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Analysis of Artificial Intelligence Adaptation in Students of Kurdish Universities

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Abstract

The accelerated expansion of Artificial Intelligence (AI) in higher education presents students with challenges and opportunities. This study assesses the degree of adaptation to artificial intelligence among Kurdish university students regarding privacy concerns, perceived ease of use and usefulness, and institutional support. The methodology relied on a quantitative approach, and instruments were utilized to collect data for the study. The participants were Kurdish university students enrolled in academic and research programs at an institution implementing AI. Regarding the adaptation of artificial intelligence, the results of this study indicate a positive correlation between privacy concerns, perceived ease of use and utility, and institutional support among university students. Adaptation of artificial intelligence in the educational context is a complex and multifaceted topic that presents challenges and opportunities for university students in Kurdistan. Still, it could be achieved by maintaining privacy and receiving institutional support.

Keywords: *Artificial intelligence, privacy concerns, perceived ease of use, institutional support, Kurdish university*

Introduction

The rapid development of artificial intelligence (AI) has left an indelible impression on modern society, influencing a wide range of sectors, from the economy to education. The advent of AI in academia, especially in higher education, has ushered in a new era in which university students must acclimate to these emerging technologies to remain competitive in the job market. In terms of educational policies, it is crucial for nations to devise strategies for the integration of AI into the educational system and the development of relevant skills in students (Schneider & Leyer, 2019; Tegmark, 2018). In Peru, initiatives such as the National Digital Transformation Strategy and the National Plan for Science, Technology, and Technological Innovation have been implemented to promote the implementation of emerging technologies

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such as artificial intelligence in the educational sector. (Chatterjee & Bhattacharjee, 2020); Urrunaga-Pastor et al. (2020). Changing attitudes and perspectives about technology are also required for university students to acclimate to AI. Students must develop a growth mindset to address ethical issues and obstacles associated with AI, such as privacy, equity, and algorithmic decision-making (Arrieta et al., 2020; Yang, Ji, & Tan, 2022).

In 2006, the Kurdish University was established. The Kurdish University is Iraq's only independent, English-medium, public university. The Kurdistan regional administration administers the university. The university is exerting its utmost efforts to implement contemporary technology. The university offers a variety of Artificial intelligence (AI)-related courses. AI is taught to high school graduates. In addition, the Kurdish university is committed to technological advancement to provide students with the finest and most contemporary education. While adopting AI, the university should consider the factors that lead to adoption success or failure when a technological change has introduced elements such as the technology's ease or difficulty of use, its utility for the institution, and, most importantly, its privacy security level. Suppose the adopted technology, i.e., AI, is useful for academics, easy to use for students and teachers, and protects the privacy of teachers and students. In that case, there is a good possibility of a successful adoption at the Kurdish university. Keeping these factors in mind, this study aimed to investigate this relationship.

There is a great deal of literature on adopting AI, but there are still several gaps in the literature which the present investigation seeks to fill. These gaps include 1) the equation based on factors such as the adoption of artificial intelligence, perceived usefulness in academics, perceived ease of use in academics, privacy level, and institutional support in Kurdish universities has not been tested in recent years, 2) Liu and Cavanaugh (2012); Rincón-Flores et al. (2020) investigated whether there is a relationship between the adoption of technology and its usefulness in academics. Using a new sample set, the current study will also investigate this question, along with other variables such as perceived ease of use in academics and privacy level in Kurdish universities. 3) Al-Abdullatif and Gameil (2021); Rodríguez-Hernández et al. (2021) investigated whether there is a relationship between perceived ease of use in academics and adoption of technology, i.e., artificial intelligence; however, the present study will also work on it along with other variables such as perceived usefulness in academics and privacy level in Kurdish universities with a new sample set. 4) Nuseir, Aljumah, and El Refae (2022) investigated the moderating role of institutional support with different variables at different times; however, the current study will also investigate the moderating role of institutional support in the relationship between artificial intelligence and perceived usefulness in academics and perceived ease of use in academics and privacy level in Kurdish universities. The current investigation is of considerable importance. 1) The development of relevant skills and abilities for functioning in an ever-changing technological environment is a crucial factor in facilitating the adoption of AI by Kurdish university students. Adopting technical skills, such as programming and data analysis, as well as soft skills, such as adaptability, critical thinking, and the ability to engage in lifelong learning, is a component. 2) AI adoption, particularly among Kurdish university students, is one of the most significant topics of the modern era. This study will emphasize the need to investigate it, especially in the context of Kurdish universities. 2) Although there is a great deal of literature on the adoption of AI, the present study will contribute to the literature on the topic in the context of Kurdish University students; and 3) The present study will provide a guideline as well as assistance to the

technology, i.e., AI adoption related professionals, to review and provide the support for upgrading the policies with the goal of successful adoption of AI among the Kurdish university students.

