Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 8 (August) (2025)

The Role Of Interactive Applications As Pedagogical Tool In Public Sector Universities Of Sindh, Pakistan

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Abstract
Our students are part of a highly digitized generation with swift and effortless access to information. They rely on technology and are prone to rapid boredom. A debate persists over the necessity to reevaluate our pedagogical approaches, particularly in public universities, to engage our students effectively. This study examined students' use of interactive software in classes and their effect on university education. These applications are seen as vital instruments in alleviating student ennui and disengagement. They also allow teachers to obtain essential feedback, which educators in the poll identified as critically significant. In this context, we performed a study among students in the education department at the University of Sufism and Modern Sciences Bhitshah. We analyzed the utilization of several interactive applications (Kahoot, Padlet, Quizlet, and Microsoft). This study sought to ascertain how the utilization of numerous applications enhanced student engagement by mitigating monotony, hence leading to improved academic achievement.

Keywords: Pedagogical, Tools, Applications

Introduction
Around the world, technology is playing a crucial part in education, enhancing both teacher and student engagement. Traditional teaching techniques in Sindh, Pakistan's public institutions suffer by issues such as overcrowded classrooms, a lack of resources, and students having different learning requirements. These challenges can be resolved in the classroom by implementing software with interaction. Interactive applications are a critical element of modern instruction, as technology and education are becoming increasingly interconnected in the digital era. These programs create engaging learning environments by offering multimedia resources that cater to the diverse requirements of students. Universities provide a platform for active learning that facilitates interactive lectures, assessments, and immediate feedback. Incorporating these tools to address long-standing issues, such as antiquated teaching strategies, substantial class sizes, and restricted resource availability, could be highly beneficial for public institutions, particularly those in impoverished nations.

In order to enhance instruction, universities worldwide have implemented interactive software. The prevalence of platforms like Kahoot, Quizlet, and Coursera has been attributed to their ability to transform passive learning into an engaging experience. Applications like kahoot, padlet, Quizlet and others for its

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www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 8 (August) (2025)

cutting-edge educational system utilized to promote student cooperation and critical thinking (Sari, 2020). To satisfy the demands of students, colleges in the US and Australia also use apps for blended learning, which combines digital resources with traditional classroom education. Furthermore, Asian nations like Singapore and South Korea are prime examples of how digital tools may transform higher education. Apps like Classting and Zuvio are used by educational institutions in South Korea to support individualized instruction and in-class interactions. Platforms like NUSync, which facilitate academic, social, and extracurricular activity, are used in Singaporean institutions (Jung, 2022). These international approaches demonstrate how interactive applications may close educational gaps, foster inclusivity, and equip students for a competitive workforce.

In the modern classroom, interactive programs like Kahoot, Padlet, Zoom, Quizlet, and others have grown to be effective resources for face to face and online classes. By transforming tests and quizzes into entertaining, interactive games, Kahoot encourages active learning and raises student participation in the classroom and It is an effective tool for the feedback. Padlet fosters creativity and teamwork by offering a virtual platform for collaborative brainstorming, resource sharing, and feedback. By facilitating live online lessons, conversations, and group projects, Zoom has completely changed the way that people communicate in the classroom and made education accessible even in faraway locations. These programs are easy to use and can be adapted to fit both traditional and modern teaching styles. Higher education could greatly increase student participation, engagement, and academic success by using these kinds of tools. Quizlet supports different learning styles by letting users create their own study sets and flashcards to encourage personalized learning.

Kahoot, Quizlet, Padlet, and other interactive apps have turned traditional classrooms into dynamic, student-centered places to learn. Kahoot, for example, makes tests and quizzes into games that students may play to encourage them to participate and compete with each other. Its changing interface and real-time feedback not only keep students interested, but they also assist teachers figure out how well pupils learn the material. Quizlet, on the other hand, is a great tool for kids who learn in different ways because it lets them create their own study materials, exams, and flashcards. Quizlet's adaptive learning system makes sure that each user understands the content better by customizing study materials based on how well they are doing. Padlet is a virtual platform for collaboration that makes it easy for teachers and students to work together by encouraging resource sharing, group discussions, and coming up with ideas for group projects.

