

The Social Media Factor: How Platforms Impact Usability of Blackboard at Umm Al Qura University

Ahmed R Albashiri ^{1†}

arzahrani@uqu.edu.sa

College of Computers, Software Engineering Dept.
Umm Al Qura University, Makkah, P.O.Box: 715 Saudi Arabia

Abstract

This study investigated the perceived usability of the Blackboard learning management system (LMS) amongst students at Umm Al-Qura University. A quantitative approach was employed to explore the potential relationship between Blackboard usability and social media platform usage. Additionally, the study aimed to identify other factors influencing perceived usability. Data were collected through a three-section questionnaire distributed electronically to a sample of students (n=544). The findings, based on System Usability Scale (SUS) scores, revealed that the overall perceived usability of Blackboard resided near the midpoint of the scale, indicating an "acceptable" level. A potential negative correlation emerged between social media usage time and perceived Blackboard usability. Students who reported lower social media usage exhibited higher SUS scores. Training on Blackboard usage demonstrably exerted a positive influence on perceived usability. Gender was not identified as a statistically significant factor. An analysis of student support methods revealed that seeking help from a friend was the most prevalent approach, followed by search engines, university technical support, and social media platforms. The findings suggest that implementing strategies to improve Blackboard usability at Umm Al-Qura University could be achieved through readily accessible training materials and the exploration of alternative support channels.

Keywords:

Human computer interaction (HCI), usability, blackboard LMS, System Usability Scale (SUS), Social media platforms.

1. Introduction

In today's digital learning environment, a user-friendly learning management system (LMS) is crucial for student success. This study will investigate the perceived usability of Blackboard, a widely used LMS, among students at Umm Al-Qura University. Encompassing students across diverse academic programs (diploma, undergraduate, postgraduate), the research aims to identify factors influencing their Blackboard experience.

The study will delve into student social media usage patterns, exploring potential connections with LMS usability. The data gathered will provide

valuable insights into student perceptions of Blackboard usability and the variables that may influence those perceptions. This knowledge can be leveraged to develop targeted strategies for enhancing the Blackboard user experience for students at Umm Al-Qura University, ultimately fostering a more positive and productive learning environment.

The structure of this paper follows a logical flow. Following the introduction, the subsequent sections delve into the relevant background literature and previous research on the topic (Section 2). Section 3 details the research methodology employed in the study, including the research questions guiding the investigation. The findings of the research, along with a discussion of their significance, are presented in Section 4. Finally, the paper concludes by summarising the key takeaways and offering the most important recommendations based on the research findings (Section 5).

2. Related work and background

The rise of computer technology since the mid-20th century has significantly impacted society and daily life. Initially used for specialized tasks, computers are now ubiquitous in education, commerce, industry, and governance. This evolution has been accompanied by the development of novel technologies like computer graphics, multimedia, hypertext, and the internet. While computers play a crucial role in the information age, usability limitations persist [1]. For instance, some users, particularly university students, struggle to navigate Learning Management Systems (LMS) or access support resources. Ergonomic standards can improve user interface consistency and system usability to address these challenges [2].

Social media platforms like Twitter, Instagram, Snapchat, and TikTok enable connection, interaction,

Manuscript received July 5, 2024

Manuscript revised July 20, 2024

<https://doi.org/10.22937/IJCSNS.2024.24.7.25>

and collaboration [3]. LMS have become prevalent in universities, providing instructors with tools for delivering online and blended learning experiences. These systems offer students anytime, anywhere access to course materials, assignments, and communication channels, often replicating forum-style interactions found on social media platforms [8, 9, 10, 12].

Usability and Human-Computer Interaction (HCI) are central to system development, aiming to enhance user experience and satisfaction [13]. Usability, a well-defined concept in HCI research, refers to the clarity and effectiveness of communication between user and system through the interface [14]. It encompasses factors like learnability, efficiency, memorability, and error reduction [15, 16, 17]. International standards for HCI and usability have been established by organizations like the ISO and IEC [18].