Literature Review

The adoption of modern-day technology has become a necessity of our time to familiarize future generations with the present (Shi, Gong, & Gursoy, 2021; Song et al., 2022). AI is the most advanced technology currently available. Luckin et al. (2016) analyzed the impact of AI on education and its potential to transform how students learn and educators teach in this context. The authors argued that AI could provide opportunities for more personalized learning and increase the efficacy of student evaluation and progress monitoring. In addition, they emphasized the significance of teaching students digital skills and adaptability for navigating a world increasingly influenced by AI. The relationship between teachers and pupils in the context of understanding determines the students' performance. Therefore, students' performance is based on their level of comprehension.

Regarding the technology utilized in the educational system, students and instructors must be on the same page. If both parties are conversant with the technology used in the education system, their relationship will improve. In this context, Rincón-Flores et al. (2020) examined whether or not there is a correlation between the adoption of AI and the performance of both students and teachers. The investigation was conducted with Australian, American, and Indian students. The research is empirical. The results of the study indicated that 1) the general picture of the student's performance upon adoption of AI in universities was significantly positive; 2) in the context of students, the adoption makes it easier for them to comprehend their concepts; 3) for teachers, it also becomes easier to deliver their knowledge more effectively to improve their performance; and 4) the adoption of AI is beneficial for both students and teachers. Several factors impact students' performance at all levels in the modern era. Liu and Cavanaugh (2012) investigated whether there is a correlation between the adoption of artificial intelligence by high school pupils, specifically in online classes, and their algebra scores. It was administered in the United States. The investigation is empirical. The sample for the research was the school data from 2001. The sample data span the years 2007 and 2008. The study employed SPSS2 and regression analysis for analysis. The research results suggested that implementing the technology, i.e., AI, improves student performance, indicating that adopting technology is perceived as beneficial by students. Thus, the hypothesis derived from the preceding discussion is as follows.

H1: *There is a significant nexus between perceived usefulness in Academics and the Adoption of Artificial Intelligence.*

Usability is one of the most influential factors in any transformation. Alhashmi, Salloum, and Abdallah (2019); Bag et al. (2021) state that adoption failure is caused by any factor that impedes usage during adoption. The same holds for technology. Any technology that is challenging to use will result in inadequate performance. In this context, Popenici and Kerr (2017) analyzed the ethical implications of artificial intelligence in various disciplines, including education. The authors suggested that incorporating AI in higher education could present ethical dilemmas and challenges regarding student privacy, algorithmic decision-making, and access to educational resources. Usability is one of the most influential factors in any transformation. Adoption fails if any factor contributing to usage-related adoption difficulties is present. The same holds for technology. Any technology that is challenging to use will result in inadequate performance.

In this context, Al-Abdullatif and Gameil (2021) examined whether the implementation of modern technology, i.e., AI, influences students' academic performance. The investigation is empirical. As a sample, the study utilized the educational records of 185 undergraduate students. Using questionnaires, the sample information was gathered. For analysis, the investigation utilized SEM analysis. The analysis results indicated that the implementation of technology, i.e., the technology accepting paradigm, improves students' performance. In addition, the simple application of technology facilitates students' comprehension, enhancing performance.

Furthermore, adopting technology indicates the perceived simplicity of use for academic performance. Similarly, Rodríguez-Hernández et al. (2021) examined whether there is a correlation between adopting technology, specifically artificial intelligence, and students' performance. The research was performed in Colombia. The investigation is empirical. As a sample, the study utilized the information of 162030 students. For analysis, the study used regression analysis. The research results indicated that implementing the technology, i.e., AI, to analyze students' academic performance yields an accurate analysis. Therefore, one of the reasons for academic success is the simplicity of use. Thus, the hypothesis derived from the preceding discussion is as follows.

H2: *There is a significant nexus between perceived ease of use in academics and the adoption of artificial intelligence.*

Privacy is one of the most critical factors that humans avoid compromising. In both personal and private existence, privacy is a crucial factor. The same holds for students, particularly university students. During their education, they exclusively favor those technologies that protect their privacy. In this context, Mishra and Mehta (2017) analyzed the impact of artificial intelligence on the labor market and the skills needed to flourish in this new environment. The authors emphasized technical skills, such as programming and data analysis, and soft skills, such as adaptability, critical thinking, and the capacity for continuous learning. This study highlights the need for college students to develop diverse skills to adapt to a world that is continuously changing due to artificial intelligence.

