The Effectiveness of E-Learning in Acquiring Learning Skills for Undergraduate Students at the University and Its Comparison with in-Person Education in Light of the Corona Pandemic and Its Impact on Future Life Strategy

Hala Husham Nussrat

Environmental Engineering Department, College of Engineering, Mustansiriyah University, Baghdad, Iraq

hala.husham@uomustansiriyah.edu.iq

Abstract

Those who are interested in pedagogy think that becoming interested in teaching is one of the most important stages towards changing the educational process. The only way to develop and improve the caliber of education and its results is to hire a teacher who is passionate about his work and has strong professional skills. As a result, the instructor will have a lasting impression on the conduct, values, thoughts, personalities, and thought processes of his pupils. Consequently, the world altered, including the education sector, and educational institutions searched for new approaches to teaching after the COVID-19 illness developed into a pandemic that quickly spread to every continent. Many students are finding it difficult to distinguish between the various forms of education and the advantages of studying a specialization or study program online using various approaches, as the number of study programs that rely on the Internet rather than students' attendance has increased. Therefore, this paper discusses precisely the fundamental differences between modern types of education to be a reference when choosing a method of education through the Internet and to know which one is more suitable for the target groups.

Keywords: E-learning, In-person Teaching, COVID-19, Combined Learning, Learning Skills, Future Life Strategy.

1 INTRODUCTION

Nowadays, humans live and interact with a society that enjoys a tremendous intellectual, scientific, technical and research openness (Dirksen, 2011). None of the previous eras witnessed technical progress like the one witnessed in this era in many respects, the most important of which is the huge revolution that took place in communication and information technologies, which culminated finally in the international information network (Internet) (Clark and Mayer, 2016). Therefore, In order to solve difficulties and arrive at solutions, it is necessary for each of us to have and appreciate more critical and logical thinking abilities. Every teacher in our day needs to have these abilities (Allen, 2016). Developing teachers is extremely important to us and may even be a moral and legal requirement for us as educators (Clarke, 2008). This could be as a result of its global expansion and quick development, the quick and ongoing advancement of technology in our daily lives, and the advantages of applying the findings of educational research and studies to the actual field of education (Salmons, 2020). An educational catastrophe at all levels is foretold by the teacher training and development programs' persistent weakness and inadequacy (Clarke, 2008). In the field of teaching various sciences, raising the teacher's awareness of his openness to the outside world and the nature of the educational process, as well as developing creative teaching strategies in the field of teaching pure and human sciences, benefit not only the educational process but the entire community (Kosslyn, 2020). Education has invested scientific and technical progress in a parallel way in its means, so the benefit from these technologies appeared inside the classroom and between the school corridors (Boettcher and Conrad, 2016). However, the most exciting thing is establishing an integrated education based on these technologies, called e-learning or virtual learning (Lemov, 2020). Interest in this type of education has increased with the outbreak of the coronavirus epidemic all over the world, as unprecedented challenges have emerged for the education sector (Boettcher and Conrad, 2021). It is evident that the individual should guarantee his right to education, elementary education, as well as university education (Chürr, 2015). Through the recommendations of the World Health Organization, we find that a part has not been highlighted, which is the right to education or its continuation (WHO, 2020). The spread of the pandemic coincided with the middle

of the school year, and a smooth transition to e-education could ensure the right of generations to education, with the possibility of excluding scientific or applied lessons in schools and universities (Elkins et. al., 2021). In order to reduce the effects of the pandemic, it has become possible to adopt remote teaching for all theoretical subjects at all university levels and unfinished classes in schools, or to limit students' working hours to specific days to receive practical lessons represented in scientific subjects, as they need presentation, explanation and reasonable steps that may not be available remotely (Mccabe and González-Flores, 2016). However, through the development of collective applications in recent times, the crisis has proven that everything has become easy, even in education (Mishra et al., 2020). Owing to the conditions that have been present in every nation since the end of 2019, education now primarily consists of communication—both between the student and the teacher as well as between the student and other electronic educational resources like electronic books, electronic libraries, and electronic lessons. This is called E-Learning (Elkins et. al., 2021). The aim of this work is to study the university's undergraduate student's ability to learn via e-learning and how well it performs to in-person instruction in light of the COVID-19 epidemic and its consequences for future life strategies. This paper deals with the study of e-learning in terms of the concept, types, characteristics, advantages, disadvantages and sources, as well as comparing e-learning with in-person learning.