Several studies have explored LMS adoption and its impact on educational outcomes. Furqon et al. [19] found positive user perspectives on LMS, with negativity primarily stemming from technical issues. Rao et al. [20] examined the positive and negative aspects of social media use in various contexts, including education. Their findings highlight the potential benefits of social media for knowledge sharing, self-development, and collaborative learning, while acknowledging potential drawbacks like decreased real-world communication and negative impacts on grades and motivation. Loh et al. [21] investigated the use of social networking sites for distance learning and identified potential drawbacks such as electronic stress and decreased student attention.

Research has also explored the potential of social media as an alternative or supplement to LMS. Have et al. [22] studied the use of Facebook as a learning platform, suggesting its potential as an alternative to LMS due to features that support group work and interaction. Similarly, Guo et al. [23] found that combining social media tools with LMS approaches can leverage the strengths of each to enhance student motivation and learning outcomes. Al-Zawi et al. [24] explored factors influencing the successful integration of social media (e.g., Facebook) and LMS (e.g., Moodle) in developing countries, highlighting the need for improvement in areas like system quality and user experience.

Zachos et al. [26] conducted a review of social media use in higher education, identifying its potential to support learning processes through communication, collaboration, and improved teaching styles. Their findings suggest broad agreement on the positive impact of social media for student communication and collaboration, but also highlight a need for increased faculty adoption of social media in teaching activities. Bozanta and Mardikyan [27] investigated the impact of social media on cooperative learning and communication in education, finding a positive correlation between social media use and student engagement in these areas.

Kaya and Bicen [28] examined the use of Facebook as a communication tool among university students, suggesting its potential to facilitate communication and access to information outside of class hours. They also highlight the potential for social media to identify student needs and interests relevant to educational processes. Several studies have explored the relationship between LMS use and student achievement. Have et al. [29] found a significant correlation between student progress and time spent on LMS platforms. Amin et al. [30] investigated the impact of social networking on student performance, finding a positive correlation between social media use and academic grades.

Pilli [31] compared features and functionalities of social media platforms and LMS, suggesting that social media's inherent appeal makes it a potentially valuable supplement to LMS. Similarly, Azmin Vaci [32] found that e-learning systems incorporating social media support can significantly improve student learning outcomes. Ping and Anderson [33] explored the use of Facebook as an adjunct to Moodle for English language learning, finding that students perceived it as beneficial for fostering a sense of community and enhancing the learning process. While acknowledging potential negative impacts like distraction, Rithika and Sara [34] found that students actively use social media platforms like YouTube and Facebook. Their study highlights the need for students to balance social media use with academic commitments. Wang et al. [35] found that excessive social media use can negatively impact student efficiency and academic performance. Their findings suggest the importance of promoting a balanced approach to social media use in educational settings [35].

In conclusion, the research presented highlights the increasing role of technology in education. While LMS have become a staple in universities, social media platforms offer a range of functionalities that can potentially complement or even replace traditional LMS approaches. Further research is needed to investigate the impact of the social media use on LMS users.

3. Methodology

This study explores the perceived usability of the Blackboard learning management system (LMS) amongst students at Umm Al-Qura University, encompassing diploma, undergraduate, and postgraduate programs. Data collection employed a three-section questionnaire disseminated electronically through Google Forms. The questionnaire was translated into Arabic to ensure accessibility and distributed via WhatsApp and email messages.

The first section of the questionnaire focused on gathering general demographic information, including gender and academic program affiliation. The second section employed a standardised test (SUS) for usability introduced by (Bangor et al., 2009) [36] in order to assess Blackboard usability. This section also included inquiries pertaining to the students' initial introduction to the Blackboard system and the extent of training they received. Finally, the third section investigated social media usage patterns, specifically focusing on popular platforms like Snapchat, Twitter (currently known as X), and Instagram. Students reported their daily social media usage categorised into four distinct timeframes: less than two hours, two to four hours, four to six hours, and exceeding six hours.