Literature Review

Interactive apps are important in today's era because they help students learn, work together, and stay interested. These tools support a wide range of multimedia elements, including interactive tests, images, and videos, which enhance and personalize the learning process. Learners use various applications to improve their engagement and participation in lectures and group learning sessions. Selected applications can effectively foster interactive learning in educational activities (Tuma, 2021). Students can learn in novel ways with

ISSN Online: 3007-3154
ISSN Print: 3007-3146

mobile applications that aren't available in the conventional educational system. More chances for societal progress are offered by vital instructional apps including Zoom, Microsoft Teams, Kahoot, Quizlet, and Padlet. By supporting a variety of learning modes, such as kinesthetic, visual, and auditory, interactive applications enhance learning enjoyment while enhancing understanding and knowledge retention (Ahmad et al., 2020).

Interactive apps have revolutionized conventional education by incorporating technology, facilitating active learning, and enhancing cooperation between students and educators. These systems offer immediate feedback, monitor progress, and customize information to specific requirements, thereby improving the entire learning experience. Martín-Somer et al. (2024) found that using a number of apps greatly increased student involvement and academic success. Interactive apps help students engage with the material and improve traditional teaching methods by adapting to the technological reality of today's pupils. Openly available technologies enhance their effectiveness in learning outcomes, helping both in-person and virtual educational settings. In the last ten years, the use of these apps has become popular all over the world, improved students' grades, and encouraged more students to participate in both in-person and online learning.

Wang et al. (2020) found that Kahoot made students less worried about questions, less tense, more involved without being scared, added humor to classes, and helped shy students become involved. By creating a competitive but cooperative environment, Kahoot boosts motivation and participation. Budiyani et al. (2022) stress that Padlet is a tool for fostering creativity and making online learning better. Teachers can use it as a digital board to share notes, files, resources, images, and videos all in one place. The software additionally documents the learning process, enabling users to obtain content via its sharing and export functionalities. The educational application Padlet enables educators and learners to share updates and comments, fostering continuous debates and enhancing collaboration and communication between students and teachers.

Teachers and students can utilize the functionalities of Microsoft Teams to engage, converse, and deliberate on course material (Budiyani et al., 2022). Students can actively interact with both the instructor and their classmates using the platform. They are also furnished with educational resources, including reading materials, films, and articles. Microsoft Teams enables students to respond to their peers' posts or thoughts via reaction buttons (Putri et al., 2021). Carter (2022) discovered that Quizlet is the most user-friendly, suggesting that students like tools that are accessible and uncomplicated. Utilizing Quizlet to aid students in organizing their learning promotes academic success by promoting self-assessment and personalized education. The gamified learning approach has demonstrated an improvement in students' confidence in comprehending difficult subject and a reduction in anxiety. Furthermore, learning is sustained over time with Quizlet's spaced repetition function, which has demonstrated efficacy in enhancing long-term retention of material. Quizlet is an intuitive application that offers many study modalities. Its adaptability and intuitive interface render it beneficial for both individual and collaborative study,

ISSN Online: 3007-3154
ISSN Print: 3007-3146

enhancing the educational experience. Educators may opt to incorporate Quizlet into their lectures to enhance students' enthusiasm and engagement in studying. The mobile application enables students to engage in independent study, rendering it a valuable educational resource in several contexts. Quizlet is an effective educational tool that enhances students' motivation to learn. Moreover, Quizlet facilitates increased student engagement in classroom activities (Bayaksud et al., 2024).

Technology has transformed higher education by providing flexible, engaging, and student-centered learning environments (Al-Fraihat et al., 2020). Interactive applications function as contemporary teaching instruments, fostering collaboration, immediate feedback, and learner independence (Chen et al., 2021). Applications like Kahoot, Quizizz, Nearpod, Padlet, Google Classroom, and Edmodo have been progressively utilized to augment student involvement and formative evaluation (Licorish et al., 2018). These platforms facilitate active learning, which has demonstrated enhancement in students' conceptual comprehension and motivation (Wang, 2015). Research from underdeveloped nations indicates that, when utilized correctly, interactive tools can close the divide the digital engagement divide and facilitate big classrooms (Adukaite et al., 2017). Successful adoption, however, relies on classroom infrastructure, digital literacy, and teacher preparedness (Qazi et al., 2021).

