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Ethics and Privacy in Irish Higher Education: A Comprehensive Study of Artificial Intelligence (AI) Tools Implementation at University of Limerick

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Abstract: *This research paper presents an insightful investigation into the perceptions and ethical considerations of students regarding the use of Artificial Intelligence (AI) tools in academia, particularly focusing on the University of Limerick in Ireland. Herein, AI tools like OpenAI's ChatGPT have emerged as valuable assets in promoting interactive learning and enhancing student engagement. Thus, this research aimed to explore the privacy and ethical considerations students have regarding the use of AI tools in education. Using a quantitative methodological approach, the study solicited the attitudes, opinions, and patterns of students towards AI utilities. The study revealed intriguing perspectives on data privacy concerns associated with AI tools. Students from technology and science-focused schools displayed a higher degree of concern, suggesting their deeper understanding of potential privacy implications. Conversely, students from arts, humanities, and social sciences, and law politics & public administration displayed slightly lower levels of concern.*

Key Words: Artificial Intelligence, Ethical Considerations, Privacy Concerns, ChatGPT, University of Limerick

Introduction

The advent of Artificial Intelligence (AI) has reformed numerous sectors, including education, where AI tools like OpenAI's ChatGPT are becoming increasingly prevalent (OpenAI, 2020). ChatGPT, an advanced variant of the GPT series developed by OpenAI, is a language model AI that uses machine learning algorithms to generate human-like text based on the input it receives. It can understand the context of a conversation, provide relevant responses, and even generate creative content, making it a valuable tool for interactive learning (Radford et al., 2019).

The use of AI tools like ChatGPT in education provides numerous benefits. They can offer personalized learning experiences, provide instant feedback, enhance student engagement, and even address the issue of large classroom sizes by offering individualized attention (Luckin et al., 2016). These tools can also provide 24/7 learning support, thus breaking the barriers of time and place in education (Baker et al., 2019).

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Despite the potential benefits of AI in education, its effective implementation is contingent on students' acceptance and perceptions of these technologies (Bicen & Kocakoyun, 2018). The perception of students towards AI tools in education is crucial as it can directly impact their learning engagement and outcomes. They are the primary stakeholders in the learning process, and their acceptance or rejection of such tools can significantly influence the success of AI implementation in the learning environment.

Artificial Intelligence (AI) has emerged as a transformative technology, revolutionizing various industries, including education. This essay aims to explore the implications of AI on higher education in Ireland. Through the lens of the Harvard referencing style, this essay will provide original in-text citations and a reference list to support the arguments presented.

AI in Higher Education focusing University of Limerick

The paradigm of higher education is witnessing a transformative shift with the advent of Artificial Intelligence (AI), with institutions such as the University of Limerick being at the forefront of this evolution. This discourse aims to illuminate the various dimensions of AI's application within the higher education framework, particularly in enhancing the student learning experience.

To commence, one of the most significant influences of AI within education can be perceived in its potential to offer personalized learning paths. In essence, AI employs sophisticated machine learning algorithms to discern unique learning patterns of students and adapts its pedagogical strategies in accordance with these patterns (Johnson et al., 2021). The adoption of this adaptive, personalized learning approach allows educators to focus on individual strengths and weaknesses, contributing to a more efficient learning process. Moreover, the promise of a learning experience tailored to individual needs fosters greater student engagement, thereby leading to augmented learning outcomes (Johnson et al., 2021).

Simultaneously, AI's capacity to provide real-time feedback constitutes a noteworthy shift from conventional teaching methodologies. The immediacy of this feedback mechanism nurtures an active learning environment and bolsters student engagement, thereby improving overall comprehension and knowledge retention (Johnson et al., 2021). In addition, the objectivity inherent in AI-based feedback, unencumbered by human bias, empowers students to learn and evolve from a truly equitable assessment of their performance(Khan & Irfan, 2023).

In a similar vein, the adoption of AI technologies in the form of tools like ChatGPT affords students the luxury of uninterrupted learning support, unrestricted by temporal or geographical boundaries (Johnson et al., 2021). Students can have their queries addressed and receive explanations in an instant, thus creating a learning environment that is conducive to independent study and continuous growth(Nisa & Yousafzai, 2021).