Over one thousand questionnaires were distributed, resulting in a commendable response rate of approximately 50% (n=544). Figure 1 illustrates the gender distribution of the respondents, with males constituting 59% (n=321) and females representing 41% (n=223) of the sample.



Fig 1. gender of the participants

Figure 2 visually depicts the percentage of participants who received training on Blackboard. While a positive proportion (54%) reported receiving training, a noteworthy portion (46%) did not. In order to collect data in this matter, participants were asked a direct closed question whether they have received training on blackboard or not.

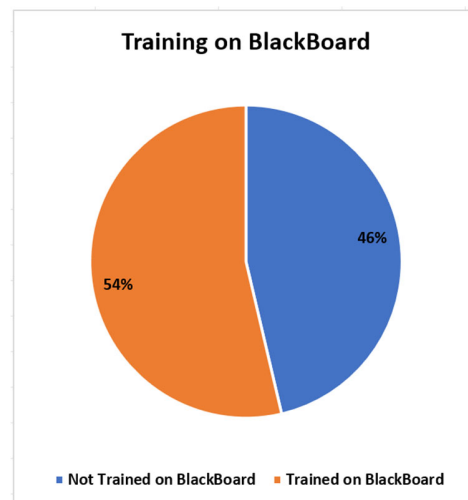


Fig 2. Percentage of participants who received training on Blackboard

Informed by prior research and the study's underlying objectives, two primary research questions were formulated:

Research Question 1 (RQ1): Does the utilization of social media platforms exert an influence on the perceived usability of the Blackboard system amongst students at Umm Al-Qura University? To address this

question, the sections of the questionnaire measuring the System Usability Scale (SUS) scores for Blackboard will be compared with the reported social media usage time (across platforms) of the student participants.

Research Question 2 (RQ2): Do gender and training received have an effect on the perceived usability of the Blackboard system amongst students at Umm Al-Qura University? Data on gender and training received, collected through the questionnaire, will be analyzed alongside the SUS scores to investigate this question.

4. Findings and discussion

This section delves into the key findings of the study. It commences by presenting the System Usability Scale (SUS) scores obtained for the Blackboard learning management system. Subsequently, the section presents the responses pertaining to the time participants dedicated to social media platforms. An analysis of the relationship between social media usage time and Blackboard usability follows in the third subsection. Finally, the section concludes by examining the SUS scores in relation to both the participants' gender and the training they received.

A) SUS Blackboard

This section utilizes Table 1 to illustrate the findings pertaining to the System Usability Scale (SUS) scores for the Blackboard learning management system amongst Umm Al-Qura University students. The table presents both the mean (49.6) and median (50.0) SUS scores. Notably, these central tendency measures suggest that the overall perceived usability of the Blackboard system resides near the neutral point on the SUS scale, indicative of an "acceptable" level of usability.

Table 1. The result of the SUS for the Blackboard system by Umm Al-Qura University students in terms of mean and median

SUS Avg	49.6
SUS Median	50.0

Figure 3 depicts the distribution of participants' satisfaction levels with the Blackboard system. The results exhibit a relatively uniform spread within a range of 12% to 18%. Notably, a significant portion exceeding 60% of respondents reported high levels of satisfaction.