2   LITERATURE REVIEW

Many definitions explain the concept of e-learning, In this study, the most essential definitions will be presented. According to the first definition, e-learning is a tool that helps the educational process go from the indoctrination stage to the stage of creativity, interaction, and skill development. It incorporates all electronic modes of instruction and learning, utilizing the most recent techniques in publishing, education, and entertainment through the use of computers, networks, and storage media (Salmons, 2020). Another definition is education based on digital media and the Internet, which is achieving communication between the teacher and the learner to achieve the desired educational goals (Kumar Basak et. al., 2018). According to Sangrà et al. (2012), e-learning is defined as education that occurs through communication, including communication between the learner and other electronic

educational resources like electronic books, electronic libraries, and electronic lessons. It might also apply to a style of learning that emphasizes the use of technological tools, such tablet computers and their multimedia features, which include visuals, sounds, drawings, forms, tables, and more. Another name for it is online education (Mohseni, 2014). One of the definitions it is a general term used to describe the use of technology primarily in the implementation and teaching of an online course or program, using resources available on the Internet (Lemov, 2020). According to recent definitions, e-learning is an interactive educational system that uses technological advances in communication and information to give students instruction. It operates on an integrated digital electronic that employs electronic networks to display courses, provide instructions and guidance, set up exams, and manage and assess resources and procedures (Lemov et al., 2016). E-learning refers to education that is conducted remotely or in a classroom setting using contemporary communication tools like a computer, the Internet, and media like audio, images, and videos. In many circumstances, e-learning takes place in an environment that is remote from the teacher (Scales, 2017). An educational system that uses information technology and interactive communications, such as the internet, television channels, e-mail, computers, and teleconferences, to provide educational or training programs to students or trainees at any time and anywhere, is the fundamental definition that is very helpful to use during the pandemic. 2020; Ferri et al.

Concept of e-learning: The concept of e-learning, which refers to education using contemporary communication tools like computers, the Internet, and media like audio, images, and video, has expanded along with modern communication tools. Whether it is done in-person or remotely, e-learning offers the greatest return on investment in terms of time and effort savings. E-learning frequently takes place in a setting remote from the instructor, offering a greater potential for more people to conveniently get instruction. The benefits of e-learning include helping to address issues like the knowledge explosion, rising educational demand, and expanding access to education. It also helps to break down psychological barriers between teachers and students, enable workers to receive training and education without having to quit their jobs, and meet the needs and preferences of learners

while increasing return on investment by lowering the cost of education.

Characteristics of e-learning: The essence of e-learning lies in the fact that it uses computers and their networks to deliver multi-media digital content, including textual or spoken texts, sound effects, graphics, still or moving images, and video clips. These media are then integrated to meet predetermined learning objectives. Because it is less expensive than traditional education and offers a multitude of services or duties related to the teaching and learning management process, this learning is handled electronically. Because it is accessible, meaning that the learner can access it from anywhere at any time, it also aids in the learner's acquisition of his own knowledge, enabling reactivity in the learning process (the learner's interaction with the teacher, with content, with colleagues, with the educational institution, with programs and applications) (Weforum, 2020).

Types of e-learning: Several types of e-learning depend on the presence of the learner and the teacher at the same time or vice versa, as well as their location:

Synchronous e-learning: This type of education involves both the teacher and the student sitting in front of computer screens at the same time to discuss topics directly in front of them through chat rooms or virtual classrooms. The main benefits of this kind of learning are that the student receives immediate feedback and it saves time traveling to the study location. Its requirement for contemporary electrical gadgets and a strong network is one of its drawbacks. In order to conduct discussions and conversations between the students and the teacher, as well as between the students and the teacher, this kind of simultaneous online education necessitates the students' simultaneous presence in front of the computers. These discussions are facilitated by a variety of e-learning tools (Finkelstein, 2009).

Asynchronous e-learning: It is e-learning that does not require the student and the teacher to be in front of screens simultaneously but rather by benefiting from previous experiences. This kind of e-learning, for instance, can be accomplished by making instructional materials on CDs available, and communication channels like email or educational forums can be used. With this style of instruction, the learner is not able to receive feedback and is free to revisit

the course materials at any time, structuring his study sessions as he sees suitable. Asynchronous e-learning is a type of indirect education that doesn't require students to be present at the same time. Instead, they can complete their studies at their own pace and with their own effort, using resources like the internet, e-mail, mailing lists, discussion forums, file transfers, and CDs. Among the benefits of this kind are that the student can study at the right times, receive instruction based on the amount of work they choose to put in, and revisit the content and consult it electronically as needed. Cons: Because the student is isolated and does not receive prompt feedback from the instructor, this approach can cause introversion in the classroom (Hiltz and Goldman, 2004).

Mixed e-Learning: Occasionally, this synchronous method is employed, while other times it is asynchronous. The activities suggested by the instructor afford the student greater autonomy and facilitate a form of socialization within the educational setting (Bersin, 2004).

Distance Education: It is a pedagogical approach that leverages the capabilities of connectivity and communication to surmount the challenge posed by the considerable distance that separates the instructor and the student (Frey, 2020).

Blended Learning: It is a mode of instruction that integrates online e-learning instruments with traditional in-person learning methods. Linked learning is another name for it (Lemov, 2020).

