliable/dependable, especially in terms of generating ideas which are properly sourced.
3. It should also be mentioned that there are students who feel that if AI tools are used for *structuring* assignments and *generating ideas* then that should be considered appropriate. This shows that there is an understanding amongst students that there are some good uses of AI for them which should be considered and allowed as fair for their studies.
4. Another positive aspect was that students feel that there is a lack of policies/regulations among institutions and that these should be put in place so as to plug the misuse of AI based platforms.

6. Recommendations

As mentioned earlier, AI is a fast-evolving field and there are multiple benefits with some areas of concern as well. Professionals dealing with teaching and learning have more concerns and thus are treading very carefully in allowing their institutions to use AI tools. In light of the data received and personal experiences, the following recommendations are provided with a view that these will let teachers, students and institutions gain some benefits of the use of AI and will curb its misuse as well.

- Institutions should work on creating specialized policies and regulations regarding AI, its uses and misuses, penalties and related regulations. Policies should be effectively disseminated via different channels and the understanding of the stakeholders concerned checked.
- There are quite a few benefits of using AI inside and outside the classroom. Students should be guided by institutions and teachers in a manner so as to reap the benefits of AI properly. There are areas where AI can be used for students' skills development, thus it is imperative that institutions allow the use of AI tools but should keep a monitoring check. The check should be pragmatic and with appropriate rationale rather than idealistic and impractical.
- It should also be added that students should not be allowed to take undue advantage of these tools.
- Institutions where no plagiarism detection software is used, need to invest in it for teaching and guiding students and giving them a clear understanding of acceptable academic standards and ethical practices.
- Sessions should be conducted to properly educate the student community on how and how much AI to use and in which manners.
- Staff should be given proper training in using AI and should be kept up to date with the new updates in the field which may affect them, students and student performance.
- Penalties should be thoroughly discussed, if possible benchmarked, rationalized and should be proportionate with the offence. A clear line of communication on penalties, logic/reason, their range and

type will help create an atmosphere of trust.

- A collaborative and participative mode of engagement should be used by institutions in which all stakeholders should be brought in for pooling ideas for future decision making.

Avenues for Future research

Since AI is a fast-evolving field with new developments rolling out on a regular basis, thus it is felt that further and continuous research is required especially in finding ways for using AI technology in ethical ways which will enhance students learning.

Acknowledgments

The authors would like to express their appreciation to Oman Tourism College for providing utmost assistance and motivation for completing this study. This endeavor would not also be successful without the respondents' voluntary and active participation in answering the questions of the survey, especially the open-ended questions which required focus and time to obtain valuable inputs.

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