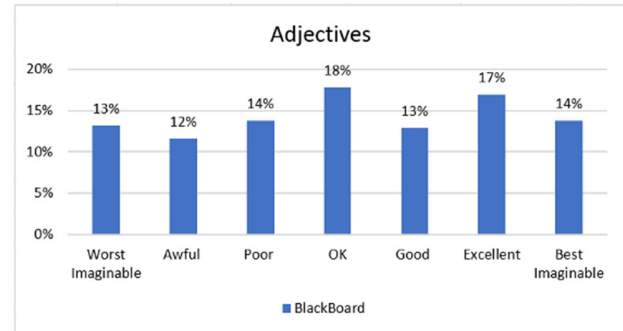


Fig 3. The extent of the target sample's experience with the Blackboard system

B) Social media use among respondents

This section presents the findings concerning the participants' reported time spent on social media platforms. As illustrated in Figure 4, a substantial proportion of students dedicated between 4 and 6 hours daily to platforms like TikTok, Instagram, and Snapchat. Notably, Snapchat emerged as the most frequently used platform for extended durations, with 27% of respondents exceeding 6 hours of daily usage. Conversely, platform X appears to be the least utilized, with 85% of participants reporting less than 2 hours of daily engagement. Instagram followed a similar trend, with 56% of respondents indicating usage below 2 hours per day.

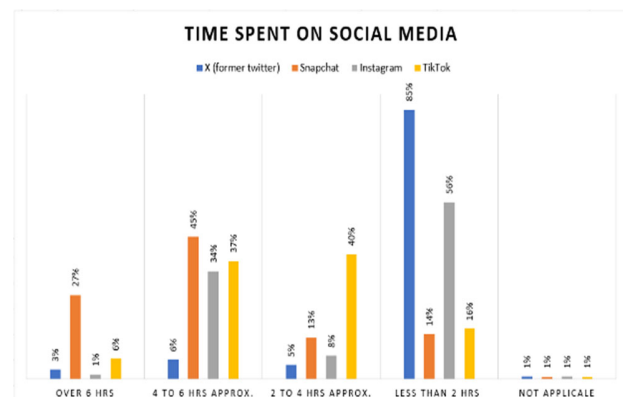


Fig 4. Participants' responses in terms of time spent on a number of social media platforms

Time spent on social media related to the usability score

Figure 5 further suggests a potential negative correlation between social media usage and perceived Blackboard usability. The average SUS score for users exceeding six hours of social media use appears to be approximately 43, indicating a lower level of perceived usability. Conversely, users with the highest reported Blackboard usability (average SUS score of 51.73) spend less than two hours daily on social networking platforms.

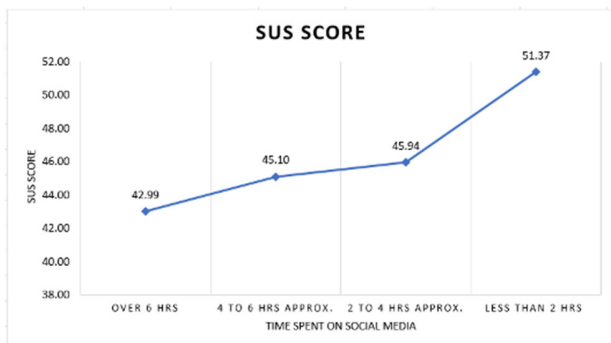


Fig 5. SUS score according to participants' hours spent on social media

C) Training and gender factors related to SUS

Figure 6 investigates the potential influence of gender and training received on perceived Blackboard usability. The results indicate that participants of both genders who received training reported higher SUS scores, suggesting a more positive perception of usability compared to those who did not receive training. As training is considered a key factor in familiarizing users with the Blackboard system, the study additionally explored alternative information access methods employed by untrained respondents facing difficulties.



Fig 6. SUS results according to gender and training

Four primary methods of obtaining support for Blackboard usage were identified: (1) consulting a friend, (2) utilizing search engines, (3) seeking assistance from the university's technical support office, and (4) utilizing social media platforms. As depicted in Figure 7, the most prevalent method involved seeking help from a friend (47%), followed by search engines (28%). Technical support from the university office was utilized by 13% of respondents, while social media platforms were the least employed method (12%).