Mobile Learning: The utilisation of compact and portable wireless devices, including smartphones, mobile phones, and tablet PCs, is employed to grant the user uninterrupted access to educational materials from any location and at any moment (Ryu and Parsons, 2008).Sources of e-learning: It is impossible to list all sources as long as the world of technical and technology is developing daily. All can cite is a few examples, including:

Electronic Books (E-books): Electronic books are publications composed of text and image files that are created, distributed, and viewed on electronic devices such as computers. An e-book can serve as a digital counterpart to a physical book, or it can have been composed entirely in electronic format with no physical counterpart (Mccabe and González-Flores, 2016).

Date Bases: An organized set of structured information or data stored electronically or in a computer system. Usually, the database is under the control of a database management system (DBMS) (Kosslyn, 2020)

Encyclopedias: An encyclopedia is a book that contains general information on topics of human knowledge or is specialized in a particular topic, and its information is often abbreviated and depends on the accuracy of the organization according to alphabetical order to make it easier for the beneficiary to refer to it with the least effort (Frey, 2020).

Periodicals: A published work is issued periodically within a specific program. Publication can be in print or electronic, and the period can vary between the daily issues, as in daily newspapers, or weekly, as in some magazines, or on a monthly basis, or it can be issued every three months in some cases (Dirksen, 2011).

Educational Sites: They are those types of websites that can be specialized in all academic topics, which the student or researcher may need at any time, and the site can include educational issues that pertain to a specific category or topics related to all age groups (Mccabe and González-Flores, 2016).

E-Mail: A method of altering digital messages over the Internet or other continuous computer networks, where the message and the response are in writing (Hiltz and Goldman, 2004).

Digital libraries: A collection of materials (text, images, video, and so forth) that have been preserved in a digital format and are accessible via multiple media, including computer networks, the Internet in particular, constitutes a digital library. At present, the digital library's collection extends beyond books to encompass various media formats, to the extent that the Internet has been dubbed the "World Digital Library" (Salmons, 2020).

Massive open online course) MOOC): It is a new way that enables thousands of students worldwide study remotely and for free in the best international universities through the enormous capabilities provided by the Internet (Lemov et al., 2016).

Requirements for e-learning to be successful: In order for this form of education to be successful, it is imperative that

various conditions are met. These conditions encompass the establishment of clear educational objectives, the acceptance of diverse perspectives, ideas, and outcomes, the generation of knowledge rather than its transfer and communication, and the assessment of the educational task itself rather than the local level of expertise (Ferri et al., 2020).

2.1　Advantages of e-learning

1. Making it easier and more enjoyable for students to attend classes and learn since some university professors use the Internet to deliver instructive lectures

2. Students can learn electronically at any time and from any place.

3. Educating a sizable class of pupils without regard to location or schedule.

4. Assist in considering the unique characteristics of each learner as a consequence of their achievement of self-learning.

5. Skill and experience sharing throughout educational institutions.

6. Quick and simple updates of data and information on educational material.

7. Quick and easy assessment, review of findings, and feedback to students.

8. Quick access to data and educational resources, as well as electronic access to other people's experiences, to cut down on expenses, time, and effort.

2.2　Disadvantages of e-learning

These obstacles can be categorized as either tangible or human, with the latter being in close proximity to the instructor or instructors and encompassing the subsequent:

1. A lack of comfort using these technological tools and a fear of malfunctioning when creating, organizing, and presenting instructional materials

2. Teachers lack a sense of competition when it comes to implementing e-learning, particularly in poor nations. As a result, we observe a rise in zeal and rivalry among educational establishments in industrialized nations in an effort to raise educational standards.

3. The reluctance of certain educators to adopt new approaches and instead adhere to the conventional ways of teaching. This is a result of many teachers' inadequate technological equipment usage skills.

Table 1: Shows the comparison between ordinary learning (in-person) and e-learning (online) in terms of innovative teaching strategies and methods in the following areas (Bayan Center, 2020)

Item	Ordinary learning (In-personal)	E-learning (online)
Teacher	Information provider and student tutor	Organizer, guide, inspiration, and wellspring of expertise and abilities
Learner	Negative role, only informative and uncreative	constructive, active, and imaginative part in the process of learning
Work tasks	It is imposed on the students and determined by the instructor.	It is a collaborative decision between the instructor and the learner.
Classroom administration	The instructor controls and administers the classroom.	Students actively engage in the process of establishing regulations pertaining to classroom control and management.
Students sitting	Fixed seats	Students are afforded flexibility in seating arrangements and freedom of movement.
Learning pace	Equal to all learners	Each learner learns at his own pace
Aims	Not announced or clear to students.	Clear and announced to learners and participate in its planning and achievement
Learning sources	Textbooks and learning	Various and different sources (internet - electronic libraries - educational videos)
Communication	Manuscript (face-to-face in the classroom)	In all directions (through various e-learning means)
Learning results	Save information and remember it later	Deduce and comprehend issues by employing critical and deductive reasoning
Teaching aids	Conventional (paper map; white or blackboard for printed materials)	A multitude of instructional resources that are integral to the educational objectives
Evaluation	The evaluation of a student's performance by the instructor is based on the examination paper.	Through self-evaluation, the instructor assists the pupil in identifying his strengths and weaknesses and provides guidance on how to improve upon them.
Education Outcomes	Oftentimes, quantitative output	Quality and skill predominantly