Similarly, Martín-Valero et al. (2021) examined the utility of online courses in terms of technology adoption to improve student performance. The primary focus of the study was undergraduate empathy. The investigation is empirical. The sample for the research consisted of 381 undergraduate students. Using questionnaires, the sample information was gathered. For analysis, the study utilized SEM analysis. The analysis results indicate that adopting technology is significantly more beneficial for students' academic performance, as it also improves their privacy and health. The advancement of technology has had an impact on all facets of existence. Technology is essential to social life, academic life, and business life. It is also communicating its benefits to human existence. In this context, Bendechache et al. (2021) investigated the role of artificial intelligence in the life, ethics, and privacy of 15- to 16-year-old children. The investigation is empirical. The findings suggested that the incorporation of modern technology, namely AI, has a significant impact on the lives of children. Additionally, it results in protecting their privacy and influencing their principles. Thus, the hypothesis derived from the preceding discussion is as follows.

H3: *There is a significant nexus between privacy level and the adoption of artificial intelligence.*

The institution is ultimately liable for the academic performance of its students because the institution provides the environment, facilities, and opportunities that improve the student's

academic performance is the institution's responsibility to adopt such modern technology that will benefit the students. Therefore, educational institutions can modulate the relationship between technology adoption and utility. Therefore, Lukman et al. (2021) investigated whether institutional support can moderate students' entrepreneurial intentions. The investigation took place in Ghana. The research is empirical. The sample for the study consisted of 332 respondents. Utilizing questionnaires, the desired information was gathered. The investigation revealed that institutional support is a significant moderator of students' entrepreneurial intentions. Thus, the hypothesis derived from the preceding discussion is as follows.

H4: *Institutional support significantly moderates the nexus between perceived usefulness in academics and the adoption of artificial intelligence.*

Attending an institution is ultimately responsible for the academic success of students. The environment, resources, and opportunities colleges and universities provide improve students' academic performance. Along with time, institutions are also evolving. The institutions are implementing technology from the modern era. If the institution adopted only user-friendly technology, then student performance would improve. Therefore, the relationship between technology adoption and usability in academia can be moderated by institutional support. In this context, Falola et al. (2018) examined whether institutional support can moderate the relationship between faculty commitment and job effectiveness. The investigation took place in Nigeria. The research is empirical. As a sample, the study utilized the information of 1912 faculty members. Using questionnaires, the desired information was gathered. The investigation revealed that institutional support significantly moderates the relationship between faculty commitment and job performance. Thus, the hypothesis derived from the preceding discussion is as follows.

H5: *Institutional support significantly moderates the nexus between perceived ease of use in academics and the adoption of artificial intelligence.*

Student's academic performance is influenced by various factors, including the quality of education provided by the institution and the competence of the faculty. As institutions are also liable for students' mental health in the form of privacy, the student's health is also associated with the institution's role. Institutions are also stewards of student confidentiality. Therefore, the institution should employ technological innovations that do not compromise student privacy. Institutional assistance can moderate the relationship between privacy and technology adoption. In light of this, Nuseir et al. (2022) investigated whether institutional support can moderate the effect of E, M, and D learning. In UAE, the investigation was conducted. The research is empirical. As a sample, the study utilized the information of 350 members. Using questionnaires, the desired information was gathered. According to the investigation's findings, institutional support moderates the effect of E, M, and D learning significantly. Thus, the hypothesis derived from the preceding discussion is as follows.

H6: *Institutional support significantly moderates the nexus between privacy level and the adoption of artificial intelligence.*

Research Methods

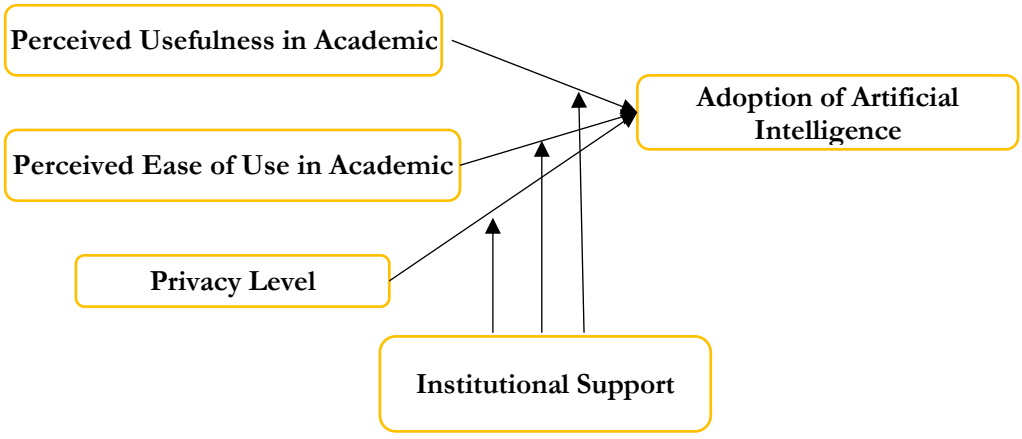
This study employed a quantitative methodology to gain a deeper and more comprehensive comprehension of the adaptation of Kurdish university students to artificial intelligence. The quantitative method will assess students' AI-related abilities, attitudes, and perceptions. The study

population will comprise thirty-five Kurdish university students enrolled in academic and research programs at an institution implementing AI. Students from various faculties and educational levels will be selected proportionally and stratified to guarantee a broad representation of academic disciplines and contexts. A suitable statistical formula will be used to determine the sample size, taking into account a confidence level of 95% and an error margin of 5%.

The selected students were given an online survey to acquire quantitative data. The survey included closed-ended questions regarding technical and informal skills related to AI, attitudes, and perceptions of AI, and difficulties and opportunities in adapting to AI at a Kurdish university. The survey's arithmetic mean results will range from 1 to 5, with 1 representing the lowest value and 5 representing the highest. Respect for autonomy, beneficence, non-maleficence, and justice was among the fundamental ethical principles that were adhered to during the research's execution. Participants' anonymity and confidentiality were assured, and they were informed of the research's objectives, methods, risks, and future benefits. All participants provided informed consent before participating in the surveys.

This study assesses the degree of adaptation to artificial intelligence among Kurdish university students regarding privacy concerns, perceived ease of use and usefulness, and institutional support. Privacy level (PL) was measured with five questions (Chatterjee et al., 2021), perceived ease of use in academics (PEUA) was measured with six items (Wilson, 2019), and perceived usefulness in academics (PUA) was measured with six items (Wilson, 2019). In addition, one moderating variable called institutional support (IS) was measured with eight queries (Howard et al., 2021), and the adoption of artificial intelligence (AAI) was measured with five items (Damerji & Salimi, 2021). Figure 1 contains a listing of these variables.

Figure 1: Theoretical model



Research Findings

In this study, the relationship between the constructs was investigated. The results indicated that the average variance extracted (AVE) values exceeded 0.50, the composite reliability (CR) values exceeded 0.70, and the factor loading values exceeded 0.50. In addition, the CR values revealed a statistically significant positive relationship between the constructs. This data indicates a strong relationship between the numerous components. The values are displayed in Table 1.

Table 1: Convergent validity

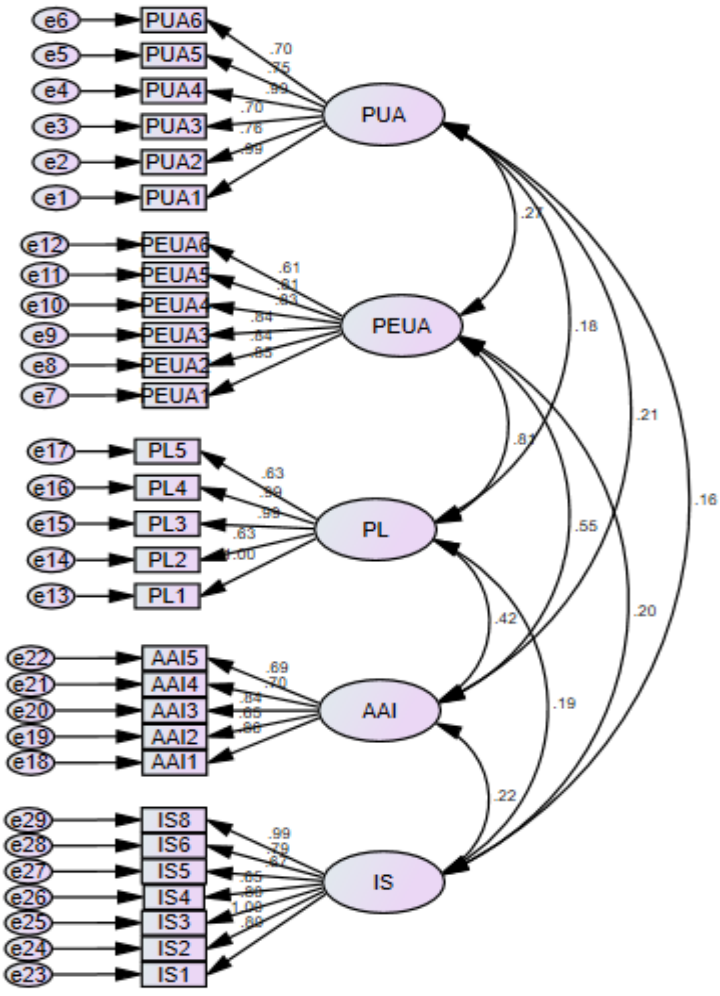
Items and Constructs			Loadings	CR	AVE	MSV	ASV
PUA1	<---	PUA	0.993	0.926	0.682	0.073	0.044
PUA2	<---	PUA	0.761				
PUA3	<---	PUA	0.705				
PUA4	<---	PUA	0.987				
PUA5	<---	PUA	0.752				
PUA6	<---	PUA	0.699				
PEUA1	<---	PEUA	0.847	0.914	0.641	0.458	0.268
PEUA2	<---	PEUA	0.842				
PEUA3	<---	PEUA	0.839				
PEUA4	<---	PEUA	0.830				
PEUA5	<---	PEUA	0.813				
PEUA6	<---	PEUA	0.606				
PL1	<---	PL	0.999	0.935	0.751	0.658	0.227
PL2	<---	PL	0.629				
PL3	<---	PL	0.994				
PL4	<---	PL	0.989				
PL5	<---	PL	0.629				
AAI1	<---	AAI	0.860	0.867	0.569	0.304	0.144
AAI2	<---	AAI	0.651				
AAI3	<---	AAI	0.843				
AAI4	<---	AAI	0.705				
AAI5	<---	AAI	0.689	0.935	0.680	0.050	0.038
IS1	<---	IS	0.800				
IS2	<---	IS	0.996				
IS3	<---	IS	0.802				
IS4	<---	IS	0.646				
IS5	<---	IS	0.672				
IS6	<---	IS	0.791				
IS8	<---	IS	0.994				

In addition, the correlation between the variables was investigated. Based on the Fornell Larcker criterion and cross-loadings, the values demonstrating the relationship between the variables are significantly greater than those showing the relationship between the variables and other constructs. The values are displayed in Table 2.

Table 2: Discriminant validity

	AAI	PUA	PEUA	PL	IS
AAI	0.754				
PUA	0.209	0.826			
PEUA	0.551	0.270	0.801		
PL	0.421	0.183	0.711	0.867	
IS	0.223	0.155	0.198	0.194	0.824

Figure 2: Measurement model assessment

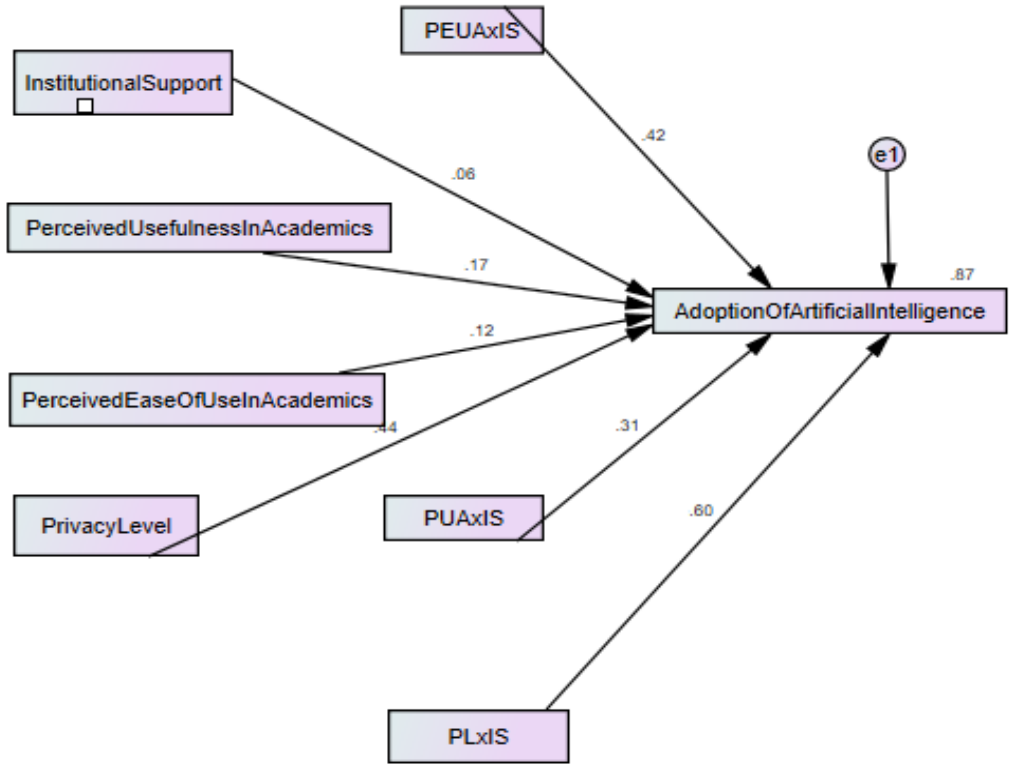


In conclusion, the path analysis revealed that the PUA, PEUA, and PL have positive associations with the adoption of IA among Kurdish university students and approve hypotheses H1, H2, and H3. In addition, the path analysis revealed that institutional support moderates the relationship between PUA, PEUA, PL, and the adoption of IA among Kurdish university students who approve H4, H5, and H6. The values are displayed in Table 3.

Table 3: A path analysis

Relationships			Beta	SE.	CR.	P
Adoption of Artificial Intelligence	<---	Institutional Support	0.146	0.051	2.846	0.004
Adoption of Artificial Intelligence	<---	Perceived Usefulness in Academics	0.325	0.041	7.876	0.000
Adoption of Artificial Intelligence	<---	Perceived Ease of Use in Academics	0.248	0.044	5.603	0.000
Adoption of Artificial Intelligence	<---	Privacy Level	0.804	0.038	21.105	0.000
Adoption of Artificial Intelligence	<---	PUA x IS	0.129	0.009	14.659	0.000
Adoption of Artificial Intelligence	<---	PL x IS	0.255	0.009	28.646	0.000
Adoption of Artificial Intelligence	<---	PEUA x IS	0.192	0.010	20.092	0.000

Figure 3: Structural model assessment



Discussions

The results of this study indicate several positive concerns among Kurdish university students regarding the implementation of artificial intelligence in the field of education. These findings support some of the information presented in the introduction and literature review, where similar factors, such as the perceived utility, privacy concerns, and usability of AI tools, were discussed (Caffaro et al., 2020; Rahman, 2019). In addition, these results provide a more detailed and contextualized comprehension of the specific concerns of Kurdish university students regarding the adaptation to AI compared to the existing literature. As AI adoption in Kurdish universities continues to develop, it is essential to address these challenges and ensure that students receive adequate support from the institution to take advantage of AI's opportunities (Chen & Aklikokou, 2020; Hassandoust, Akhlaghpour, & Johnston, 2021).

This investigation's limitations must be considered when interpreting the results. First, the methodology was based on interviews, which may be susceptible to self-reporting biases and may not capture the complete spectrum of student experiences and perspectives (Tahar et al., 2020). In addition, the sample of students may not be representative of all university settings in Kurdistan, which limits the generalizability of the results. In the future, it would be beneficial to conduct additional studies that address these limitations, utilizing complementary methods such as surveys and record analysis and exploring the experiences of students from diverse institutions and environments (Liao et al., 2019; Pal & Vanijja, 2020).

This study's theoretical ramifications include a greater understanding of Kurdish university students' difficulties in adapting to AI and how these difficulties can impact their academic performance and overall well-being. On a practical level, these findings can inform educators and university administrators in Kurdistan about areas where additional support is required, such as training in perceived usefulness, explicit communication of privacy policies, and perceived ease of adopting AI tools and resources. It also emphasizes the significance of preserving a balance between the use of AI and human interactions in the educational environment, which can improve students' overall experience and foster their long-term success in a world increasingly dominated by AI. However, it is essential to note that a study of this scope cannot exhaustively address all aspects and nuances of student concerns regarding the adaptation to AI in higher education. Therefore, future research must delve deeper into the identified issues and investigate other variables that may impact student experiences.

In addition, cultural diversity and contextual differences must be considered when addressing the adaptation of Kurdish university students to AI. Concerns regarding privacy and ethics, for instance, may vary depending on cultural norms and local regulations in various countries and regions. Similarly, strategies for addressing AI tools' perceived usefulness and usability may be more effective if they are tailored to the particular requirements and characteristics of student populations in various contexts. Future research could also consider the impact of motivation and self-efficacy in adapting education to AI. For instance, students with greater confidence in their ability to learn and implement new technologies may have fewer difficulties adapting to AI in the educational setting. In addition, institutional support and encouragement from instructors and peers may be crucial for university students' successful adaptation to AI.

Conclusion

In conclusion, adaptation to artificial intelligence in education is a complex and multifaceted topic that presents Kurdish university students with challenges and opportunities. This study has identified several concerns and challenges students face when adapting to AI, including a shortage of technical skills, privacy concerns, and perceived usefulness and ease of use in accessing AI tools and resources. These findings are consistent with the existing literature and provide a deeper understanding of pupils' specific challenges in this context.

Kurdish universities and policymakers must acknowledge the central role of human interaction and social support in student learning and well-being. Therefore, it is essential to ensure that the implementation of AI does not compromise the quality and intimacy of relationships between teachers, students, and peers, even though AI can offer many advantages regarding efficiency and personalized learning. Ultimately, successful adaptation to AI in higher education will require a balanced approach that combines the opportunities presented by technology with human support and an awareness of the needs and concerns of Kurdish university students.