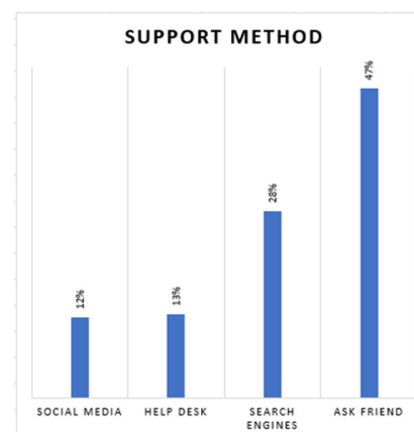


Fig 7. Support-seeking methods that participants use with the Blackboard system

5. Conclusions

This study utilised a quantitative methodology to explore the perceived usability of the Blackboard learning management system (LMS) amongst students at Umm Al-Qura University. The investigation specifically examined the relationship between Blackboard usability and social media platform usage. Additionally, the study aimed to identify other factors potentially influencing perceived usability. The findings offer valuable insights into understanding both the overall usability of the Blackboard system and the variables that may impact it.

Key Findings:

- The analysis of System Usability Scale (SUS) scores revealed that the overall perceived usability of Blackboard resided near the midpoint of the scale, indicative of an "acceptable" level.
- A potential negative correlation emerged between social media usage time and perceived Blackboard usability. Students who reported lower social media usage exhibited higher SUS scores, suggesting a more positive perception of usability.
- Training on Blackboard usage demonstrably exerted a positive influence on perceived usability. Participants who received training achieved statistically significant higher SUS scores compared to those who did not.
- Gender was not identified as a statistically significant factor influencing perceived Blackboard usability.
- An analysis of the support methods employed by students facing Blackboard difficulties revealed a clear hierarchy of preference. Seeking help from a friend emerged as the most common approach, followed by utilising search engines. Technical support from the university office was sought by a notable portion of students, while social media platforms were the least utilised support method.

Implications:

The findings suggest that implementing strategies to improve Blackboard usability at Umm Al-Qura University could be achieved through readily accessible training materials and the exploration of alternative support channels. Additionally, addressing specific usability concerns identified by students through further research could lead to a more positive user experience and enhanced student satisfaction with the Blackboard LMS.

Acknowledgment

This research would not have been possible without the invaluable support of Umm Al-Qura University. The university's commitment to fostering faculty research, particularly in the field of human-computer interaction, is deeply appreciated. Their support has significantly aided the completion of this research project.

References

- [1] J.-R. Chou and S.-W. Hsiao, 'A usability study on human-computer interface for middle-aged learners', *Comput. Hum. Behav.*, vol. 23, no. 4, pp. 2040–2063, 2007.
- [2] 'Ergonomics standards concerning human-system interaction: Visual displays, controls and environmental requirements - ScienceDirect'. Accessed: Jul. 14, 2024. [Online]. Available: <https://www.sciencedirect.com/science/article/abs/pii/0003687095000317>
- [3] J. Herrman, 'How TikTok is rewriting the world', *N. Y. Times*, vol. 10, pp. 412586765–1586369711, 2019.
- [4] J. Burgess and N. K. Baym, *Twitter: A biography*. NYU Press, 2022. Accessed: Jul. 17, 2024. [Online]. Available: https://books.google.com/books?hl=en&lr=&id=FL5HEAAAQBAJ&oi=fnd&pg=PA37&dq=So+What+Do+We+Call+Twitter+Now+Anyway&ots=3Uju4Lb2Bx&sig=qcKsOFQiw__N_CKcu1eaYmUoA
- [5] 'Instagram Stories is Now Being Used by 500 Million People Daily', *Social Media Today*. Accessed: Jul. 17, 2024. [Online].
- [6] 'Snapchat Reaches Settlement With Its Disappearing Co-Founder', *Bloomberg.com*, Sep. 10, 2014. Accessed: Jul. 17, 2024. [Online].
- [7] 'TikTok says it's testing letting users post 60-minute videos - CBS News'. Accessed: Jul. 18, 2024. [Online].
- [8] H. Coates, R. James, and G. Baldwin, 'A critical examination of the effects of learning management systems on university teaching and learning', *Tert. Educ. Manag.*, vol. 11, no. 1, pp. 19–36, Jan. 2005, doi: 10.1080/13583883.2005.9967137.
- [9] M. J. S. Asiri, K. A. Bakar, and A. F. bin M. Ayub, 'Factors influencing the use of learning management system in Saudi Arabian higher education: A theoretical framework.', *High. Educ. Stud.*, vol. 2, no. 2, pp. 125–137, 2012.
- [10] K. A. Al-Busaidi and H. Al-Shihi, 'Instructors' acceptance of learning management systems: A theoretical framework', *Commun. IBIMA*, vol. 2010, no. 2010, pp. 1–10, 2010.