3   IMPACT OF COVID 19 ON E-LEARNING

The pandemic lockdown resulting from the Covid-19 virus significantly affects various domains, including but not limited to education, food security, the global banking system, and environmental air pollution (Al-Sharify et al., 2022; Al-Sharify et al., 2021; Onyeaka et al., 2021). Most governments worldwide have ordered all schools to be closed as part of the lockdown measures to stop the virus from spreading further. 143 countries have mandated a statewide school closure, impacting the official education sector. This has affected 67.6% of all enrolled students worldwide, including those in pre-primary, primary, lower and, upper secondary, and university education levels, according to Onyeaka et al.'s statistics from 2021 (Al-Sharify et al., 2021).

Students have significantly decreased immunity levels and a greater tendency to transfer symptomatic infectious illnesses, as demonstrated by the higher prevalence of influenza among children compared to adults. Consequently, several educational establishments, particularly those geared toward students, have been closed as a precautionary measure. This is especially true for younger children. However, it has been questioned whether shutting schools will be beneficial in controlling the COVID-19 epidemic. Notably, most educational institutions in the northern hemisphere have shifted their focus to an online model to deliver their programs. It cannot be denied that the COVID-19 pandemic will significantly influence how education is provided all over the globe in the years to come. The use of major electronic learning platforms for lectures and other coursework forms has been rapidly adopted by an increasing number of academic institutions worldwide. The transition from traditional classroom instruction to virtual via internet instruction comes with several advantages and disadvantages, notwithstanding the growing prevalence of digital education. Students are also learning more about informal and in-person discussions, which assist to enculturing them into an intellectually stimulating atmosphere. For example, research groups are now working differently, and students are learning more about these dialogues. In underdeveloped countries with low internet penetration, limited financial means for students to access the internet and gadgets, low electricity availability, and instructors unprepared to deploy digital technology for education, the transition to online learning offers challenges. The lack of reliable internet access in impoverished nations is likely the most significant obstacle to the widespread implementation of digital learning. Even while there are challenges, there are also new opportunities, as a result of the proliferation of the internet, it is now possible to attend seminars and conferences anywhere in the world with relative ease and without the need to travel extensive distances Al-Sharify et al., 2022; Al-Sharify et al., 2021; Onyeaka et al., 2021). In addition, the fact that universities and other institutions have been forced to shut as a direct consequence of the pandemic has produced several different and distinct effects on young people. This is because the closures significantly interrupt the education that the young people are now getting. In addition, the closure has a broad variety of repercussions for studies and investigators who operate in several academic institutions around the country. Because of the lockout, some researchers have been compelled to participate in restricted research pursuits, such as stopping fieldwork and setting limitation restrictions on laboratory access. Other scientific investigators have been obliged to limit the number of people entering the laboratory. The progress of those researchers has come to a standstill due to this. This also shows that new working techniques and technologies have been embraced, which means that new ways of working have been learned. Others have noted that the quantity of administrative work they are required to do has been reduced, and the number of meetings they are required to attend has been cut down, both of which add to their mental and intellectual pressure. This has increased the total output of research (Al-Sharify et al., 2021). This is because there is now time to contemplate, reflect, and focus on one's work . The research that Rufia et al. completed in 2023 on IoT-based ensemble predictive techniques to determine the student observing analysis via e-learning is considered to be one of the most current works on the topic. They compared the IoT-based Ensemble Predictive system to real-world instructor predictions based on student observation during e-learning and found striking similarities between the two sets of results. A survey and an opinion poll are used to gather information over the period of 188 days from 46 different departments within the university. Using the IoT-based Ensemble Predictive System that had been developed, data collection for all 188 periods was carried out. They discovered a striking correlation between the viewpoint

of the faculty and the results produced by the IoT Ensemble Predictive system. However, in the case of the factor known as "Number of Students in the Class," there is not a discernible connection between the assessment carried out by the teaching staff and the results produced by the IoT Ensemble Predictive system. They came to the conclusion that there is a possibility for the output produced by the system and the opinions offered by the faculty to be at odds with one another if there is an increase in the number of students or a decrease below the optimal levels. According to the estimated value of their R, which is 0.788, there is a considerable positive correlation between the faculty's viewpoint and the system's output, accounting for 78.8% of the total. In the actual world, it is feasible to forecast an IoT-based Ensemble Predictive system with 62.1% efficiency and an estimated R-Square Value of 0.621. This may be done by using the R-Square Value. Esmaeili et al., 2023 have done a quality assessment of E-learning.

4   OBSERVATIONS

Both Web of Science and Scopus are widely respected systematic and scientific data resources. Additionally, both serve as crucial bibliographic records for literature reviews, which are primarily dependent on them. Web of Science and Scopus both may be accessed via the respective websites. Elsevier's Scopus is a database that bears their brand, and as part of our inquiry, we thoroughly searched for the keyword "E-Learning" across all of the publications in the world that were published between the years 1997 and 2023.