Furthermore, the vexing issue of large classroom sizes in higher education, which often precludes educators from providing individual attention to each student, finds a possible solution in AI (Luckin et al., 2016). AI tools such as ChatGPT, equipped with the capability to offer individualized responses and feedback, can augment the role of educators, ensuring each student receives the necessary attention, irrespective of class size. The facilitation of one-on-one interaction within such large classroom settings effectively emulates a personalized learning environment, thereby significantly enhancing the overall learning experience.

Conclusively, the transformative potential of AI, evident in its capacity to provide personalized learning experiences, instant feedback, and continuous learning support, and effectively address the issue of large classroom sizes, heralds an optimistic future for higher education. However, the benefits of AI, while significant, warrant further exploration to optimize their potential and address any attendant challenges. The broad and varied impact of AI on the student learning experience, particularly as evidenced in the University of Limerick, underscores its significant role in shaping the future of higher education.

Literature review

Artificial Intelligence (AI) has emerged as a transformative force in higher education, offering a myriad of possibilities to enhance teaching and learning experiences (Luckin et al., 2016). AI's

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ability to provide personalized learning experiences, particularly through adaptive learning systems, tailors education to individual student needs, thereby enhancing their engagement and learning outcomes (Wu et al., 2020). This individualized approach addresses the challenges associated with large class sizes in higher education, such as the lack of personalized attention (Baker et al., 2019). Moreover, AI-driven analytics can help institutions make data-driven decisions, improving their operational efficiency and strategic planning (Graesser et al., 2018).

Ethical Considerations

The advent of Artificial Intelligence (AI) in higher education, marked by remarkable progress and innovation, presents new ethical challenges. One institution navigating these new realities is the University of Limerick, a pioneer in integrating AI into its educational landscape.

At the heart of these ethical considerations lie two fundamental principles - transparency and accountability - both of which are vital in the context of AI algorithms. AI's transformative potential in higher education can only be fully realised when the underlying algorithms that drive AI applications uphold these principles(Zahid & Irfan 2021). Ensuring transparency and accountability mitigates the risk of inherent bias and promotes fairness within the educational system (Davis, 2020). As AI systems increasingly shape the learning environment, we must ensure they do so equitably, without perpetuating discriminatory practices or reinforcing harmful stereotypes.

Institutions, particularly forward-thinking ones such as the University of Limerick, bear the responsibility of establishing comprehensive guidelines and robust ethical frameworks that govern the use of AI. Such guidelines and frameworks are instrumental in anticipating and addressing potential risks associated with AI applications in education (O'Brien, 2023).

These guidelines should provide clear directives on AI deployment, ensuring that its use is anchored in ethical practice. An ethical framework should not only address issues related to data privacy and informed consent but also focus on algorithmic fairness and diversity in the AI-driven educational environment.

It's critical that the entire University community, including administrators, educators, and students, are actively engaged in the development of these guidelines and ethical frameworks(Irfan & Liam 2023). Their insights, drawn from their varied experiences and interactions with AI, will ensure the resulting guidelines are pragmatic, robust, and responsive to the needs of those most directly impacted by AI in education.

As the University of Limerick would continue to integrate AI into its pedagogical practice, it must concurrently navigate the ethical challenges that this integration presents. By doing so, it will ensure AI not only enhances learning but also respects and upholds the foundational values of fairness, equity, and individual autonomy(Irfan, 2022, p. 106).

Artificial Intelligence (AI) holds immense potential to reshape the dynamics of higher education in institutions such as the University of Limerick. However, the successful incorporation of AI tools in the learning process is contingent upon a multitude of factors, including its ethical implications, potential adoption barriers, and notably, students' perceptions.

Students' perceptions towards AI in education serve as a significant determinant of their engagement level and learning outcomes. Their acceptance or rejection of AI technologies can notably influence the effectiveness of these technologies within the learning environment (Bicen and Kocakoyun, 2018). The University of Limerick, like other institutions venturing into the AI education landscape, needs to be cognizant of these factors.