Public universities in Pakistan frequently encounter obstacles like constrained resources, inadequate internet access, insufficient staff training, and reluctance to change (Soomro et al., 2022). These factors may impede the successful implementation of interactive programs, notwithstanding their educational potential. Although global research underscores the advantages of educational applications, regional evidence from public universities in Sindh is limited. Comprehending contextual obstacles and usage patterns is crucial for formulating effective digital instructional techniques (Ahmed & Sheikh, 2023).

Research Gap

Despite the increasing incorporation of technology in worldwide higher education, the systematic use of interactive applications as educational tools remains insufficiently studied within public sector universities in Pakistan, especially in Sindh. Most existing studies focus on private institutions or general e-learning environments, lacking specific focus on the types, frequency, and impact of interactive apps (e.g., Kahoot, Google Classroom, Mentimeter, Padlet, Quizizz) in state-run universities. Furthermore, faculty and student perspectives, infrastructure challenges, and pedagogical outcomes associated with these tools in the public education sector of Sindh have received limited empirical attention. This study aims to fill this gap by exploring the current practices, perceived benefits, and barriers to the effective use of interactive educational applications in this context.

Research Objectives

1. To assess the utilization of interactive applications as an educational tool.
2. To find out the perception of students regarding the use of interactive applications.

Research Design

This study adopts a descriptive survey research design. A descriptive survey is

ISSN Online: 3007-3154
ISSN Print: 3007-3146

used to find out what is happening right now with a phenomena and to show "what exists" in connection with the variables or conditions in a situation. We picked the descriptive survey method to get complete and accurate information about how public universities in Sindh province, Pakistan, use interactive applications as teaching tools. This design made it easier to explain what's going on right now and to use a structured questionnaire to look at students' experiences and perceptions.

Population of the study

The study's participants are students enrolled in public universities in Sindh province, Pakistan. We chose students based on their active participation in academic activities and ability to use interactive applications in the learning process.

Sample and Sampling

Simple random sampling technique was used to gather from enrolled students. The study had 200 students in total. The gender distribution of the participants was 32.6% male and 67.4% female, guaranteeing a balanced and varied representation of the student body.

Data Collection Tool

A standardized questionnaire created by Martin Somer et al. (2024) was utilized to gather data for the study on the use of interactive applications as an educational tool in Sindh Province, Pakistan. The survey was completely modified to match the context of Sindh's public universities. Its main goal was to gather data regarding how students use interactive programs to aid in their learning. In order to maintain its validity and reliability throughout the data collection process, the questionnaire was created with undergraduate students' clarity, validity, and easy of understanding in awareness.

Data Collection Procedure

The information gathered from the study came from undergraduate students in the education departments at the University of Sindh, Jamshoro, Government College University Hyderabad, and the University of Sufism and Modern Sciences, Bhitshah. Data was gathered through in-person interactions and Google Forms. The standardized questionnaire, with multiple-choice and five-point Likert scale items, was developed by Martin Somer et al. (2024). This study aided students by offering a platform to articulate their views, emotions, and challenges around the utilization of interactive educational technologies.

Ethical Consideration

All ethical protocols were adhered to in this investigation. Prior to data collection, participants appreciated the research's goal and their voluntary involvement via a note at the outset of the Google Form. Informed consent was implied through their decision to fill out the questionnaire. No personal information such as names, contact details or email addresses were collected, hence complete anonymity and privacy was maintained. The form only had general demographic identifiers such as whether the respondent was a student or a teacher. Participants were assured that their responses would be kept confidential and would be used only for academic and research purposes. They were also informed that participation was voluntary, and they could withdraw at any time

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DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 8 (August) (2025)

without any consequence. All data collected was stored and handled with integrity as per standard research ethics.