- [11] T. Govindasamy, 'Successful implementation of e-learning: Pedagogical considerations', *Internet High. Educ.*, vol. 4, no. 3–4, pp. 287–299, 2001.
- [12] J. F. Chan, *Designing and developing training programs: Pfeiffer essential guides to training basics*. John Wiley & Sons, 2009. Accessed: Jul. 14, 2024. [Online]. Available: <https://books.google.com/books?hl=en&lr=&id=SuFVKYJIGMsC&oi=fnd&pg=PR9&dq=Designing+and+developing+training+programs:+Pfeiffer+essential+guides+to+training+basics&ots=1e0EjMAVUa&sig=HFjmGT25emzvcKKhtU-Hpb5FUtw>
- [13] T. Issa and P. Isaias, 'Usability and Human-Computer Interaction (HCI)', in *Sustainable Design*, London: Springer London, 2022, pp. 23–40. doi: 10.1007/978-1-4471-7513-1_2.
- [14] N. C. Goodwin, 'Functionality and usability', *Commun. ACM*, vol. 30, no. 3, pp. 229–233, Mar. 1987, doi: 10.1145/214748.214758.
- [15] B. Shackel, 'Usability-context, framework, design and evaluation. Artikkeliteoksessa Shackel, B. and Richardson, S', *Hum. Factors Inform. Usability Camb. Univ. Press Camb.*, vol. 21, p. 38, 1991.
- [16] Hix, D and Hartson, H.R, *Developing user interfaces: ensuring usability through product & process*. John Wiley & Sons, Inc., 1993.
- [17] J. Nielsen, 'The usability engineering life cycle', *Computer*, vol. 25, no. 3, pp. 12–22, 1992.
- [18] N. Bevan, 'International standards for HCI and usability', *Int. J. Hum.-Comput. Stud.*, vol. 55, no. 4, pp. 533–552, 2001.
- [19] M. Furqon, P. Sinaga, L. Liliarsari, and L. S. Riza, 'The Impact of Learning Management System (LMS) Usage on Students.', *TEM J.*, vol. 12, no. 2, 2023, Accessed: Jul. 14, 2024. [Online]. Available: <https://www.cceol.com/search/article-detail?id=1123847>
- [20] B. N. Rao, V. Kalyani, and V. David, 'A study on positive and negative effects of social media on society', *J. Sci. Technol. JST*, vol. 7, no. 10, pp. 46–54, 2022.
- [21] X.-K. Loh, V.-H. Lee, X.-M. Loh, G. W.-H. Tan, K.-B. Ooi, and Y. K. Dwivedi, 'The Dark Side of Mobile Learning via Social Media: How Bad Can It Get?', *Inf. Syst. Front.*, vol. 24, no. 6, pp. 1887–1904, Dec. 2022, doi: 10.1007/s10796-021-10202-z.
- [22] C. Giannikas, 'Facebook in tertiary education: The impact of social media in e-Learning', *J. Univ. Teach. Learn. Pract.*, vol. 17, no. 1, p. 3, 2020.
- [23] B. G. Hidalgo, L. A. Rivera, and R. S. Delgadillo, 'Integration of Learning Management System Technology and Social Networking Sites in the E-Learning Mode: A Review and Discussion.', *Comput. Educ. J.*, vol. 10, no. 2, 2019, Accessed: Jul. 14, 2024. [Online]. Available: <https://coed.asee.org/wp-content/uploads/2020/08/2-Integration-of-Learning-Management-System-Technology-and-Social-Networking-Sites-in-the-E-Learning-Mode-A-Review-and-Discussion.pdf>
