

RESEARCH PAPER

Assessing the User Satisfaction of E- Learning Platforms: A Study on University Students in Bangladesh

Nahida Shaulin*, Farha Tasnim, Jakia Sultana, Md. Rifat Ferdoush, Md. Mehedi Hasan and Md. Tasnimul Hasan Redoy

Department of Public Administration, FASS, Bangladesh University of Professionals, Dhaka, Bangladesh

*Corresponding author: nahida.shaulin@gmail.com (ORCID ID: 0009-0001-6466-4311)

Received: 24-08-2025

Revised: 22-11-2025

Accepted: 07-12-2025

ABSTRACT

Since COVID-19 period, online learning has become a common phenomenon in higher studies. In Bangladesh, students are using local as well as global e-learning platforms such as 10 Minute School, Shikho, Coursera, etc. This study tries to find how satisfied universities students in Bangladesh are with such e-learning platforms. This research utilizes a quantitative method of research. In its findings, intention to use demonstrates the strongest relationship with satisfaction, underscoring the importance of user experience in driving platform adoption. It further shows that while many students like the flexibility and benefits of e-learning, they face challenges like poor internet, lack of technical support, uninteresting content, and difficulty in using such platforms. These insights can help universities, software developers, and policymakers make online education more effective and student-friendly in Bangladesh.

HIGHLIGHTS

- ① The COVID-19 pandemic has made e-learning platforms much more acceptable throughout the world, including Bangladesh
- ① This study tries to find out how satisfied university students in Bangladesh are with e-learning platforms.
- ① In its findings, intention to use demonstrates the strongest relationship with satisfaction, underscoring the importance of user experience in driving platform adoption.

Keywords: E-learning, University, Students, Online platforms, User satisfaction

E-learning, significantly incorporates the information and communication technologies (ICT) and modern technologies into educational practices, has become a cornerstone of modern education (Hemajothi and Kumar Jain, 2022). The rapid advancements in digital technologies such as internet, mobile, laptop, tablet etc., over the past few decades have revolutionarily enriched the e-learning system globally (Kumbo *et al.* 2023). There is common usage of classroom management tools among global university students, including Zoom, Microsoft Teams, Google Meet, and Google Saikat *et al.* 2021). The transition from physical classroom-based learning to

digital classroom facilities has been a gradual process, led by the adoption of blended learning models (Regmi and Jones, 2020). Global educational institutions trying to cope up with the demands of the 21st century, the integration of technology into the academic curriculum (Sahin *et al.* 2022; Vachkova *et al.* 2022).

How to cite this article: Shaulin, N., Tasnim, F., Sultana, J., Ferdoush, Md. R., Hasan, Md. M. and Redoy, Md. T.H. (2025). Assessing the User Satisfaction of E- Learning Platforms: A Study on University Students in Bangladesh. *Int. J. Soc. Sci.*, 14(04): 99-106.

Source of Support: None; **Conflict of Interest:** None



The importance of e-learning has been particularly highlighted during the COVID-19 pandemic (Ignacio *et al.* 2022). COVID-19 has a root cause of an increase in the use of e-learning, and consequently, educational institutions face a quick transition from face-to-face or physical classroom to e-learning Sultana *et al.* (2023). This shift has accelerated the adoption of digital technologies in education (Kumbo *et al.* 2023). E-learning is a vital substitute to physical education during the COVID-19 pandemic, as it promises accessibility, flexibility, and independent learning (Kabir, Hasan, & Mitra, 2021). The transition to digital education has achieved popular teaching methodologies, reshaping the landscape of university education (Gravett *et al.* 2023).