5   RESULTS AND DISCUSSION

More than 18,843 documents found indexed in scopus as reported by the database on the 15th of October 2023, which is presnts the E-learning used in different fields worldwide from 1983 to 2023. The latest document was made by Rufia et al., 2023. Table 1 showes the number of publications per year and it can be seen that it increased dramtically during COVID 19 from 2019 till the end of 2022 and reached the maximum number of publications on E-learning 2021 to 1268 publications. In addition, the subject area and the number of publications on E-Learning from 1983 to 2024, depending on Scopus was also studied as shown in table 2 below. It can be seen that the highest is in Computer Science with 10408 publications in this field. Moreover, table 3 show that 8731

conference paper was published in scopus E-Learning from 1983 to 2024 and it is 10% less in article format. It has also been reported different keywords that is used in scopus indexed papers including E-learning 12695 times, Learning Systems 3997 times, Students 3036 times, Education 2978 times, Teaching 2913 times, Computer Aided Instruction 1757 times, E-Learning 1678 times, Internet 1611 times, E-learning Environment 905 times, E – Learning 865 times… etc. Furthermore, Table 4 shows that the highest number of publicatiions is from UK from 1983 to 2024 depending on Scopus

Table 1: Number of publications on E-Learning 1983 to 2024.

YEAR	Number of Publications
2024	2
2023	798
2022	1209
2021	1268
2020	1037
2019	940
2018	860
2017	824
2016	849
2015	805
2014	873
2013	920
2012	957
2011	1007
2010	1125
2009	1126
2008	1039
2007	890

2006	788
2005	616
2004	351
2003	290
2002	159
2001	82
2000	21
1992	1
1990	1
1989	1
1988	1
1987	1
1984	1
1983	1

Table 2: Subject area and the number of publications on E-Learning from 1983 to 2024 depending on Scopus.

SUBJECT AREA	
Computer Science	10408
Social Sciences	7976
Engineering	3989
Mathematics	1594
Medicine	1567
Business, Management and Accounting	1515
Decision Sciences	1048
Physics and Astronomy	505
Arts and Humanities	456
Psychology	427

Nursing	343
Energy	326
Health Professions	310
Environmental Science	309
Materials Science	272
Economics, Econometrics and Finance	233
Multidisciplinary	148
Biochemistry, Genetics and Molecular Biology	144
Chemical Engineering	118
Agricultural and Biological Sciences	104
Earth and Planetary Sciences	90
Pharmacology, Toxicology and Pharmaceutics	88
Chemistry	83
Dentistry	67
Neuroscience	53
Veterinary	14
Immunology and Microbiology	12

Table 3: The type of documents and the number of publications on E-Learning from 1983 to 2024 depending on Scopus.

DOCUMENT TYPE	
Conference Paper	8731
Article	7562
Book Chapter	1319
Review	475
Conference Review	160

Note	145		Letter	65
Editorial	138		Retracted	34
Book	110		Erratum	28
Short Survey	66		Data Paper	10

Table 4: The country that published the documents and the number of publications on E-Learning from 1983 to 2024 depending on Scopus

Country	No	Country	No	Country	No	Country	No	Country	No
United Kingdom	1442	Egypt	169	Argentina	53	Uruguay	8	Mali	2
United States	1422	Pakistan	168	Peru	53	Uzbekistan	8	Mauritania	2
China	1211	United Arab Emirates	156	Lithuania	49	Yemen	8	Somalia	2
India	1138	Ireland	150	Kenya	48	Guatemala	7	Andorra	1
Spain	940	Thailand	150	Palestine	48	Libya	7	Anguilla	1
Germany	909	Sweden	136	Kuwait	44	Venezuela	7	Azerbaijan	1
Indonesia	815	Finland	134	Bangladesh	43	Jamaica	6	Bahamas	1
Taiwan	798	New Zealand	130	Chile	39	Montenegro	6	Burkina Faso	1
Malaysia	690	Nigeria	130	Ghana	39	Namibia	6	Cambodia	1
Italy	666	Serbia	130	Tanzania	32	Sudan	6	Cote d'Ivoire	1
Japan	639	Tunisia	126	Kazakhstan	30	Benin	5	Democratic Republic Congo	1
Australia	622	Switzerland	123	North Macedonia	27	Iceland	5	Dominica	1
Saudi Arabia	476	Iraq	117	Bosnia and Herzegovina	25	Nepal	5	El Salvador	1
Canada	445	Slovenia	117	Qatar	22	Syrian Arab Republic	5	Gambia	1
Greece	402	Slovakia	116	Lebanon	21	Zambia	5	Guadeloupe	1
Romania	380	Belgium	112	Uganda	21	Bolivia	4	Guam	1
France	360	Singapore	110	Malta	18	Fiji	4	Guinea	1
Iran	320	Denmark	108	Mauritius	17	Georgia	4	Honduras	1
Russian Federation	317	Oman	101	Botswana	16	Papua New Guinea	4	Liberia	1
South Africa	307	Norway	100	Macao	15	Puerto Rico	4	Moldova	1
South Korea	287	Ukraine	100	Senegal	15	Trinidad and Tobago	4	Monaco	1
Turkey	280	Algeria	95	Zimbabwe	15	Armenia	3	Panama	1
Brazil	253	Mexico	91	Albania	14	Barbados	3	Saint Kitts and Nevis	1
Portugal	249	Viet Nam	87	Costa Rica	14	Congo	3	Samoa	1
Morocco	241	Cyprus	78	Luxembourg	14	Kyrgyzstan	3	Sierra Leone	1
Netherlands	232	Sri Lanka	74	Ethiopia	11	Malawi	3	State of Libya	1
Hong Kong	220	Hungary	70	Libyan Arab Jamahiriya	11	Maldives	3		
Jordan	219	Latvia	69	Brunei Darussalam	10	Mozambique	3		
Poland	219	Colombia	68	Macedonia	10	Myanmar	3		
Czech Republic	199	Bahrain	61	Mongolia	10	Rwanda	3		
Austria	196	Philippines	61	Afghanistan	9	Angola	2		

