



Evaluating the Outcome of Online Learning Implementation: Case of Secondary Schools in Darkhan-Uul, Mongolia

Galbadrakh Sosorbaram¹ (✉), Khugjmaa Dorjbat²

¹ National Academy of Governance, Ulaanbaatar, Mongolia
galaa5@yahoo.com

² School of Technology in Darkhan, Mongolian University of Science and Technology, Ulaanbaatar, Mongolia

Abstract. Since the outbreak of COVID-19, online learning has been increasingly utilized in education worldwide. Due to the COVID-19 pandemic, Mongolia implemented restrictions on classroom activities, with a shift to online learning for certain periods, alternating between online learning and in-person teaching, resulting in varying percentages of remote learning for students across school years, and intermittent interruptions to classroom learning in the event of COVID-19 cases reported in schools. This research seeks to investigate and understand the perspectives of both students and teachers regarding the recently implemented blended learning approach, and assess the overall impact and effectiveness of this approach on teaching and learning outcomes. It should be noted that the distance learning part of blended learning is thoroughly reviewed as it is a completely new practice for Mongolian secondary schooling. Questionnaires on the current implementation of blended learning and school readiness have been collected from educational institutions in Darkhan-Uul province and analyzed accordingly in this research. The survey questionnaire was taken by cross-sectional survey method. According to our survey, it appears that students are struggling to adapt to the online learning situation. The survey conducted as part of the study revealed that students lack confidence in using computers, have a negative impression of online learning, and feel that their teachers do not provide clear instructions. Additionally, the surveys of both students and teachers indicate that adapting to online learning is not an easy task for students. The study reveals that students struggle to adapt to the online learning situation, as indicated by their lack of confidence in using computers, negative impressions of online learning, and unclear lesson preparations by teachers.

Keywords: Blended learning · Educational technology · Online learning activity · Quality of online learning · Learning activity during COVID-19

1 Introduction

The COVID-19 pandemic has been severely affecting education sectors all over the world since its first outbreak in China in December 2019. According to EdTech Hub [1], there are more than 150 countries' educational institutions affected by the pandemic. Sharing a 4700 km wide land border with China and having a high risk of being affected by the epidemic, the Mongolian Emergency Commission suspended all educational services and facilities from January 26th, 2020 as one of its preventive measures. Prolonged school closures caused schools to implement distance learning and online learning to continue the studies of their students. The Ministry of Education and Science (MES) prepared tele-lessons for all grades and broadcasted through 16 television channels throughout the country with a fixed daily schedule. Moreover, there are 206 textbooks that have been uploaded to the educational website [2] (www.econtent.edu.mn) so far and more than 500 online lessons including secondary-school teachers-created lessons contents for the Medle.mn [3].

At the start of September 2021, kids returned to school amidst rising Delta cases which are twice as transmissible as the original variant of the coronavirus. Meanwhile, MES has undertaken several measures to maintain education deliveries and introduced the blended learning approach in which secondary school kids are asked to study face-to-face for five days and online for nine days.

This research investigates teachers' and students' perceptions towards the newly introduced blended learning approach and its current outcome. This research highlights the distance learning part (mostly via online learning) of blended learning as it is a completely new delivery method for many secondary school students and teachers.

Since the outbreak of COVID-19 around the world in January 2020, Mongolia has restricted school's classroom activities. For example, the second half of the 2020 school year was conducted only online, with classes held from September 1 to November 15, 2020, and combined school activities by online learning and by teaching in the classroom from March 1 to June 1, 2021. From September 1 to December 16, 2021, the classes were divided into two groups and alternated weekly by online learning and in the classroom. Students have studied about 45% of their subjects remotely in the 2019-2020 school year. In 2020-2021, 60-68 percent were taught on TV and by online

The original version of the chapter has been revised. A correction to this chapter can be found at https://doi.org/10.2991/978-94-6463-382-5_22

© The Author(s) 2024, corrected publication 2024

H. Batmend and O. Ganbold (eds.), *Proceedings of the Conference on Quality Assurance in Higher Education: Transforming Education-new Generation of Learners (QAHE 2023)*, Atlantis Highlights in Social Sciences, Education and Humanities 18, https://doi.org/10.2991/978-94-6463-382-5_8

learning. For instance, the classes for 1-12 grades were taught on TV. In the 2021-2022 school year, students studied 50 percent of the time as in the classrooms -and 50 percent as by online learning.