While global platforms like Coursera, Udemy, and Khan Academy offer high-quality, structured courses in contrast, local platforms like 10 Minute School have gained popularity by providing affordable, Bangla-medium content tailored to the national curriculum. The COVID-19 pandemic has made e-learning platforms much more acceptable throughout the world, including Bangladesh (Idkhan & Idris, 2024). Bangladeshi university students conducted online class to obey the declaration of the Ministry of Education (Hasan *et al.* 2021). The perceptions of Bangladeshi students regarding e-learning platforms are helpful, but not an easy path to adopt it. However, students have a positive attitude or acceptance of the application of e-learning (Amin *et al.* 2016). Individuals' performance, social force, and behavioral intention were the most significant indicators of students' behavioral intention towards using e-learning systems, especially after the pandemic (Maisha & Shetu, 2023).

The use of technology in education has been prevalent in many parts of the world due to providing access to quality education to all is still a challenge for developing Countries (Shrestha *et al.* 2022). Most of the students at university found their experience regarding e-learning is less satisfactory (Tamal *et al.* 2022). Students feel demotivated during online classes due to the lack of technology Preparedness (Hasan *et al.* 2021). Besides, there are some other root reasons behind university students' resistance to accepting e learning, including insufficient consistency with online instruction, absence

of simplicity, and insufficient flexibility. As the students lack a personal study room in the family, the sudden entrance of family members and pet animals harming concentration during online class (Adedoyin & Soykan, 2023). The educational material and course strategies employed in online significantly impact students' motivation to enroll in them (Chowdhury *et al.* 2022).

Despite numerous studies have been conducted on e-learning, limited studies have examined university students' satisfaction with e-learning systems in Bangladesh. Most of the studies have employed SERVQUAL and qualitative methods, with limited exploration of alternative models such as the DeLone and McLean model or quantitative approaches. Furthermore, previous studies have been conducted during the COVID-19 period, and less work on post-COVID-19 period and the long-term planning of e-learning. Therefore, the main objective of this study is to assess the user satisfaction with e-learning platforms in Bangladesh.

Methodology

This research adopted quantitative approaches to evaluate the level of user satisfaction with e-learning platforms commonly utilized by students of universities in Bangladesh. Primary data was collected through a survey questionnaire from university students to identify their behaviour, preferences, intentions, attitudes, and opinions towards e-learning platforms. The study also employed a structured format to interview the respondents. The research incorporated secondary data through a detailed exploration of prior research, online articles, newspaper reports, etc., to support the analysis. This combination of primary and secondary data helped in providing a well-rounded analysis of the research topic. The general research area for this study includes all the current students of universities residing inside the territory of Bangladesh and the e-learning platforms used by them. Universities to conduct the survey have been selected through a simple random sampling method, targeting both public and private, urban and semi-urban universities. According to the Yamane formula, in order to justify the research, considering the total number of students

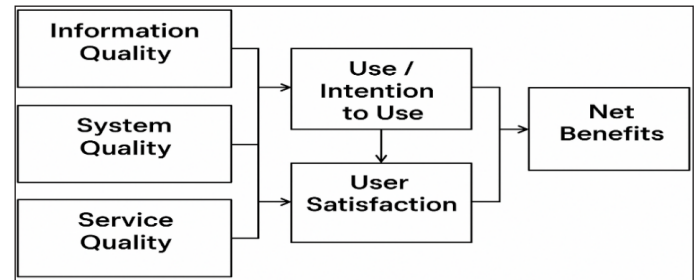
to be infinite (∞) and acceptable sampling error 0.05, a minimum of 400 respondents were required. Therefore, 410 respondents have been enough for the study. Each participant has been asked to provide their consent before starting the survey. For quantitative data analysis, the study used Microsoft Excel for organizing, setting, cleansing, and coding the raw data acquired by the means of the survey. The numerically coded data were then imported into IBM SPSS (Statistical Package for the Social Sciences) software, where descriptive statistics such as frequency and percentage of each variable were identified. To assess the significance of the relationships described in the hypotheses, a correlation test was done for each hypothesis.