Results

Table 1

Highest scoring response for each survey question (Public sector universities-Sindh)

Q#	Question (short)	Highest-scoring option	Percentage (%)
1	Main advantage of face-to-face lectures	Better communication	70.0
2	Main advantage of online lectures	Comfort	65.6
3	Main disadvantage of face-to-face lectures	None	60.0
4	Main disadvantage of online lectures	Loss of concentration and interest	74.4
5	Do you think the future is online education?	Neutral	64.4
6	Which model requires more lecture preparation time?	Face to face	70.0
7	Have online classes been carried out successfully?	Disagree	65.6
8	Have you noticed less attendance in online lectures?	Agree	62.2
9	Preferred teaching model	Face to face	83.3
10	Which model has greater student concentration?	Face to face	91.1
11	Is university important for social interaction?	Agree	70.0
12	Can social interaction be achieved online?	Disagree	64.4
13	Interactive applications used in online lectures	Zoom	56.7
14	Do interactive apps help keep interest?	Agree	66.7
15	Would you recommend interactive tools in online lectures?	Agree	54.4
16	Would you recommend interactive tools in face-to-face lectures?	Agree	72.2
17	Which interactive application do you prefer for theory lectures	Others	56.7
18	Preferred app for face-to-face lectures	Kahoot	68.9
19	If you had to choose only one interactive app	Kahoot	57.8
20	Better to use a single app or several?	Several	70.0

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ISSN Print: 3007-3146

DIALOGUE SOCIAL SCIENCE REVIEW

Vol. 3 No. 8 (August) (2025)

Most respondents (70%) believe that face-to-face lectures facilitate better, more efficient communication between students and teachers. Because they can study from home and have flexible schedules, the majority find online courses convenient. According to 74% of respondents, the primary drawback of online courses is that students become disinterested and lose focus. Most people believe that taking classes in person requires more preparation than taking them online. Mixed experiences are suggested by the fact that many people are unsure of the success rate of online courses. A sizable percentage have noted a decline in online session participation. There is still a resounding preference for in-person instruction. Nearly all of the respondents think that physical classrooms are a better place to focus. The majority concurred that social relationships are greatly aided by universities. The majority disagree that internet education can replace face-to-face social interaction. Zoom is regarded by more than 50% as the most popular online learning tool. According to the majority, interactive technologies keep students interested in online courses. The majority are in favour of including interactive apps into online instruction. Using digital tools even when teaching in person was valued by 72% of respondents. According to the majority of respondents, Kahoot is the most often used platform for in-person lectures. Kahoot continues to be the most popular option when forced to choose just one app. Most people would rather use a variety of digital tools than rely just on one platform.

Discussion

The examination of combined percentages across all questionnaire items indicates a largely favorable attitude among respondents concerning the utilization of interactive applications in public sector institutions of Sindh. The majority of items received Strongly Agree and Agree responses exceeding 70%, signifying a distinct consensus regarding the educational efficacy of these instruments. This pattern indicates that both students and instructors acknowledge interactive applications as successful in improving engagement, involvement, and learning outcomes. The findings align with the current literature highlighting technology's role in promoting active learning and enhancing conceptual comprehension (Ali et al., 2022; Kumar & Ahmad, 2023).
The most consensus was observed in categories pertaining to enhanced student motivation, improved focus, and the facilitation of collaborative learning. These results strongly correspond with the tenets of constructivist learning, wherein learners engage actively in the knowledge construction process through interactive experiences (Vygotsky, 1978; Chiu & Churchill, 2021). Participants saw that interactive technologies foster an immersive environment, facilitating the connection between theoretical concepts and practical application, as corroborated by previous empirical investigations in analogous higher education settings (Shukla, 2023; Yousaf & Latif, 2024).

Nonetheless, the results also underscored significant risks. Factors concerning the accessibility of institutional support, dependable infrastructure, and timely technical assistance garnered relatively lower levels of agreement, with some instances dropping below 60%. These findings indicate systemic constraints within the public sector higher education landscape in Sindh. The continuation

ISSN Online: 3007-3154
ISSN Print: 3007-3146

of these barriers reflects earlier research in Pakistan that identifies erratic internet connection, limited digital resources, and insufficient faculty training as significant impediments to effective technology integration (Soomro et al., 2022; Rahman et al., 2021). If these obstacles are not resolved, the complete potential of interactive apps may remain unexploited.

A notable observation was the moderate proportion of neutral responses across various items. This tendency may indicate restricted direct engagement with interactive applications among specific responders or ambiguity regarding their enduring advantages. Comparable tendencies have been documented in scenarios where technology adoption occurred without concurrent capacity-building efforts (Kebritchi et al., 2017). This suggests that policymakers and university administrators should establish extensive training and awareness initiatives to enhance both confidence and proficiency in utilizing these technologies. International higher education evidence demonstrates that ongoing professional development enhances technology uptake and fosters innovative teaching techniques (Chiu & Churchill, 2021).