However, from September 1 to December 15, 2021, the group was divided into two groups, one group was taught for one week in the classroom, and the other children were taught by online training at home or by themselves. During the time parents felt that the effectiveness of the online learning week was poor.

This is might be because teachers were asked to teach the two groups at the same time and considered to be busy dealing with the heavy workload. In addition, when three or more cases of COVID-19 were reported at one school, the entire class transferred to online learning for a week, and classes in the classroom were interrupted.

2 Literature Reviews

Web-based technology has noticeably transformed the learning and teaching environment. Supporters of online education have observed its potential to remove barriers and offer greater convenience, flexibility, up-to-date content, personalized learning, and feedback compared to a traditional in-person learning approach [4,5,6].

Rovai and Jordan [7] asserted that the suitability of online learning varies among students, leading to potential fluctuations in their academic performance based on the learning environment they engage with. Ginns and Ellis [8] unveiled that student held a negative stance towards the notion that teaching within an e-learning context was conducive to their learning. Blended learning, also referred to as hybrid learning, is an educational approach that integrates conventional classroom methods with online educational materials and opportunities for virtual interaction. As mentioned in the previous section, in Mongolia, due to the impact of the COVID-19 pandemic, the blended learning (BL) methodology has spread widely. Blended learning is not a new concept in education. Higher education institutions have adopted BL since the 1990s to reduce classroom use, increase learner engagement, and utilize information technology [9]. However, in developing countries such as Mongolia, BL has been considered new teaching and learning experience and recently received more attention due to the pandemic crisis.

It is generally understood as a combination of face-to-face and online learning experiences. Nevertheless, it does not appear very easy to find a consensus among its varied definitions. BL, as a methodology, provides an effective ‘starting points for getting teachers to work with technology in their practice’ [10]. An increasing number of studies argue that courses can only be defined as BL if the deliberate, careful, and effective combination of face-to-face and online learning is made based on the best aspects of each mode [11-12]. Some researchers claim that BL happens when students have a certain amount of control over the place, time, pace, and path of online learning activities [13-14]. Several studies define BL as a learning approach that allows students to engage in deeper learning beyond the confines of the classroom [11], while a few works of literature see BL as simply reducing or replacing the traditional classroom. In terms of technology, some current literature refers to the online part of BL directly as web-enabled learning necessitating the internet [15]. Some researchers interpret it to a wide range of technology-mediated learning [16-17]. According to McGee and Reis [18], there are not many useable frameworks designed for blended learning due to incomplete and inconsistent conceptualization of BL. As they criticized, “definitions of BL focus only on the context and environment in which learning occurs rather than course roles, pedagogy, and functions of meetings”. While criticizing, they proposed the following definition, in which they assume what makes “blended” is fully covered. Blended courses combine in-person and online methods for meaningful learning results.

3 Survey methods

This study was conducted to assess the effectiveness of online learning through a cross-sectional survey of students and teachers of secondary schools in Darkhan-Uul province which is the second-largest city in Mongolia. This study covered a wide range of issues, including the benefits of online learning, its acceptance and accessibility by students, its motivational effects towards students’ learning, and its adaptability by students. The survey also asked teachers and students what they can do to improve the quality of online learning. The survey questions were developed based on the common difficulties and cases encountered by students and teachers during online learning.

The survey questionnaire was taken by cross-sectional survey method. In other words, the questionnaires were designed to be taken from the students and the teachers at the same time to clarify the views of both sides. The research questions were those developed by the researchers themselves. The research results were analyzed using IBM SPSS Statistics. For this study, the percentage of importance was calculated using the weighted average method for the data in Table 5, while for other questions, the frequency of indicators was used in the study. We use a four Likert scale question, rated on a 1–4-point scale and the weighted average of scores was used for this question

The standard deviations and mean values of the question were calculated on all questions.

3.1 Data Collecting Tools

The questionnaire was uploaded to Google Drive and its link was shared in selected schools’ students’ and teachers’ groups; afterwards, respondents sent back their answers to Google Drive. The middle and high school students and teachers participated in this survey. The survey was conducted in the first week of December 2021 using Google Form. There are some possible limitations to our online surveys, especially in the case of questionnaires from students, such as the limitations of lack of control and response bias.