Building on the Technology Acceptance Model (TAM), Davis (1989) underscored the importance of perceived usefulness and ease of use as pivotal determinants of technology acceptance. Applied to the context of AI in education, if students perceive AI tools as beneficial to their learning experience and outcomes, their engagement with these tools would likely increase. Similarly, students' perception of AI as user-friendly can promote their acceptance of this technology (Bicen and Kocakoyun, 2018).

Moreover, students' perceptions towards AI have a direct bearing on their learning engagement and outcomes. Favourable

perceptions about the utility and effectiveness of AI can foster a more active learning environment, contributing to improved learning outcomes (Bicen and Kocakoyun, 2018). On the contrary, negative perceptions can adversely affect their engagement levels and ultimately their learning outcomes(Irfan & Liam, 2023).

The success of AI implementation within higher education, and more specifically at the University of Limerick, is inextricably linked with students' acceptance or rejection of AI tools. If students harbour a positive perception and demonstrate a willingness to engage with these tools, the prospects of successful AI integration within the curriculum can significantly increase (Bicen and Kocakoyun, 2018). However, rejection from students can impede successful AI integration, regardless of the quality or potential benefits of the AI tools in question(Irfan & Liam 2023).

Given the fundamental role of students' perceptions, continuous evaluation and feedback mechanisms are essential(. Regular assessment of students' attitudes towards AI, coupled with addressing their concerns and misconceptions, can guide the enhancement of AI tools. Such feedback can be instrumental in tailoring AI tools to be more user-friendly and beneficial for learning (Bicen and Kocakoyun, 2018).

In summary, understanding students' perceptions towards AI is a vital consideration for the successful implementation and effective use of AI in higher education. The potential impact of these perceptions on the acceptance of AI technologies, learning engagement, and outcomes necessitates regular evaluation and feedback(Irfan et.al, 2021). By doing so, institutions like the University of Limerick can ensure the continuous improvement and successful integration of AI tools in the learning environment(Irfan, Liam & Sajjad, 2023).

Research Questions:

RQ1: What Privacy concerns do students have regarding the use of AI tools in education at the University of Limerick?

RQ2: What ethical considerations do students have regarding the use of AI tools in education at the University of Limerick?

Aims and Objectives

- To explore the understanding of students regarding privacy issues in AI Tools in education at the University of Limerick.
- To understand what ethical considerations students at the University of Limerick have regarding the use of AI tools in education.

Methodology

In an effort to ascertain the perspective of students at the University of Limerick in the Republic of Ireland regarding the intricate matters of privacy implications and ethical dilemmas surrounding artificial intelligence (AI), a quantitative research methodology was meticulously adopted. The application of this method proved instrumental in the discernment of prevailing attitudes, identifiable patterns, and concrete opinions held by students towards the utilities of AI.

The methodological choice of quantitative research, grounded in positivist epistemology, allowed for the collection of empirical data, quantifiable in terms of the number of respondents and the scope of their perceptions. This empiricism facilitated a nuanced understanding of student experiences, attitudes, and concerns about AI privacy and ethical quandaries. A structured survey questionnaire was crafted and utilized as the primary instrument for data collection. The questionnaire was methodically curated to capture relevant insights for the research questions. It was composed of items aimed at ascertaining a range of responses, from students' fundamental knowledge of AI to their first-hand experiences and concerns associated with privacy issues and ethical challenges involving AI.

In order to study how students at the University of Limerick in the Republic of Ireland perceive privacy issues with artificial intelligence (AI) and ethical concerns, the research used a quantitative methodological approach. This method assisted in identifying the attitudes, patterns, and opinions of the students towards AI utilities. A survey questionnaire was employed as the data collecting tool, and it was carefully created to answer the study questions. The questions were designed to elicit information about the students' knowledge of AI, their experience with AI privacy, and any ethical issues.

The questionnaire was distributed among 120 students from different departments by simple random sampling technique, and 93 students responded. In order to adequately describe, present, or summarise the data, descriptive statistics analysis was employed as the method of data analysis in this study.

Findings

Table 1

University of Limerick Students Concerned about Data Privacy & AI Tools.

the level of concern about data privacy issues associated with the use of AI tools like Chat GPT

Not concerned at all (1) | Slightly concerned (2) | Moderately concerned (3) | Very concerned (4) | Extremely concerned (5) | Total

	Not concerned at all (1)	Slightly concerned (2)	Moderately concerned (3)	Very concerned (4)	Extremely concerned (5)	Total
School of Law Politics & Public Administration	0	2	0	0	0	2
School of Modern Languages & Applied Linguistics	1	0	1	0	0	2
School of English, Irish, and Communication	0	1	1	0	0	2
School of Medicine Nursing and Midwifery	0	1	2	2	3	8
Physical Education and Sport Sciences	1	1	1	0	1	4
School of Education School of Allied Health Psychology	1	1	2	2	3	9
Management & Marketing	1	0	1	1	0	3
Computer Science & Information Systems	1	1	3	6	5	16
Electronic & Computer Engineering	1	1	3	5	5	15
Mathematics & Statistics	1	0	3	3	3	10
School of Engineering	1	1	2	5	4	13
School of Design	0	1	0	1	0	2
School of Natural Sciences	1	1	2	2	3	9
Irish World Academy of Music & Dance	0	1	1	0	0	2

This survey data presents an interesting perspective on data privacy concerns associated with AI tools. It's notable that students in technology and science-focused schools, like Computer Science & Information Systems and Electronic & Computer Engineering, show a higher degree of concern ("Very concerned" and "Extremely concerned"). This could be attributed to these students having a more in-depth understanding of the potential privacy implications of AI tools.

Conversely, schools centred on arts, humanities, and social sciences displayed slightly lower levels of concern. However, there's still a noticeable number of students who are "Moderately concerned", indicating a pervasive awareness of data privacy issues.

Interestingly, the School of Law Politics & Public Administration has a low level of concern, which might be due to their understanding of legal safeguards in place.

The data suggests that while there's a general awareness of potential data privacy issues with AI tools, the depth of concern varies and seems to correlate with the nature of the academic discipline. This reinforces the need for comprehensive education about data privacy across all fields, ensuring students are informed and able to navigate these concerns.

Table 2

The importance of Accuracy about AI tools among students of University of Limerick.

How important do you think is the improvement of accuracy for Chat GPT to better support your educational needs

Total | Extremely important (5) | Very important (4) | Moderately important (3) | Slightly important (2) | Not important at all (1)

	Total	Extremely important (5)	Very important (4)	Moderately important (3)	Slightly important (2)	Not important at all (1)
School of Law Politics & Public Administration	1	0	0	0	0	1
School of Modern Languages & Applied Linguistics	2	0	0	1	0	1
School of English, Irish, and Communication	2	0	1	0	0	1
School of Medicine Nursing and Midwifery	7	3	3	0	1	0
Physical Education and Sport Sciences	4	1	2	1	0	0
School of Education School of Allied Health Psychology	8	2	4	2	0	0
Management & Marketing	3	1	0	1	0	1
Computer Science & Information Systems	16	8	7	1	0	0
Electronic & Computer Engineering	14	7	7	0	0	0
Mathematics & Statistics	11	6	4	1	0	0
School of Engineering	13	7	6	0	0	0
School of Design	2	0	1	0	0	1
School of Natural Sciences	9	4	4	1	0	0
Irish World Academy of Music & Dance	2	1	0	0	0	1

Analyzing this data, we see a clear trend indicating that the improvement of accuracy for Chat GPT is deemed very important, especially among students in the scientific and technological fields such as Computer Science & Information Systems, Electronic & Computer Engineering, Mathematics & Statistics, and School of Engineering.

Interestingly, students from the School of Medicine Nursing and Midwifery, and the School of Education School of Allied Health Psychology also rated the importance of accuracy quite highly. This suggests that irrespective of their field, students understand the significance of accuracy in AI tools for their educational support.

In contrast, schools focusing on arts, humanities, and social sciences showed a less significant emphasis on the improvement of accuracy. This could be attributed to the nature of their studies, which often involve subjective analysis and interpretation.

the data illustrates a general consensus on the high importance of improving the accuracy of AI tools like Chat GPT across all disciplines. It suggests that advancements in this aspect would be beneficial in enhancing the educational experiences of students.

Table 3

The ethical concerns among the students of University of Limerick about the usage of AI tools.

How concerned are you with the ethical implications of using AI tools in education?

Total | Extremely concerned (5) | Very concerned (4) | Moderately concerned (3) | Slightly concerned (2) | Not concerned at all (1)

	Total	Extremely concerned (5)	Very concerned (4)	Moderately concerned (3)	Slightly concerned (2)	Not concerned at all (1)
School of Law Politics & Public Administration	2	2	0	0	0	0
School of Modern Languages & Applied Linguistics	2	0	0	1	1	0
School of English, Irish, and Communication	1	0	0	0	0	1
School of Medicine Nursing and Midwifery	7	3	2	0	2	0
Physical Education and Sport Sciences	4	0	2	1	1	0
School of Education School of Allied Health Psychology	8	2	3	3	0	0
Management & Marketing	3	1	0	1	0	1
Computer Science & Information Systems	16	6	6	4	0	0
Electronic & Computer Engineering	14	7	7	0	0	0
Mathematics & Statistics	11	6	3	2	0	0
School of Engineering	13	7	5	1	0	0
School of Design	2	0	1	0	0	1
School of Natural Sciences	9	4	3	2	0	0
Irish World Academy of Music & Dance	2	1	0	0	1	0

Upon analysis, students from schools with a focus on technology and science, such as Computer Science & Information Systems, Electronic & Computer Engineering, Mathematics & Statistics, and the School of Engineering, are significantly concerned about the ethical implications of using AI tools in education. This concern is possibly due to their understanding and awareness of the potential risks and challenges that AI can present in terms of ethics.

Students from the School of Medicine Nursing and Midwifery, and School of Education School of Allied Health Psychology also show substantial concern, which could be attributed to their fields' emphasis on ethical practice and consideration.

In contrast, schools concentrating on arts, humanities, and social sciences show a relatively lower level of concern. However, the School of Law Politics & Public Administration stands out with all its students being extremely concerned, reflecting the nature of their studies which inherently involve a strong focus on ethical considerations.

while the level of concern varies, the data indicate a general awareness and concern about the ethical implications of AI use in education across all disciplines. It highlights the need for ongoing.

Conclusion and implication of this research

The research provides valuable insights into students' perspectives on privacy, accuracy, and ethical implications surrounding the use of AI

tools in the context of the University of Limerick. A notable trend indicates a varying degree of concern towards data privacy correlated with the nature of the academic discipline. Students from technological and science-focused schools exhibit higher levels of apprehension, presumably due to a comprehensive understanding of the inherent risks in AI technology. Yet, an overarching awareness of data privacy across all fields is clearly discernible.

The implications of these findings are manifold. The heightened awareness of privacy issues suggests a pressing need for the adoption of comprehensive privacy protection protocols for AI usage, irrespective of discipline. Furthermore, this data validates the requirement for an inclusive, multi-disciplinary educational approach towards AI and data privacy, thereby empowering students across all fields with the necessary knowledge to navigate this landscape.

Regarding AI tools' accuracy, students across all disciplines underscore its significance, albeit with varying degrees. The importance attached to accuracy reflects the reliance on these tools for educational support. The lower emphasis on the arts, humanities, and social sciences could be attributed to the subjective nature of these fields, yet there is consensus on the necessity of accurate AI tools. This highlights the imperative for continuous improvement of AI technologies. Emphasis on accuracy will enhance students' educational experiences and build trust in these tools, thus encouraging broader adoption. It underlines the necessity for the collaborative efforts of AI developers, educators, and users in refining these tools, emphasizing the critical aspect of accuracy. Ethical concerns regarding AI usage are also prevalent among students. While there is a general concern across disciplines, students from fields like Law, Politics & Public Administration, and technological and scientific schools, exhibit substantial apprehension, reflective of their respective study's emphasis on ethical considerations. The breadth of concern accentuates the importance of integrating ethical considerations in the development and application of AI tools. It also underscores the need for rigorous ethical guidelines and regulations surrounding AI usage in educational settings. Importantly, it emphasizes the necessity for ongoing ethical education to better equip students to confront potential ethical dilemmas in the evolving AI landscape. these findings reflect a growing recognition of AI's complexity within the educational community. They underscore the importance of a multifaceted approach in handling the associated privacy, accuracy, and ethical issues, emphasizing the necessity of collaborative efforts between technologists, educators, and policymakers.

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