Theoretical Framework

William H. DeLone and Ephraim R. McLean are two highly respected figures in the field of information systems. In 1992, they collaboratively developed the DeLone and McLean Information System Success Model to evaluate the overall success and effectiveness of information technology systems (DeLone & McLean, 1992). Later, in 2003, responding to critiques from researchers and the evolving nature of technology, an updated version of the model was presented in the *Journal of Management Information Systems* under the title "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update" (DeLone & McLean, 2003). In this model, they identified six interrelated elements that together help measure the success of an information system, such as system quality, information quality, use, user satisfaction, individual impact, and organizational impact. Later, service quality was added as an essential element, intention to use was introduced alongside use, and individual impact and organizational impact were merged into a single dimension called net benefits.

The Fig. 1 clearly demonstrates that the six components of DeLone and McLean's model are deeply interrelated. For instance, use and user satisfaction depend on satisfactory service quality, information quality, and system quality. Moreover, use/intention to use and user satisfaction are two factors that influence the net benefits, which reflect the overall success of the system. Overall, this model plays a significant role in evaluating

the effectiveness and success of e-learning platforms because system quality, information quality, and service quality are included, which impact student satisfaction and learning outcomes.



Source: DeLone and McLean Model of Information Systems Success model

Fig. 1

It is possible to determine which elements play a critical role in user satisfaction and educational success by using DeLone and McLean's information system success model. Based on the model, the following hypotheses are-

- ❖ **H0₁: There is no significant relationship between information quality and user satisfaction.**
- ❖ **H1₁:** There is a significant relationship between information quality and user satisfaction.
- ❖ **H0₂:** There is no significant relationship between system quality and user satisfaction.
- ❖ **H1₂:** There is a significant relationship between system quality and user satisfaction.
- ❖ **H0₃:** There is no significant relationship between service quality and user satisfaction.
- ❖ **H1₃:** There is a significant relationship between service quality and user satisfaction.
- ❖ **H0₄:** There is no significant relationship between user satisfaction and intention to use.
- ❖ **H1₄:** There is a significant relationship between user satisfaction and intention to use.
- ❖ **H0₅:** There is no significant relationship between user satisfaction and net benefit
- ❖ **H1₅:** There is a significant relationship between user satisfaction and net benefit.

FINDINGS & ANALYSIS

Demographic Profile

Table 1: Demographic Profile of the Participants ($n = 401$)

Participants' Characteristics	Frequency	Percentage
1. Age		
18-22	118	29.4%
23-25	240	59.9%
Above 25	43	10.7%
2. Gender		
Male	254	63.3%
Female	147	36.7%
3. Year of Study		
1 st Year	51	12.7%
2 nd Year	81	20.2%
3 rd Year	85	21.2%
4 th Year	143	35.7%
Postgraduate	41	10.2%

A sum of 401 university students attended in our survey. Among them, 201 participants were from different public universities, including the University of Dhaka, the University of Rajshahi, the University of Chittagong, several Universities of Science and Technology, Bangladesh University of Engineering and Technology (BUET), KUET, RUET, Islamic University, Jagannath University, Titumir College, etc. The rest of the 200 participants were from different private universities, including BRAC University, North South University, Independent University of Bangladesh, American International University-Bangladesh, East West University, Daffodil International University, etc. The majority among the participants, 254 (63.3%), were male, while only 147 (36.7%) of them were female. 118 (29.4%) participants were from the age group 18-22, while 240 (59.9%) of them were from the age group 23-25, and only 43 (10.7%) were aged above 25. As our survey only included current university students, participation from each year was ensured. 51 (12.7%) participants among the students were from the 1st year of university, while 81 (20.2%) of them were from the 2nd year. From the 3rd year, 85 (21.2%) students participated in the survey, and from the 4th year, 143 (35.7%) students, which is the most, participated. 41 (10.2%) students from

the postgraduate level also participated in the survey. The frequency of responses and informal conversation with the participants revealed that 4th year students are more familiar with using online educational platforms due to their pursuit of job market preparation, IELTS preparation, etc.