3.2 Sampling or Study Group

The survey covered 3753 middle and high school students of Darkhan-Uul province or 27.5% of the total number of students and 556 teachers or 46.7% of the total number of teachers. Regarding the gender of the students who participated in the study, 53% were female and 47% were male.

Table 1. The grades of students

Grades	By numbers	By percentage
6th Grade	600	16%
7th Grade	751	20%
8th Grade	525	14%
9th Grade	563	15%
10th Grade	525	14%
11th Grade	450	12%
12th Grade	338	9%

Table 2. General information of the participants in the teachers' survey

Employed years		
to 5 years	133	24%
5-10 years	111	20%
10-20 years	173	31%
Up to 20 years	139	25%
Majored subjects		
Natural sciences	121	22%
Social studies	106	19%
Elementary	157	28%
Foreign languages	90	16%
Information studies	14	3%
Others /physical	68	12%

Table 2 displays the years of service and the subjects taught by the survey participants. In terms of gender, the majority (85%) are female teachers, and teachers with 10-20 years of experience (31%) are the most surveyed. Attendees encompassed individuals of various ages, including the young, middle-aged, and elderly. All types of professional teachers also participated in the survey.

The statistical significance of the survey. In assessing the internal consistency reliability of the research data, a Cronbach's alpha coefficient of 0.91 was obtained, indicating sufficient reliability. To ensure measurement consistency, a principal component factor analysis was performed on all variables. The analysis yielded a Kaiser-Meyer-Olkin (KMO) coefficient of 0.83, indicating adequate sample adequacy. The KMO test demonstrated statistical significance with a p-value of 0.000 (Sig<0.05), confirming the validity of the factor analysis.

4 Findings

Question 1. How confident are you in using computers in the current situation of online learning? was responded by the teachers and the students.

Table 3. Students' confidence in computer use for online learning

Answers	Questionnaire from the students /Mean=2.1, SD=0.7/	Questionnaire from the teachers /Mean=2.07, SD=0.88/
Yes, I use it more confidently	n=1227, 32.7%	n=238, 42.8%
Will be using it soon with	n=1561, 41.6%	n=120, 21.6%
No, it's too early to tell	n=965, 25.7%	n=198, 35.6%

Table 3 shows that there is a considerable difference between teachers and students in answering the question of whether they are more confident in using computers in the situation of online learning. As the significance point was among the teachers, they (42.8%) believe that students are more confident in using computers, while students (41.6%) say that they will soon become more confident in using computers. These responses show that in the situation of online learning, especially on the confidence in computer use has not been increased significantly. Online courses require students to be self-responsible, self-motivated, and able to communicate with teachers and other students through the Internet with the support of the communication technology [19].

Table 4. Students' perceptions of current online learning courses

A. Questionnaire from the students /Mean=2.7, SD=0.8/		B. Questionnaire from the teachers /Mean=3.09, SD=0.55/	
A-1. No satisfied	n=547, 14.6%	B-1. No	n=2, 0,4%
A-2. There are many difficulties that are difficult to understand	n=1098, 29.2%	B-2. It's hard to say	n=56, 10%
A-3. Although I like it, many questions remain unclear to me	n=1430, 38.1%	B-3. In some ways	n=388, 69,7%
A-4. I like it, everything is clear	n=679, 18.1%	B-4. Yes, I can definitely	n=11, 19.9%

Question 2. How do you feel about the current online learning courses? e.g. on satisfaction by online learning among the students and online lessons are easy-and-understandable to the students and easy to prepare for the teachers. The questions were taken from the students and the answers were compared with the teachers to identify how online learning lessons easy-and-understandable to use were.

As for the total survey participants (teachers and students), 18-19% are completely satisfied with e-learning (answers A-4 and B-4). But the questions which are somewhat unclear (A-3, B-3) were answered 38%, 69% of them by both teachers and students. The questions on 'Not satisfied' and 'Difficult to understand' (answers A-1, A-2) are accounted for 43.8% of students. As for teachers, the questions on 'No' and 'It is hard to say are accounted 10.4%. This shows that satisfaction with online learning is not so high among the students. It is not enough for teachers to prepare their lessons easy-and-understandable to the students (Table 4).