| Croatia | 175 | Ecuador | 55 | Cuba | 9 | Gabon | 2 |
| Bulgaria | 174 | Estonia | 55 | Cameroon | 8 | Madagascar | 2 |

6   CONCLUSION

By reviewing and comparing each type of traditional (in-personal) education and e-learning (virtual) in terms of concept, differences, pros, and cons, the following conclusions may be clear: It is not possible to dispense with the traditional (in-personal) education method or style, and on the other hand, it is not possible to rely entirely on the method of e-learning, whether in schools or universities. Many advantages characterize each type of in-personal education and e-learning. One may argue that in educational institutions, e-learning and traditional classroom instruction are complementary to one another. This is consistent with other studies that highlight the blended learning approach, which combines in-person instruction at the school or university with online learning via educational platforms to guarantee that students are assessed and evaluated in a formal and ethical manner. The flipped classroom, also known as the flipped learning style, offers the possibility of combining the in-person and virtual learning methods. The instructor can interact with the students virtually by creating and organizing a lesson that will be sent through the educational platform and then meeting with them in person to discuss, ask questions, and administer tests. As a result, we find several research findings that employ the flipped learning method as a form of blended learning, and they attest to the fact that students' academic performance and levels are rising in comparison to other forms of education, including electronic and traditional.

7   ACKNOWLEDGMENTS

8   REFERENCES

[1] Allen M. W., (2016), "Michael Allen's Guide to e-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company", Wiley; 2nd edition. ISBN-13: 978-1119046325

[2] Al-Sharify, T.A., Alshrefy, Z.A., Hussein, H.A., Al-Sharify, Z.T., Onyeaka, H., Al-Sharify, M.T., Ghosh, S. (2022). IoT and E-learning with the Impact of COVID 19 Pandemic Lockdown on the Undergraduate University Student Blood Pressure Levels. CEUR Workshop Proceedings, 3149, pp. 73-86.

[3] Al-Sharify, Z. T., Nussrat, H. H., Al-Najjar, S. Z., Onyeaka, H., Al-Sharify, N. T. (2021). The Emergence Of COVID-19 And Its Pandemic Potentialas A Global Health Security Threat And Its Effect On Future Life Strategy. Systematic Reviews in Pharmacy, 12(3), 259-269.

[4] Bersin J., (2004), "The Blended Learning Book: Best Practices, Proven Methodologies, and Lessons Learned", Pfeiffer; 1st Edition, ISBN-13: 978-0787972967

[5] Bersin J., (2004), "The Blended Learning Book: Best Practices, Proven Methodologies, and Lessons Learned", Pfeiffer; 1st Edition, ISBN-13: 978-0787972967

[6] Boettcher J. V. and Conrad R.-M., (2016), "Online Teaching Survival Guide 2E: Simple and Practical Pedagogical Tips", Jossey-Bass; 2nd edition, ISBN-13: 978-1119147688

[7] Boettcher J. V. and Conrad R.-M., (2016), "Online Teaching Survival Guide 2E: Simple and Practical Pedagogical Tips", Jossey-Bass; 2nd edition, ISBN-13: 978-1119147688

[8] Boettcher J. V. and Conrad R.-M., (2021), "The Online Teaching Survival Guide: Simple and Practical Pedagogical Tips", Jossey-Bass; 3rd edition, ISBN-13: 978-1119765004

[9] Boettcher J. V. and Conrad R.-M., (2021), "The Online Teaching Survival Guide: Simple and Practical Pedagogical Tips", Jossey-Bass; 3rd edition, ISBN-13: 978-1119765004