The findings of this study are in strong agreement with the Technology Acceptance Model (TAM), specifically with the variables of perceived utility and perceived ease of use (Davis, 1989). Respondents' favorable impressions indicate that when users acknowledge concrete learning advantages and perceive the tools as user-friendly, they are more inclined to incorporate them into standard teaching and learning practices. The identified infrastructure and support deficiencies highlight that mere acceptance is inadequate without the simultaneous establishment of facilitating conditions.

The study's results validate the considerable educational potential of interactive applications in public sector universities in Sindh. Stakeholders exhibit a pronounced readiness to adopt new technologies; yet this excitement necessitates corresponding institutional expenditures in infrastructure, capacity development, and policy reforms. By addressing these fundamental concerns, institutions can transform the use of interactive software from an occasional enhancement into an essential, sustainable element of the teaching-learning process, connecting local practices with global digital education trends.

Conclusion

The integration of interactive tools such as Kahoot, Padlet, Quizlet, and Microsoft Teams in higher education has demonstrated significant potential for enhancing student engagement, collaboration, and education outcomes. This study emphasizes that, despite the high regard that traditional face-to-face lectures receive for their direct communication and social interaction, the adaptability and flexibility of online and hybrid learning models that these instruments facilitate effectively address a variety of contemporary educational challenges. The successful implementation of interactive applications is significantly influenced by the following: institutional infrastructure, digital literacy, faculty preparedness, and the necessity of surmounting resistance to change. In the context of public sector universities in Sindh, it is essential to overcome these obstacles in order to maximize the advantages of technology-

ISSN Online: 3007-3154
ISSN Print: 3007-3146

enhanced learning. Future initiatives must prioritize the development of a culture that supports innovative pedagogical methods, the enhancement of digital infrastructure, and specialized training for educators in order to establish a more dynamic and inclusive learning environment. This method, which encourages lifelong learning and scholarly accomplishment, can be implemented by institutions to more effectively prepare students for the challenges of the contemporary world.

Consequences for Implementation and Regulation

The findings of this investigation have substantial implications for the future of higher education in Sindh and similar settings.
Universities must prioritize faculty development initiatives that offer practical training in designing and executing technology-enhanced learning activities. To enable effective integration, these initiatives must prioritize educational strategies alongside technological expertise. The effective implementation of interactive applications depends on the accessibility of digital resources, sufficient infrastructure, and stable internet connectivity. For public sector colleges to attain these essential objectives, it is imperative that policymakers allocate adequate financial resources. Higher education authorities should establish formal guidelines and standards for technology-enhanced teaching. A clearly articulated policy framework would guarantee consistent application, monitoring, and evaluation of policies across institutions. Universities ought to formulate comprehensive sustainability plans that encompass continuous technical support and routine software updates, alongside initial implementation, to avert technological obsolescence. Interactive tools must be incorporated into curriculum design as fundamental elements, rather than as additional resources. It is advisable to implement a student-centered learning culture. This modification would enhance learner autonomy, foster collaboration, and promote active engagement.

The implementation of these measures will enhance immediate learning outcomes and position public sector universities in Sindh as leaders in digital transformation within the South Asian higher education sector.

References

Abella, A., Ozaydin Ozkara, E., & Ibili, E. (2022). The role of multisensory and interactive approaches in enhancing learning: A perspective from visual, auditory, and kinesthetic modalities. *International Journal of Education in Mathematics, Science, and Technology (IJEMST), 10*(3), 1407–1420. https://doi.org/10.31129/ijemst.1407

Adukaite, A., Van Zyl, I., Er, Ş., & Cantoni, L. (2017). Teacher perceptions on the use of digital gamified learning in tourism education: The case of South African secondary schools. *Computers & Education, 111*, 172–190. https://doi.org/10.1016/j.compedu.2017.04.008

Ahmed, S., & Sheikh, A. (2023). Exploring digital pedagogy in higher education: Contextual challenges and adaptive strategies. *Journal of Educational Technology & Society, 26*(1), 45–60. https://doi.org/10.2307/26932612

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004

Aqdas, S., Ahmed, A., & Soomro, M. A. (2023). Exploring the impact of online classes on students' performance during COVID-19: Voices from Pakistan. *International Journal of Instruction, 16*(1), 753–766. https://doi.org/10.29333/iji.2023.16142a

Bayaksud, N., Degeng, P. D. D., & Razali, K. A. (2024). *The use of Quizlet for vocabulary learning: A lesson from innovative application*. *Journal of Language and Literature Studies, 4*(1), 244–255. https://doi.org/10.36312/jolls.v4i1.1823

Budiyani, A. P., & Solikhah, I. (2022). *Utilizing e-learning for blended teaching writing skill at SMK Muhammadiyah 4 Surakarta in the academic year 2021/2022* (Doctoral dissertation, Fakultas Agama Budha / Pendidikan Bahasa Inggris).

Carter, M. K. (2022). Using online tools to encourage learner autonomy (Doctoral dissertation, LCC tarptautinis universitetas.).

Chanda, T. C., Sain, Z. H., Mpolomoka, D. L., & Akpan, W. M. (2024). Curriculum design for the digital age: Strategies for effective technology integration in higher education. *International Journal of Research, 11*(7), 185–201. https://doi.org/10.5281/ZENODO.13123899

Chen, X., Zou, D., Cheng, G., & Xie, H. (2021). Detecting latent topics and trends in educational technologies over four decades using structural topic modeling: A retrospective of all volumes of *Computers & Education*. *Computers & Education, 171,* 104238. https://doi.org/10.1016/j.compedu.2021.104238

Frontiers in Psychology. (2022). Teachers' perceptions of technology integration in teaching. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2022.920317

Islamic Scholars (2025). Enablers & barriers to online and e-learning for health professionals in Pakistan: A formative research. *Journal of the Pakistan Medical Association, 75*(8), 1247–?

Licorish, S. A., Owen, H. E., Daniel, B., & George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. *Research and Practice in Technology Enhanced Learning, 13*(1), 1–23. https://doi.org/10.1186/s41039-018-0078-8

Martín-Somer, M., Casado Merino, C., & Gomez-Pozuelo, G. (2024). Utilizing interactive applications as educational tools in higher education: Perspectives from teachers and students, and an analysis of academic outcomes. *Education for Chemical Engineers, 46*, Article 1024467. https://doi.org/10.1016/j.ece.2023.10.001

Putri, M. R., Pedo, V. A. S., & Pawestri, N. (2021). Student's learning experience in the utilization of zoom and microsoft teams in online learning setting. E-LINK JOURNAL, 8(2), 108-114.

Qazi, A., Naseer, K., Salam, J., & Shahid, M. (2021). Impact of digital transformation on education sector during COVID-19 pandemic: Challenges and opportunities. *Sustainability, 13*(22), 12943. https://doi.org/10.3390/su132212943

Sari, D. E., Ftriani, S. A., & Saputra, R. C. (2020). *Active and Interactive*

ISSN Online: 3007-3154
ISSN Print: 3007-3146

Learning Through Quizlet and Kahoot. In International Conference on Online and Blended Learning 2019 (ICOBL 2019), Advances in Social Science, Education and Humanities Research (Vol. 403, pp. 97–104). Atlantis Press. https://doi.org/10.2991/assehr.k.200521.025

Soomro, K. A., Ahmed, A., & Ali, A. (2022). Challenges of e-learning in higher education institutions of Pakistan during COVID-19 pandemic: A systematic review. *Education and Information Technologies, 27*, 13743–13763. https://doi.org/10.1007/s10639-022-11286-x

Soomro, S., Bano, A., Gulzar, Y., & Moses, G. (2024). Factors measuring the readiness of teacher educators to use Web 2.0 technologies. *Discover Sustainability*. https://doi.org/10.1007/s43621-024-00752-y

Tuma, F. (2021). *The use of educational technology for interactive teaching in lectures. Annals of Medicine and Surgery, 62*, 231–235. https://doi.org/10.1016/j.amsu.2021.01.051

Wang, A. I. (2015). The wear out effect of a game-based student response system. *Computers & Education, 82*, 217–227. https://doi.org/10.1016/j.compedu.2014.11.004

Wang, A. I., & Tahir, R. (2020). *The effect of using Kahoot! for learning—a literature review. Computers & Education, 149*, 103818. https://doi.org/10.1016/j.compedu.2020.103818