- [24] A. Al-Azawei, 'What Drives Successful Social Media in Education and E-Learning? A Comparative Study on Facebook and Moodle.', *J. Inf. Technol. Educ. Res.*, vol. 18, 2019, Accessed: Jul. 14, 2024. [Online].
- [25] A. Al-Azawei, P. Parslow, and K. Lundqvist, 'Barriers and opportunities of e-learning implementation in Iraq: A case of public universities', *Int. Rev. Res. Open Distrib. Learn.*, vol. 17, no. 5, 2016, Accessed: Jul. 15, 2024. [Online]. Available: <http://www.irrodl.org/index.php/irrodl/article/view/2501>
- [26] G. Zachos, E.-A. Paraskevopoulou-Kollia, and I. Anagnostopoulos, 'Social media use in higher education: A review', *Educ. Sci.*, vol. 8, no. 4, p. 194, 2018.
- [27] A. Bozanta and S. Mardikyan, 'THE EFFECTS OF SOCIAL MEDIA USE ON COLLABORATIVE LEARNING: A CASE OF TURKEY', *Turk. Online J. Distance Educ.*, vol. 18, no. 1, pp. 96–96, Jan. 2017, doi: 10.17718/tojde.285719.
- [28] T. Kaya and H. Bicen, 'The effects of social media on students' behaviors; Facebook as a case study', *Comput. Hum. Behav.*, vol. 59, pp. 374–379, 2016.
- [29] Z. Amin, A. Mansoor, S. R. Hussain, and F. Hashmat, 'Impact of social media of student's academic performance', *Int. J. Bus. Manag. Invent.*, vol. 5, no. 4, pp. 22–29, 2016.
- [30] B. Thoms and E. Eryilmaz, 'How media choice affects learner interactions in distance learning classes', *Comput. Educ.*, vol. 75, pp. 112–126, 2014.
- [31] O. Pilli, 'LMS Vs. SNS: Can social networking sites act as a learning management systems', *Am. Int. J. Contemp. Res.*, vol. 4, no. 5, pp. 90–97, 2014.
- [32] B. Özmen and B. Atıcı, 'The Effects of Social Networking Sites in Distance Learning on Learners' Academic Achievements', *Eur. J. Open Distance E-Learn.*, vol. 17, no. 2, pp. 61–75, Dec. 2014, doi: 10.2478/eurodl-2014-0019.
- [33] E. Dogoriti, J. Pange, and G. S. Anderson, 'The use of social networking and learning management systems in English language teaching in higher education', *Campus-Wide Inf. Syst.*, vol. 31, no. 4, pp. 254–263, 2014.
- [34] M. Rithika and S. Selvaraj, 'Impact of social media on students' academic performance', *Int. J. Logist. Supply Chain Manag. Perspect.*, vol. 2, no. 4, pp. 636–640, 2013.
- [35] Q. Wang, W. Chen, and Y. Liang, 'The Effects of Social Media on College Students', 2011, Accessed: Jul. 14, 2024. [Online]. Available: https://www.academia.edu/download/40319725/The_Effects_of_Social_Media_on_College_Students.pdf
- [36] A. Bangor, P. Kortum, and J. Miller, 'Determining what individual SUS scores mean: Adding an adjective rating scale', *J. Usability Stud.*, vol. 4, no. 3, pp. 114–123, 2009.



Ahmed R Albashiri journey into computer sciences started over 20 years; through it, I achieved my MSc and PhD degrees. Ahmed currently holds the esteemed position of Assistant Professor. His research interests are in Human Computer Interaction, Artificial Intelligence, Information retrieval and Education.