Table 2: Correlation between Different Variables

Variables of Relationships	p-value	r-value	Decision
There is no significant relationship between information quality and user satisfaction. (H1)	0.000	0.651	Alternate hypothesis accepted; moderate positive relationship
There is no significant relationship between system quality and user satisfaction. (H2)	0.000	0.647	Alternate hypothesis accepted; moderate positive relationship
There is no significant relationship between service quality and user satisfaction. (H3)	0.000	0.663	Alternate hypothesis accepted; moderate positive relationship
There is no significant relationship between user satisfaction and intention to use. (H4)	0.000	0.729	Alternate hypothesis accepted; high positive relationship
There is no significant relationship between user satisfaction and net benefit. (H5)	0.000	0.681	Alternate hypothesis accepted; moderate positive relationship

The table 2 the result of Spearman's Correlation done to verify the five proposed research hypotheses. It examines the significance and strength of the relationships between user satisfaction and other key factors, that are information quality, system quality, service quality, use/intention of use, and net benefit. Spearman. All Correlation tests conducted in five instances for the five hypotheses revealed statistically significant relationship (all p -value < 0.001), confirming that all key variables have significant relationships with user satisfaction. Therefore, null hypothesis has been rejected and alternative hypothesis has been accepted for all five hypotheses.

Spearman's Correlation testing between information quality and user satisfaction revealed a moderate positive correlation ($r = 0.651$) between them. It suggests

that a higher user satisfaction can be achieved by ensuring better information quality in the e-learning platforms. Testing of system quality and user satisfaction also showed a moderate positive relationship ($r = 0.647$), indicating that a greater system quality would enhance user satisfaction. Again, the test between service quality and user satisfaction exhibited a moderate positive relationship ($r = 0.663$), implying that a more effective service quality contributes to greater user satisfaction. Spearman Correlation between user satisfaction and use/intention of use conveys a high positive relationship ($r = 0.729$), insinuating that user satisfaction strongly affects the tendency to use such platforms. Lastly, the test between user satisfaction and net benefit revealed that they hold a moderate positive relationship ($r = 0.681$), indicating that an enhanced user satisfaction drives an increased net benefit.

DISCUSSION

This study is significantly led by DeLone and McLean's "Information System Success Model" to determine the satisfaction level of university students in Bangladesh with e-learning platforms. The findings of the study reveal that information quality plays a crucial role in user satisfaction. Around 82.8% of respondents agreed that the e-learning platforms offer information that is clear and relevant. This is also supported by the previous studies that have reinforced the importance of clarity and accuracy in educational content (Amin *et al.* 2016; Debattista, 2018). However, a notable portion of respondents remained neutral about content depth, and some platforms may still lack course-specific adaptability, which is significantly represented by participants in interviews, who mentioned that content quality is often not interactive enough. Regarding system quality, above 80% respondents found that e-learning platforms were user-friendly and easy to access. Though only 65.4% were satisfied with the speed and reliability of the platforms, revealing technical inconsistencies. In this regard, some Similar studies have highlighted how poor content design, slow speeds negatively affect user satisfaction (Kabir *et al.* 2021).

The previous studies conducted by the (Maisha & Shetu, 2023) strongly emphasized the behavioural intention as

a core predictor for e-learning platforms acceptance. Additionally, Amin *et al.* (2016) appreciated factors such as perceived usefulness, ease of use. However, in contrast, the findings of this study revealed that further service feedback, content quality, government role, and technological performance are also equally crucial for student satisfaction. Service quality is represented as a mixed perspective. Although 70.4% of respondents appreciated the availability of learning resources, only 61.1% respondents perceived that customer service was effective. Meanwhile, Interview participants expressed their concern over the lengthy response to technical issues. That was also reflected by earlier literature, which indicates the vital role of timely feedback and technical support in ensuring a smooth learning experience (Alqurashi, 2019; Hasan *et al.* 2021). Two variables, between Use/Intention of Use and User Satisfaction, indicate the strongest correlation ($r = 0.729$). The findings of the study indicate that 74.9% students intended to use it in their academic future, and in terms of user satisfaction, about 77% students were satisfied with the learning experience. This is consistent with Maisha and Shetu's (2023) findings, which emphasize that behavioural intention and performance expectancy shape the usage of e-learning platforms in Bangladesh. Despite the strengths of e-learning, there are existing loopholes. A significant portion, 57.9% of students, who use e-learning platforms regularly, faced poor internet connections, especially those who are in rural and semi-urban areas. This finding is reflected by Kabir *et al.* (2021), who stated that digital discrepancy is the primary barrier to e-learning readiness. Additionally, a significant portion of students perceived that there is insufficient content interactivity with students, which is emphasized by the study of Shih *et al.* (2018) and Bahramnezhad *et al.* (2016) on the relationship between student engagement and academic satisfaction. Moreover, interview participants revealed cultural perceptions of students' guardians that favor traditional learning or physical learning over e-learning.

CONCLUSION

This research aimed to evaluate the user satisfaction of the e-learning platforms among the students of

universities in Bangladesh. The DeLone and McLean Information System Success Model was used as the theoretical foundation for this study.

Statistical analysis has shown that all components of the DeLone and McLean model have a strong influence on the user's satisfaction. Investigations have shown that students generally find e-learning platforms to be effective, accessible, and relevant to their educational needs, especially those that provide simplified and time flexibility among these platforms. However, the level of satisfaction depends on the technical performance, content involvement, and the reaction of the service. Significantly, a strong relationship ($R = 0.729$) has been noticed in the desire to use online educational platforms ($R = 0.729$), which emphasizes the importance of positive user experience in promoting sustainable use of e-learning platforms.

Although e-learning platforms have seen a surge in use and have been proven to be beneficial during and after the COVID-19 pandemic, various challenges continue, involving weak Internet connections, inconsistencies in content, inconsistent technical assistance, and a lack of personalization. These obstructions are particularly intense for students residing in rural or semi-urban regions. In addition, cultural and institutional preferences for traditional education obstruct learners from fully adopting these platforms, which limits the full potential for e-learning. In the light of these results, a number of actions are recommended in the study: simplifying user interface design, enriching education materials with multimedia, ensuring stable technical infrastructure, providing sympathetic assistance, and including features such as offline access and local language assistance etc. Furthermore, it is essential to deal with digital divisions for the equitable expansion of online education and to increase digital literacy among the students of rural, semi-urban, and urban areas. Finally, e-learning platforms have shown significant promise to change the environment of higher education in Bangladesh. However, to ensure sustainable user satisfaction, the improvement of system, the innovation of content, and continuous investment in the user-centric design are essential. With appropriate policy support and strategic improvement, e-learning can become a

more inclusive, effective and sustainable education system across the country.