References

Al-Abdullatif, A. M., & Gameil, A. A. (2021). The Effect of Digital Technology Integration on Students' Academic Performance through Project-Based Learning in an E-Learning Environment. *International Journal of Emerging Technologies in Learning, 16*(11), 189-210. https://doi.org/10.3991/ijet.v16i11.19421

Alhashmi, S. F., Salloum, S. A., & Abdallah, S. (2019). Critical success factors for implementing artificial intelligence (AI) projects in Dubai Government United Arab Emirates (UAE) health sector: applying the extended technology acceptance model (TAM). In *Proceedings of the International Conference on Advanced Intelligent Systems and Informatics 2019* (pp. 393-405). Springer. https://doi.org/10.1007/978-3-030-31129-2_36

Arrieta, A. B., Díaz-Rodríguez, N., Del Ser, J., Bennetot, A., Tabik, S., Barbado, A., García, S., Gil-López, S., Molina, D., & Benjamins, R. (2020). Explainable Artificial Intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI. *Information fusion, 58*, 82-115. https://doi.org/10.1016/j.inffus.2019.12.012

Bag, S., Pretorius, J. H. C., Gupta, S., & Dwivedi, Y. K. (2021). Role of institutional pressures and resources in the adoption of big data analytics powered artificial intelligence, sustainable manufacturing practices and circular economy capabilities. *Technological Forecasting and Social Change, 163*, 120420. https://doi.org/10.1016/j.techfore.2020.120420

Bendechache, M., Tal, I., Wall, P., Grehan, L., Clarke, E., Odriscoll, A., Der Haegen, L. V., Leong, B., Kearns, A., & Brennan, R. (2021). AI in My Life: AI, Ethics & Privacy Workshops for 15-16-Year-Olds. In *13th ACM Web Science Conference 2021* (pp. 34-39). Association for Computing Machinery. https://doi.org/10.1145/3462741.3466664

Caffaro, F., Cremasco, M. M., Roccato, M., & Cavallo, E. (2020). Drivers of farmers' intention to adopt technological innovations in Italy: The role of information sources, perceived usefulness, and perceived ease of use. *Journal of Rural Studies, 76*, 264-271. https://doi.org/10.1016/j.jrurstud.2020.04.028

Chatterjee, S., & Bhattacharjee, K. K. (2020). Adoption of artificial intelligence in higher education: A quantitative analysis using structural equation modelling. *Education and Information Technologies, 25*, 3443-3463. https://doi.org/10.1007/s10639-020-10159-7

Chatterjee, S., Ghosh, S. K., Chaudhuri, R., & Chaudhuri, S. (2021). Adoption of AI-integrated CRM system by Indian industry: from security and privacy perspective. *Information & Computer Security, 29*(1), 1-24. https://doi.org/10.1108/ICS-02-2019-0029

Chen, L., & Aklikokou, A. K. (2020). Determinants of E-government adoption: testing the mediating effects of perceived usefulness and perceived ease of use. *International Journal of Public Administration, 43*(10), 850-865. https://doi.org/10.1080/01900692.2019.1660989

Damerji, H., & Salimi, A. (2021). Mediating effect of use perceptions on technology readiness and adoption of artificial intelligence in accounting. *Accounting Education, 30*(2), 107-130. https://doi.org/10.1080/09639284.2021.1872035

Falola, H. O., Oludayo, O., Akinnusi, D. M., Osibanjo, A. O., & Salau, O. (2018). Faculty commitment, effectiveness of job responsibilities and the moderating role of institutional support: A survey data set. *Data in Brief, 19*, 1120-1123. https://doi.org/10.1016/j.dib.2018.05.138

Hassandoust, F., Akhlaghpour, S., & Johnston, A. C. (2021). Individuals' privacy concerns and adoption of contact tracing mobile applications in a pandemic: A situational privacy calculus perspective. *Journal of the American Medical Informatics Association, 28*(3), 463-471. https://doi.org/10.1093/jamia/ocaa240

Howard, S. K., Tondeur, J., Siddiq, F., & Scherer, R. (2021). Ready, set, go! Profiling teachers' readiness for online teaching in secondary education. *Technology, Pedagogy and Education, 30*(1), 141-158. https://doi.org/10.1080/1475939X.2020.1839543

Liao, Y., Vitak, J., Kumar, P., Zimmer, M., & Kritikos, K. (2019). Understanding the role of privacy and trust in intelligent personal assistant adoption. In *Information in Contemporary Society: 14th International Conference, iConference 2019, Washington, DC, USA, March 31–April 3, 2019, Proceedings 14* (pp. 102-113). Springer. https://doi.org/10.1007/978-3-030-15742-5_9

Liu, F., & Cavanaugh, C. (2012). Factors influencing student academic performance in online high school algebra. *Open Learning: The Journal of Open, Distance and e-Learning, 27*(2), 149-167. https://doi.org/10.1080/02680513.2012.678613

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. UCL Knowledge Lab: London, UK. https://www.pearson.com/content/dam/corporate/global/pearson-dot-com/files/innovation/Intelligence-Unleashed-Publication.pdf

Lukman, S., Bao, P. X., Kweku-Lugu, B., Arkorful, V. E., Latif, A., Gadabu, A., Charmaine-Kwade, P., Basiru, I., & Sadiq, M. A. (2021). Diasporan students social entrepreneurship intention: The moderating role of institutional support. *Journal of Public Affairs, 21*(1), e2108. https://doi.org/10.1002/pa.2108

Martín-Valero, R., Pastora-Bernal, J.-M., Ortiz-Ortigosa, L., Casuso-Holgado, M. J., Pérez-Cabezas, V., & Ruiz-Párraga, G. T. (2021). The usefulness of a massive open online course about postural and technological adaptations to enhance academic performance and empathy in health sciences undergraduates. *International Journal of Environmental Research and Public Health, 18*(20), 10672. https://doi.org/10.3390/ijerph182010672

Mishra, P., & Mehta, R. (2017). What we educators get wrong about 21st-century learning: Results of a survey. *Journal of Digital learning in Teacher education, 33*(1), 6-19. https://doi.org/10.1080/21532974.2016.1242392

Nuseir, M. T., Aljumah, A. I., & El Refae, G. A. (2022). The Influence of E-Iearning, M-learning, and D-learning on the Student Performance: Moderating Role of Institutional Support. In *2022 International Arab Conference on Information Technology (ACIT)* (pp. 1-9). IEEE. https://doi.org/10.1109/ACIT57182.2022.9994193

Pal, D., & Vanijja, V. (2020). Perceived usability evaluation of Microsoft Teams as an online learning platform during COVID-19 using system usability scale and technology acceptance model in India. *Children and youth services review, 119*, 105535. https://doi.org/10.1016/j.childyouth.2020.105535

Popenici, S. A., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*(1), 1-13. https://doi.org/10.1186/s41039-017-0062-8

Rahman, M. S. (2019). Does Privacy Matters When We are Sick? An Extended Privacy Calculus Model for Healthcare Technology Adoption Behavior. In *2019 10th International Conference on Information and Communication Systems (ICICS)* (pp. 41-46). IEEE. https://doi.org/10.1109/IACS.2019.8809175

Rincón-Flores, E. G., López-Camacho, E., Mena, J., & López, O. O. (2020). Predicting academic performance with Artificial Intelligence (AI), a new tool for teachers and students. In *2020 IEEE Global Engineering Education Conference (EDUCON)* (pp. 1049-1054). IEEE. https://doi.org/10.1109/EDUCON45650.2020.9125141

Rodríguez-Hernández, C. F., Musso, M., Kyndt, E., & Cascallar, E. (2021). Artificial neural networks in academic performance prediction: Systematic implementation and predictor evaluation. *Computers and Education: Artificial Intelligence, 2*, 100018. https://doi.org/10.1016/j.caeai.2021.100018

Schneider, S., & Leyer, M. (2019). Me or information technology? Adoption of artificial intelligence in the delegation of personal strategic decisions. *Managerial and Decision Economics, 40*(3), 223-231. https://doi.org/10.1002/mde.2982

Shi, S., Gong, Y., & Gursoy, D. (2021). Antecedents of trust and adoption intention toward artificially intelligent recommendation systems in travel planning: a heuristic–systematic model. *Journal of Travel Research, 60*(8), 1714-1734. https://doi.org/10.1177/0047287520966395

Song, M., Xing, X., Duan, Y., Cohen, J., & Mou, J. (2022). Will artificial intelligence replace human customer service? The impact of communication quality and privacy risks on adoption intention. *Journal of Retailing and Consumer Services, 66*, 102900. https://doi.org/10.1016/j.jretconser.2021.102900

Tahar, A., Riyadh, H. A., Sofyani, H., & Purnomo, W. E. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness. *The Journal of Asian Finance, Economics and Business, 7*(9), 537-547. https://doi.org/10.13106/jafeb.2020.vol7.no9.537

Tegmark, M. (2018). *Life 3.0: Being human in the age of artificial intelligence*. Vintage. https://www.penguinrandomhouse.com/books/530584/life-30-by-max-tegmark

Urrunaga-Pastor, D., Alarcon-Ruiz, C. A., Heredia, P., Huapaya-Huertas, O., Toro-Huamanchumo, C. J., Acevedo-Villar, T., Arestegui-Sánchez, L. J., Taype-Rondan, A., & Mayta-Tristán, P. (2020). The scientific production of medical students in Lima, Peru. *Heliyon, 6*(3), e03542. https://doi.org/10.1016/j.heliyon.2020.e03542

Wilson, N. (2019). The impact of perceived usefulness and perceived ease-of-use toward repurchase intention in the Indonesian e-commerce industry. *Jurnal Manajemen Indonesia, 19*(3), 241-249. https://doi.org/10.25124/jmi.v19i3.2412

Yang, G., Ji, G., & Tan, K. H. (2022). Impact of artificial intelligence adoption on online returns policies. *Annals of Operations Research, 308*, 703–726. https://doi.org/10.1007/s10479-020-03602-y