[10] Chürr C., (2015), "Realisation of a child's right to a basic education in the South African school system: Some lessons from Germany", Potchefstroom Electronic Law Journal (PELJ), Volume 18, Issue 7, pp: 2405-2453. https://dx.doi.org/10.4314/pelj.v18i7.01

[11] Chürr C., (2015), "Realisation of a child's right to a basic education in the South African school system: Some lessons from Germany", Potchefstroom Electronic Law Journal (PELJ), Volume 18, Issue 7, pp: 2405-2453. https://dx.doi.org/10.4314/pelj.v18i7.01

[12] Clark R. C. and Mayer R. E., (2016), "e–Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning Hardcover – Illustrated", Wiley; 4th edition. ISBN-13: 978-1119158660

[13] Clark R. C. and Mayer R. E., (2016), "e–Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning Hardcover – Illustrated", Wiley; 4th edition. ISBN-13: 978-1119158660

[14] Clarke A., (2008), "e-Learning Skills (Palgrave Study Skills)", Palgrave Macmillan; 2nd edition, ISBN-13: 978-0230573123

[15] Clarke A., (2008), "e-Learning Skills (Palgrave Study Skills)", Palgrave Macmillan; 2nd edition, ISBN-13: 978-0230573123

[16] Dirksen J., (2011), "Design For How People Learn", New Riders; 1st edition. ISBN-13: 978-0321768438

[17]   Dirksen J., (2011), "Design For How People Learn", New Riders; 1st edition. ISBN-13: 978-0321768438

[18]   Elkins D., Pinder D. and Everhart W., (2021), "E-Learning Uncovered: Articulate Storyline 360: 2021 Edition", Independently published, ISBN-13: 979-8715044228

[19]   Elkins D., Pinder D. and Everhart W., (2021), "E-Learning Uncovered: Articulate Storyline 360: 2021 Edition", Independently published, ISBN-13: 979-8715044228

[20]   Esmaeili Givi, M., Keshavarz, H., & Kargar Azad, Z. (2023). Quality assessment of E-learning website using asymmetric impact–performance analysis and Kano's customer satisfaction model: a case study based on WebQual 4.0. Information Discovery and Delivery, 51(1), 35-46.Allen M. W., (2016), "Michael Allen's Guide to e-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company", Wiley; 2nd edition. ISBN-13: 978-1119046325

[21]   Ferri F., Patrizia G. and Tiziana G., (2020), "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations", Societies Volume 10, Number 4: 86, 18 pages. https://doi.org/10.3390/soc10040086

[22]   Ferri F., Patrizia G. and Tiziana G., (2020), "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations", Societies Volume 10, Number 4: 86, 18 pages. https://doi.org/10.3390/soc10040086

[23]   Finkelstein J. E., (2009), "Learning in Real Time: Synchronous Teaching and Learning Online", Jossey-Bass; 1st edition, Kindle Edition

[24]   Finkelstein J. E., (2009), "Learning in Real Time: Synchronous Teaching and Learning Online", Jossey-Bass; 1st edition, Kindle Edition

[25]   Frey N., (2020), "The Distance Learning Playbook, Grades K-12: Teaching for Engagement and Impact in Any Setting",1st Edition, Kindle Edition,

[26]   Frey N., (2020), "The Distance Learning Playbook, Grades K-12: Teaching for Engagement and Impact in Any Setting",1st Edition, Kindle Edition,

[27]   Hiltz S. R. and Goldman R., (2004), "Learning Together Online: Research on Asynchronous Learning Networks", Routledge, 1st Edition, Kindle Edition

[28]   Hiltz S. R. and Goldman R., (2004), "Learning Together Online: Research on Asynchronous Learning Networks", Routledge, 1st Edition, Kindle Edition

[29]   https://www.bayancenter.org/2020/04/5795/   in Arabic

[30]   https://www.bayancenter.org/2020/04/5795/   in Arabic

[31]   https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/

[32]   https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/

[33]   Kosslyn S. M., (2020), "Active Learning Online: Five Principles that Make Online Courses Come Alive", Alinea Learning, ISBN-13: 978-1735810706

[34]   Kosslyn S. M., (2020), "Active Learning Online: Five Principles that Make Online Courses Come Alive", Alinea Learning, ISBN-13: 978-1735810706

[35]   Kumar Basak S., Wotto M., and Bélanger P., (2018), "E-learning, M-learning and D-learning: Conceptual definition and comparative analysis", E-Learning and Digital Media, Volume 15, Issue 4, pp: 191–216. https://doi.org/10.1177/2042753018785180

[36]   Kumar Basak S., Wotto M., and Bélanger P., (2018), "E-learning, M-learning and D-learning: Conceptual definition and comparative analysis", E-Learning and Digital Media, Volume 15, Issue 4, pp: 191–216. https://doi.org/10.1177/2042753018785180

[37]   Lemov D., (2020), "Teaching in the Online Classroom - Surviving andThriving in the New Normal", Jossey-Bass; 1st edition, ISBN-13: 978-1119762935