Table 5. Responses of teachers who answered whether they were able to teach online learning to students clearly, classifying them professionally

Professional fields of the teachers	No	Difficult to say	In some ways	Yes, I can definitely	The weighted average of the scores
Foreign languages	0%	7.8%	56.7%	35.6%	32.8%
Social studies	0%	9.4%	69.8%	20.8%	31.1%
Information study	0%	21.4%	42.9%	35.7%	31.4%
Others	1.5%	7.7%	66.2%	24.6%	31.4%
Elementary	0%	9.7%	74.8%	15.5%	30.6%
Natural sciences	0.8%	12.4%	77.7%	9.1%	29,5%
Total (%)	0.4%	10.0%	69.7%	20.0%	30.9%

We used a Likert scale to collect responses from teachers regarding their ability to teach online learning to students clearly, and we classified their responses professionally as shown in Table 5. This means that the responses to this question were scored on a scale of 1-4 points. The weighted average of the answers was calculated to show that teachers were able to teach online learning to students clearly (no = 1; difficult to say = 2; in some ways = 3; yes, I can definitely = 4 points respectively, and the weighted average was shown in the last column).

A weighted average in statistics is used to calculate the average of a data set in which values are matched with different weights of importance or frequency. As for whether teachers responded professionally to whether the online learning course was understandable to students, the answer was that science teacher (no, it is difficult to say, in some respects, the percentage is higher than average) did not prepare well enough. The next dissatisfaction is for elementary teachers, on the contrary, the most enthusiastic are foreign language teachers.

Table 6. Online learning adaptation among students

Answers	A. Questionnaire from the students /Mean=3.1, SD=0.8/	B. Questionnaire from the teachers /Mean=2.6, SD=0.68/
So hard	n=199, 5.3%	n=31, 5.6%
Hard	n=473, 12.6%	n=155, 27.8%
Not easy	n=1910, 50.9%	n=332, 59,7%
Easy	n=1171, 31.2%	n=38, 6.9%

Question 3. How did students adapt to online learning? teachers and students were responded.

The answers that 'So hard' and 'Easy' were not far between the teachers and students, but the answers that 'Easy' and 'Hard' were different. In particular, 'Easy' was 31.2% from the students, and 6.9% was from the teachers. The answer 'Hard' was 12.6% from the students, and 27.8% was from the teachers. This shows that there was a significant difference in adaptation between students and teachers (Table 6).

Table 7. Impact of online learning on students' motivation to learn

Answers	A. Questionnaire from the students /Mean=2.3, SD=0.9/	B. Questionnaire from the teachers /Mean=2.48, SD=0.83/
No, decreased	n=788, 21%	n=99, 17.9%
No, still at the previous level	n=1032, 27.5%	n=113, 20.3%
Yes, to somewhat	n=1606, 42.8%	n=321, 57.7%
Yes, a lot has increased	n=327, 8.7%	n=23, 4.2%

Question 4. Has online learning increased students' motivation to learn?

Teachers and students have responded to the following question (Table 7). The answer 'No, decreased' was close as to 17.9%, 21% for both sides, while the answer from the students 'No, still at the previous level' was 7.5 points higher than from the teachers; The answer from the teachers 'Somewhat' was 14.9 points higher than from the students, and the answer from the students 'Yes, a lot has increased' was 4.5 points higher than from the teachers. According to the results of the survey, 51.5% of the students and 61.9% of the teachers have dominated the percentage of positive responses. However, it was definitely clear to us that teachers' responses were relatively higher than students.

According to Frankola [20], motivation, having practical expectations, well-integrated live sessions, and the utilization of advanced technologies all play a role in fostering persistence in both academic and corporate distance learning settings. Furthermore, counseling and guidance might prioritize courses that pose greater challenges for students to ensure their success. According to Anna [21], the ramifications encompass the realm of researching and implementing strategies to quantify outcomes in online education. The study establishes the continuous feasibility of identifying elements contributing to a heightened and more proficient learning outcome through methods such as observations, surveys, interviews, and analysis of student demographics and course structure.

Table 8. Students' attitudes towards online learning

Answers	A. Questionnaire from the students /Mean=2.3, SD=0.9/	B. Questionnaire from the teachers /Mean=2.48, SD=0.83/
1. This is worse than classroom training	n=2496, 66.5%	n=369, 66.3%
2. Unable to adapt to e-learning	n=653, 17.4%	n=134, 24.1%
3. I found a lot of useful things in e-learning	n=439, 11.7%	n=41, 7.4%
4. Distance learning is more effective than classroom learning	n=165, 4.4%	n=12, 2.2%

Question 5. What is the attitude of students towards online learning?

Teachers and students have responded to the following question (Table 8). The answer 'This is worse than classroom training' (answer 2 in Table 8) was 66.3% from the teachers and 66.5% from the students, and the percentage of answers between them was approximately similar /by 0.2 points/. The answer 'Unable to adapt to online learning' (Answer 1 of (Table 8) was 17.4% from the students, while the answer from the teachers was 24.1% or 6.7 points higher than from the students.

As we investigated the answer on the advantages of online learning (answers 3 and 4 in (Table 8), it was 11.7%, 4.4% from the students, and 7.7%, 2.2% from the teachers, respectively. The survey shows that the majority of teachers and students (90.4% of teachers and 83.9% of students) answered 1 and 2 showing that online learning was lacking in many ways.

Table 9. In your opinion, are the students more diligent in their online learning?

Answers	A. Questionnaire from the students /Mean=1.92, SD=0.57/	B. Questionnaire from the teachers /Mean=1.71, SD=0.52/
No, I'm working harder than before	n=781, 20.8%	n=177, 31.8%
Yes, but not all	n=2499, 66.6%	n=361, 64.9%
All students became more diligent in their studies	n=473, 12.6%	n=18, 3.3%

Question 6. Do you think that the students are more diligent in their online learning? Teachers and students have responded the following question (Table 9). According to the survey, 20.8% of students and 31.8% of teachers answered negatively, while 3.3% of teachers and 12.6% of students answered positively. The average answer (answer 2) was similar for teachers and students or 64.9% and 66.6%. The proportion of responses from teachers was less diligent than the students so the students were higher than the average.

Table 10. Daily online learning hours among students and teachers

Answers	A. Questionnaire from the students /Mean=2.82 SD=0.99/	B. Questionnaire from the teachers /Mean=2.79, SD=0.9/
Up to 30 minutes	n=413, 11%	n=67, 12%
Up to an hour	n=972, 25.9%	n=157, 28.2%
2 hours	n=1092, 29.1%	n=173, 31.1%
3 hours	n=1272, 33.9%	n=160, 28.7%

Question 7. Students were responded ‘How many hours a day do you spend on online learning? According to the survey, 63% of students spent 2-3 hours on online learning, while 37% spent up to 1 hour. The teachers and students’ responses were similar (maximum 5 points) (

Table 10).

Table 11. Perceived changes in student-teacher communication during online learning

Answers	A. Questionnaire from the students /Mean=2.5, SD=0.90/	B. Questionnaire from the teachers /Mean=2.19, SD=0.905/
No, the communication is significantly	n=537, 14.3%	n=163, 29.3%
No, the communication is at the same level	n=1321, 35.2%	n=145, 26.1%
Improved in some ways	n=1366, 36.4%	n=227, 40.8%
Yes, the communication has improved	n=529, 14.1%	n=21, 3.8%

Question 8. What were the changes in student-teacher communication during online learning? Based on Table 11 data from both students and teachers, during online learning, 14.3% of students and 29.3% of teachers perceived a significant weakening in student-teacher communication. Additionally, 35.2% of students and 26.1% of teachers felt that communication remained at the same level. In contrast, 36.4% of students and 40.8% of teachers reported that communication had improved in some ways. A smaller percentage of students (14.1%) compared to teachers (3.8%) felt that communication had significantly improved.

Question 9. Mark the steps to be taken to improve the quality of the online learning (more answers can be circled). As here, the following popular answers are shown here which the students have chosen by themselves. This included:

1. Teachers teach in a more interesting way (63% or 2376 students);
2. Allow the students to interact with others (45% or 1,681 students);
3. Increase the students’ participation (43% or 1603 students);
4. Let them study pre-prepared materials (29% or 1096 students);
5. Increase the number of video lessons (23% or 484 students);
6. Increase online learning hours (13% or 447 students);
7. Increase the number of online learning tasks (6% or 218 students).

Question 10. Mark the steps to be taken to investigate what the teachers need to do to improve the quality of the online learning (more answers can be circled). As here, the following popular answers are shown here which the teachers have chosen by themselves. This included:

1. Increase the students’ participation (62% or 346 teachers);
2. Teaching in a more interesting way (52% or 291 teachers);
3. Allow the students to interact with others (45% or 250 teachers);
4. Let them study pre-prepared materials (28% or 159 teachers);
5. Increase the number of video lessons (12% or 123 teachers);
6. Increase the number of online learning tasks (12% or 68 teachers);
7. Increase online learning hour (10% or 54 teachers);

The validity of BL remains controversial. The lack of an accurate BL scale was one of the big concerns [22]. Based on the findings of our research, we also posit that the aforementioned will remain consistent.

Table 12. The question that clarifies exactly what online learning is most important to students

A. Questionnaire from the students		B. Questionnaire from the teachers	
Numbering	Number of votes, percent	Numbering	Number of votes, percent
1. I became more independent	n=1957, 52.1%	2. They became more independent	n=275, 49.5%

2. E-learning seemed ineffective	n=1819, 48.5%	1. E-learning seemed ineffective	n=290, 52.2%
3. I'm looking for more new things to collect	n=844, 22.5%	4. They're looking for more new things to collect	n=84, 15.1%
4. I learned a lot of new things	n=647, 17.2%	5. They learned a lot of new things	n=71, 12.8%
5. I didn't get enough e-learning	n=625, 16.7%	3. They didn't get enough e-learning	n=254, 45.7%

Question 10. What exactly did online learning give students the most importance?

Table 12 shows the responses of teachers and students in the order in which they received the most votes (up to 3 possible answers). Students were more likely to be more self-study (52.1%), while teachers were more likely to respond that online learning was less effective for students (52.2%).

According to the survey, the answers to learn new things and do new research did not get enough feedback from teachers and students. However, the majority of respondents said that they were self-employed and that the effectiveness of online learning was poor.

4 Conclusion

During 2020-2021 years Mongolian secondary schools have delivered 45-68 percent of their total education service through online learning.

Cross-sectional surveys were conducted among middle and high school students and teachers of Darkhan-Uul province, Mongolia, and the survey included a sufficient representation of all students and teachers. The results of the study show that students are not well adapted to the situation of online learning. The survey questions show that in e-learning conditions, students are less confident in using computers, students do not have a good impression of online learning, and teachers do not prepare lessons clearly. Surveys of teachers and students also show that it is not easy for students to adapt to online learning. While it's not justified to assume that students are more diligent in online learning, it has been found that online learning has slightly increased students' motivation to learn. The majority of students, 63%, spend 2-3 hours per day on online learning, while 37% spend up to 1 hour. The majority of teachers and students believe that online learning is in many ways inferior to classroom learning. Comparing teacher and student questionnaires on the situation with online learning, there were significant differences of opinion, with teacher feedback on online learning being more negative than student feedback. It accurately summarizes the percentages of students and teachers who perceived a significant weakening in student-teacher communication during online learning.

Research shows that online learning does not allow students to innovate and learn enough, and that there is a great need to improve it in the future.

Research has shown that what needs to be done to improve the quality of online learning is that teachers need to teach their lessons in a more interesting way (using video lessons and animation in their lessons). There is also a need to allow students to interact with others and to increase students self-regulated learning skills.

Authors' Contributions. All authors collaborated in this work and have read and agreed to the published version of the manuscript.

References

1. A.Bashir, C.Groeneveld and T.Kaye, "New Brief: Monitoring Distance Learning During the Covid-19 Pandemic," EdTech Hub. 2020. <https://doi.org/10.5281/zenodo.4708238>
2. Ministry of Education and Science of Mongolia. TV lessons, 2020. <https://econtent.edu.mn/>
3. Ministry of Education and Science of Mongolia. Secondary school students' lessons. 2022. <https://medle.mn/>
4. K.Swan, P.Shea, E.Frederickson, A.Pickett, W.Pelz, and G.Maher, "Building knowledge building communities: Consistency, contact, and communication in the virtual classroom," Journal of Educational Computing Research, 23(4). 2000.d. DOI: <https://doi.org/10.2190/W4G6-HY52-57P1-PPNE>
5. S.Hackbarth, "The educational technology handbook: A comprehensive guide," Englewood Cliffs, NJ: Educational Technology Publication, 1996.
6. D.Matthews, "The origins of distance education and its use in the United States," THE Journal, 27(2), 54-66, 1999. <https://www.proquest.com/trade-journals/docview/214802168/se-2>
7. A.P.Rovai and H.Jordan, "Blended learning and sense of community: A Comparative analysis with traditional and fully online graduate courses." The International Review of Research in Open and Distributed Learning, 5(2), pp. 1-13, 2004. DOI: <https://doi.org/10.19173/irrodl.v5i2.192>
8. P.Ginns and R.Ellis, "Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning," The Internet and Higher Education, 10(1), pp. 53-64, 2007. DOI: <https://doi.org/10.1016/j.iheduc.2006.10.003>
9. J.A. Snart, "Hybrid Learning the Perils and Promise of Blending Online and Face-to-Face Instruction in Higher Education," Santa Barbara, Calif: Praeger. (2010). DOI: <https://doi.org/10.5040/9798400667701>
10. G.Motteram. Developing and Extending Our Understanding of Language Learning and Technology. Innovations in learning technologies for English Language Teaching. pp. 175-192, 2013.

- <http://www.teachingenglish.org.uk/sites/teacheng/files/FINAL.pdf>
11. I.E.Allen and J.Seaman, “Going the Distance: Online Education in the United States,” Sloan Consortium, 2011. <https://files.eric.ed.gov/fulltext/ED529948.pdf>
 12. D.R. Garrison and H. Kanuka, “Blended Learning: Uncovering Its Transformative Potential in Higher Education,” *The Internet and Higher Education* 7(2), pp. 95-105, 2004. <https://doi.org/10.1016/j.iheduc.2004.02.001>
 13. H. Staker, and M.B. Horn, “Classifying K-12 Blended Learning,” Innosight Institute. 2012. <http://www.christenseninstitute.org/wp-content/uploads/2013/04/.pdf>
 14. J.K.Luke, and J.L.Morrissey, “Integrating Online Pedagogy into Kinesiology: Service Learning for Kinesiology Majors,” *Kinesiology Review*, no. 3(4), pp.258-262, 2014. DOI: <https://doi.org/10.1123/kr.2014-0064>
 15. G.Motteram and P.Sharma, “Blending Learning in a Web 2.0 World,” *International Journal of Emerging Technologies and Society* 7, no. 2, pp. 83-96, 2009. <https://www.researchgate.net/publication/285874562>
 16. C.R. Graham. “Blended learning systems,” In *The Handbook of Blended Learning*, 3-21. San Francisco, 2006. <https://www.researchgate.net/publication/258834966>
 17. R. Saboowala and P.Manghirmalani-Mishra, “Perception of In-Service Teachers Towards Blended Learning as the New Normal in Teaching-Learning Process Post COVID-19 Pandemic,” 2020, DOI: <https://doi.org/10.21203/rs.3.rs-56794/v1>
 18. P.McGee and A.Reis, “Blended Course Design: A Synthesis of Best Practices,” *Online learning (Newburyport, Mass.)* 16, no. 4, pp.7–22. 2012. DOI: <https://doi.org/10.24059/olj.v16i4.239>
 19. A.Isman, Z.A.Gazi and F.A.Aksal, “Students’ Perceptions of Online Learning,” *Educational Technology*, Vol. 50, No. 3, pp. 53–54. 2010. <http://www.jstor.org/stable/44429807>
 20. K. Frankola, “Why online learners drop out,” *Workforce*, 2001, 80(10)
 21. Ya.N.Anna, “Comparing the Effectiveness of Classroom and Online Learning: Teaching Research Methods. *Journal of Public Affairs Education*, Vol.,19, No.2, 2013. DOI: <https://doi.org/10.1080/15236803.2013.12001730>
 22. X.Han, “Evaluating blended learning effectiveness: an empirical study from undergraduates’ perspectives using structural equation modeling,” Volume 14, 2023 DOI: <https://doi.org/10.3389/fpsyg.2023.1059282>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