REFERENCES

- Adedoyin, O.B. and Soykan, E. 2023. Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*, **31**(2): 863–875.
- Ahmad, N., Quadri, N.N., Qureshi, M.R.N. and Alam, M.M. 2018. Relationship modeling of critical success factors for enhancing sustainability and performance in e-learning. *Sustainability*, **10**(12): 4776.
- Alenezi, A. 2012. *E-learning acceptance: Technological key factors for successful students' engagement in E-learning system*.
- Ali, A., Uppal, M.A. and Gulliver, S.R. 2018. A conceptual framework highlighting e-learning implementation barriers. *Information Technology & People*, **31**(1): 156–180.
- Alqurashi, E. 2019. Predicting student satisfaction and perceived learning within online learning environments. *Distance Education*, **40**(1): 133–148.
- Al-Rahmi, W.M., Yahaya, N., Aldraiweesh, A.A. *et al.* 2019. Integrating technology acceptance model with innovation diffusion theory: An empirical investigation on students' intention to use e-learning systems. *IEEE Access*, **7**: 99271–99281.
- Amin, M.K., Akter, A. and Azhar, A. 2016. Factors affecting private university students' intention to adopt e-learning system in Bangladesh. *Daffodil International University Journal of Business and Entrepreneurship*, **10**(2): 10–25.
- Amin, M.R., Rahman, M. and Hossain, M. 2016. E-learning in higher education of Bangladesh: Status, opportunities, and challenges. *Journal of Education and Practice*, **7**(20): 59–66.
- Bahramnezhad, F., Asgari, P., Ghiyasvandian, S., Shiri, M. and Bahramnezhad, F. 2016. The learners' satisfaction of e-learning: A review article. *American Journal of Educational Research*, **4**(4): 347–352.
- Cheng, E.W.L., Chu, S.K.W. and Ma, C.S.M. 2019. Students' intentions to use PBWorks: A factor-based PLS-SEM approach. *Information and Learning Science*, **120**(8/9): 489–504.
- Chowdhury, T.I., Hoque, M.R., Wanke, P., Raihan, M.Z. and Azad, M.A.K. 2022. Antecedents of Perceived Service Quality of Online Education During a Pandemic: Configuration Analysis Based on Fuzzy-Set Qualitative Comparative Analysis. *Evaluation Review*, **46**(3): 235–265.
- Cipta, I.P.A.E.Y., Kesiman, M.W.A. and Gunadi, I.G.A. 2021. Analysis of user satisfaction with e-learning services during the COVID-19 pandemic using the PIECES framework. *International Journal of Social Science and Business*, **5**(3): 338–344.

- Davis, F.D. 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, **13**(3): 319–339.
- Debattista, M. 2018. A comprehensive rubric for instructional design in e-learning. *The International Journal of Information and Learning Technology*, **35**(2): 93–104.
- Debattista, M. 2018. A comprehensive rubric for instructional design in e-learning. *International Journal of Information and Learning Technology*, **35**(2): 93–104.
- Demuyakor, J. 2020. Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. *Online Journal of Communication and Media Technologies*, **10**(3): e202018.
- DeLone, W.H. and McLean, E.R. 1992. Information systems success: The quest for the dependent variable. *Information Systems Research*, **3**(1): 60–95.
- DeLone, W.H. and McLean, E.R. 2003. The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, **19**(4): 9–30.
- DeLone, W.H. and McLean, E.R. 2003. The updated DeLone and McLean model of information systems success. *Journal of the Association for Information Systems*, **4**(1): 1–70.
- Gravett, K., Baughan, P., Rao, N. *et al.* 2023. Spaces and Places for Connection in the Postdigital University. *Postdigit. Sci. Educ.*, **5**: 694–715.
- Hasan, M.K., Tonmon, T.T., Kabir, H., Masud, S.B., Hasan, M.A., Das, B., Akter, M., Hawlader, M.D.H. and Mitra, D.K. 2021. Availability and use of technology for e-learning: To what extent do these impact Bangladeshi university students? A cross-sectional study. *F1000Research*, **10**: 1285.
- Hemajothi, S. and Jain, S.K. 2022. Challenges of E Learning during the Pandemic and Its Implications in Education. *Technoarete Transactions on Application of Information and Communication Technology (ICT) in Education*, **1**(4).
- Humida, N., Rahman, S. and Akter, T. 2021. Online learning during COVID-19: Challenges and adaptation among university students in Bangladesh. *Asian Journal of Education and Social Studies*, **18**(2): 12–22.
- Idkhan, A.M. and Idris, M.M. 2024. The impact of user satisfaction in the use of e-learning systems in higher education: A CB SEM approach. *International Journal of Emerging Technologies in Learning*, **15**(19): 17415.
- Igbaria, M. and Iivari, J. 1995. The effects of self-efficacy on computer usage. *Omega*, **23**(6): 587–605.
- Ignacio, J., Chen, H.C. and Roy, T. 2022. Advantages and challenges of fostering cognitive integration through virtual collaborative learning: a qualitative study. *BMC Nurs.*, **21**: 251.
- Kabir, H., Hasan, M.K. and Mitra, D.K. 2021. E-learning readiness and perceived stress among the university students of Bangladesh during COVID-19: A countrywide cross-sectional study. *Annals of Medicine*, **53**(1): 2305–2314.
- Kabir, M.F., Jahan, N. and Khan, T. 2021. Barriers to e-learning adoption in rural Bangladesh: A post-pandemic study. *International Journal of Education Research*, **8**(3): 45–54.
- Kebritchi, M., Lipschuetz, A. and Santiago, L. 2017. Issues and challenges for teaching successful online courses in higher education. *Journal of Educational Technology Systems*, **46**(1): 4–29.
- Kemp, N. and Grieve, R. 2014. Face-to-face or face-to-screen? Undergraduates' opinions and test performance in classroom vs. online learning. *Frontiers in Psychology*, **5**: 1278.
- Kemp, N. and Grieve, R. 2014. Face-to-face or face-to-screen? Undergraduates' opinions and test performance in classroom vs. online learning. *Frontiers in Psychology*, **5**: 1278.
- Kumbo, L., Mero, R.F. and Hayuma, B.J. 2023. Navigating The Digital Frontier: Innovative Pedagogies for Effective Technology Integration in Education. *The Journal of Informatics*, **3**(1).
- Maisha, K. and Shetu, S.N. 2023. Influencing factors of e-learning adoption amongst students in a developing country: The post-pandemic scenario in Bangladesh. *Future Business Journal*, **9**(1): 37.
- Maisha, S. and Shetu, F. 2023. Behavioral intention and peer influence in e-learning acceptance among Bangladeshi students. *Bangladesh Journal of Educational Technology*, **4**(1): 23–34.
- Nanayakkara, C. and Whiddett, D. 2005. A model of user acceptance of e-learning technologies: A case study of a polytechnic in New Zealand. In *Information systems technology and its applications*, ISTA. <https://dl.gi.de/handle/20.500.12116/28342>
- Regmi, K. and Jones, L. 2020. A systematic review of the factors – enablers and barriers – affecting e-learning in health sciences education. *BMC Med. Educ.*, **20**: 91.
- Şahin, F., Doğan, E., Okur, M.R. and Şahin, Y.L. 2022. Emotional outcomes of e-learning adoption during compulsory online education. *Education and Information Technologies*, **27**(6): 7827–7849.
- Saikat, S., Dhillon, J.S., Wan Ahmad, W.F. and Jamaluddin, R.A. 2021. A systematic review of the benefits and challenges of mobile learning during the COVID-19 pandemic. *Education Sciences*, **11**(9): 459.
- Shih, T.K., Gunarathne, W.K.T.M. and Ochirbat, A. 2018. Grouping peers based on complementary degree and social relationship using genetic algorithm. *ACM Transactions on Internet Technology*, **19**(2): 51.
- Shrestha, S., Haque, S., Dawadi, S. *et al.* 2022. Preparations for and practices of online education during the Covid-19 pandemic: A study of Bangladesh and Nepal. *Educ. Inf. Technol.*, **27**: 243–265.

- Sultana, M., Nurunnabi, M., Hossain, M.N. and Akter, S. 2023. Influencing factors of e-learning adoption amongst students in a developing country: The post-pandemic scenario in Bangladesh. *Heliyon*, **9**(3): e14204.
- Tamal, M.A., Sarker, M.F.H., Islam, M.K. and Hossain, M.E. 2022. Acceptance of e-learning among university students during

- COVID-19 crisis: Bangladesh perspective. *International Journal of Emerging Technologies in Learning (ijET)*, **17**(6): 152–162.
- Vachkova, S.N., Vachkov, I.V., Klimov, I.A., Petryaeva, E.Y. and Salakhova, V.B. 2022. Lessons of the Pandemic for Family and School—The Challenges and Prospects of Network Education. *Sustainability*, **14**(4): 2087.