[38]   Lemov D., (2020), "Teaching in the Online Classroom - Surviving andThriving in the New Normal", Jossey-Bass; 1st edition, ISBN-13: 978-1119762935

[39]   Lemov D., Driggs C. and Woolway E., (2016), "Reading Reconsidered: A Practical Guide to Rigorous Literacy Instruction", Jossey-Bass; 1st edition, Kindle Edition, ISBN-13: 1119104246

[40]   Lemov D., Driggs C. and Woolway E., (2016), "Reading Reconsidered: A Practical Guide to Rigorous Literacy Instruction", Jossey-Bass; 1st edition, Kindle Edition, ISBN-13: 1119104246

[41]   Mccabe M. F. and González-Flores P., (2016), "Essentials of Online Teaching: A Standards-Based Guide (Essentials of Online Learning)", Routledge; 1st edition, ISBN-13: 978-1138920545

[42]   Mccabe M. F. and González-Flores P., (2016), "Essentials of Online Teaching: A Standards-Based Guide (Essentials of Online Learning)", Routledge; 1st edition, ISBN-13: 978-1138920545

[43]   Mishra L., Gupta T. and Shree A., (2020), "Online teaching-learning in higher education during lockdown period of COVID-19 pandemic", International Journal of Educational Research Open, Volume 1, 100012

[44]   Mishra L., Gupta T. and Shree A., (2020), "Online teaching-learning in higher education during lockdown period of COVID-19 pandemic", International Journal of Educational Research Open, Volume 1, 100012

[45]   Mohseni A., (2014), "Educational Technology: The Tablet Computer as a Promising Technology in Higher Education", MSc Thesis in Art, Department of Humanities Computing, University of Alberta. https://era.library.ualberta.ca/items/ceaad123-1ef5-4dfd-b722-aed8f96e3341/view/a57062d4-2973-478d-a99d-2d51c02ffc76/Mohseni_Atefeh_201409_MA.pdf

[46]   Mohseni A., (2014), "Educational Technology: The Tablet Computer as a Promising Technology in Higher Education", MSc Thesis in Art, Department of Humanities Computing, University of Alberta. https://era.library.ualberta.ca/items/ceaad123-1ef5-4dfd-b722-aed8f96e3341/view/a57062d4-2973-478d-a99d-2d51c02ffc76/Mohseni_Atefeh_201409_MA.pdf

[47]   Onyeaka H, Al-Sharify ZT, Ghadhban MY, Al-Najjar SZ. A review on the advancements in the development of vaccines to combat coronavirus disease 2019. Clin Exp Vaccine Res. 2021 Jan;10(1):6-12. https://doi.org/10.7774/cevr.2021.10.1.6

[48]   Onyeaka, H., Anumudu, C. K., Al-Sharify, Z. T., Egele-Godswill, E., & Mbaegbu, P. (2021). COVID-19 pandemic: A review of the global lockdown and its far-reaching effects. Science progress, 104(2), 368504211019854. https://doi.org/10.1177/00368504211019854

[49]   Rufia Thaseen, I., Shahar Banu, S., & Rajesh, S. (2023). IoT Based Ensemble Predictive Techniques to Determine the Student Observing Analysis through E-Learning. Mathematics and Computer Science Volume 2, 137-150.

[50]　　Ryu H. and Parsons D., (2008), "Innovative Mobile Learning: Techniques and Technologies", Information Science Reference; 1st Edition

[51]　　Ryu H. and Parsons D., (2008), "Innovative Mobile Learning: Techniques and Technologies", Information Science Reference; 1st Edition

[52]　　Salmons J. E., (2020), "Your Super Quick Guide to Learning Online", SAGE Publications Ltd; 1st edition, ISBN-13: 978-1529754391

[53]　　Salmons J. E., (2020), "Your Super Quick Guide to Learning Online", SAGE Publications Ltd; 1st edition, ISBN-13: 978-1529754391

[54]　　Sangrà A., Vlachopoulos D. and Cabrera N., (2012), "Building an inclusive definition of e-learning: An approach to the conceptual framework", The International Review of Research in Open and Distributed Learning, Volume 13, Issue 2, pp: 145-159. https://doi.org/10.19173/irrodl.v13i2.1161

[55]　　Sangrà A., Vlachopoulos D. and Cabrera N., (2012), "Building an inclusive definition of e-learning: An approach to the conceptual framework", The International Review of Research in Open and Distributed Learning, Volume 13, Issue 2, pp: 145-159. https://doi.org/10.19173/irrodl.v13i2.1161

[56]　　Scales P., (2017), "An Introduction to Learning and Teaching in Higher Education", Open University Press, ISBN-13: 978-0335262403

[57]　　Scales P., (2017), "An Introduction to Learning and Teaching in Higher Education", Open University Press, ISBN-13: 978-0335262403

[58]　　World Health Organization, (2020), "Policy Brief: Education during COVID-19 and beyond", https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

[59]　　World Health Organization, (2020), "Policy Brief: Education during COVID-19 and beyond", https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf