



COVID AND POST-COVID E-LEARNING REFORMS IN HIGHER EDUCATION  
INSTITUTIONS: A SYSTEMATIC REVIEW OF LITERATURE

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**Abstract**

*Due to the advent of Covid-19 pandemic, different socio-economic challenges have been faced by all the countries worldwide. Every country has formulated and implemented different measures, which includes limited uses of public places, social distancing, closure of schools and Universities etc. The purpose of the study is to understand the possibilities of Covid and post-Covid E-learning reforms in higher education system. Content analysis has been conducted with the help of a number of selected studies, specific search terms, and a pre-established criterion to consider articles focusing on higher education and E-learning outcomes. This systematic literature review (SLR) seeks to investigate research articles concerning Covid and post-Covid E-learning published from 2019 to 2026, sourced from publicly accessible databases. The study conducts a critical analysis of the most significant theories in this domain and employs bibliometric analysis, utilizing Microsoft Excel to develop pertinent research themes. The bibliometric examination includes trends in selected literature, identification of influential keywords, leading authors, co-occurrence networks, thematic maps, and factorial analyses. The PRISMA methodology was employed to ensure rigorous systematic screening. Consequently, this review constitutes a valuable addition to the existing body of literature. It indicates that there is a big difference between the developed and developing countries in terms of resources for imparting higher education through E-Learning. Furthermore, it has been noted that the teachers in developing countries are less conversant with the use of technology in E-learning at higher education level. The article suggests a study agenda for future institutional innovation management studies based on the findings of the SLR.*

**Keywords:** Higher Education, E-Learning, Distance-Learning, COVID and post-COVID Context, Developed and Developing Countries, Bibliometrics Analysis.

**1. Introduction**

As a result of digital transformation (DT), entire industries and countries worldwide are being transformed by digital technology which has stimulated exclusive quality in relevance to organizational sustainable goals (Butt & Yazdani, 2023). Digital transformation affected different sectors around the world; for example, the health department, education sectors, and businesses. Therefore, the overall effect of moving



toward the concept of E-learning will boost up the solutions and it will lead to creative approaches. Digital solutions should also be integrated into education (Bogdandy et al., 2020; Woldegiorgis, 2026). The onset of Covid-19 resulted in the closure of educational institutes as well as businesses. Therefore, a speedy shift from physical learning activities to digital learning activities has been made (Aucejo et al., 2020).

Moreover, according to a meta-analysis on E-learning practices around the world, it has been found that online learning was better and, studies have found that it is also similar to physical learning (Hasan and Bao, 2020). Therefore, teachers kept their students more encouraged and focused in order to continue learning in this tough situation. This speedy evolution at such a huge scale has affected students of all age groups across the globe (Martins et al., 2025).

E-learning is basically associated with the use of electronic systems and applications within learning processes (Wang et al., 2009). Education transforms the map of international education and corporate education (Bell et al., 2004; Martins et al., 2025). Undoubtedly, vital role is played by higher education in the life of an individual (Butt et al., 2024). Initially, Smith (2009) stated that E-learning is one of the latest educational systems adopted by educators throughout the world. According to Draghici et al. (2014) and Mustea et al. (2014); "it is a technique that enables students to learn from the Internet, particularly from their home or wherever they are, along with other platforms such as peer-to-peer, client server and web services". On the other hand, Moravec et al. (2015) pointed out that there are several studies that look at how electronic learning tools affect the results of students.

The unexpected occurrence of Covid-19 has caused the entire economy to collapse, and every single aspect of human lives has been affected, not just in the developing countries but across the world (Bacher et al., 2021; Martins et al., 2025). According to the World Bank report, "almost all universities and other institutional education were closed in 175 countries. 13 percent of the students, globally, either have been severely disrupted from studies or have totally stopped their studies" (World Bank, 2020). In many cases, the technological capability and power of digital transformation applications, such as the Internet, cloud computing, and mobile technologies, are significantly higher than previous technology-driven transformations in terms of computing power, data storage, and information distribution (Nadkarni and Prügl, 2021). The transition has been seen in the HE sector in Western countries, as it has been in other parts of the public realm. Governments have cut funding for HE encouraged competition, and pushed for financial self-sufficiency. As a result, the university is viewed as a business that must aim for better performance and quality in its procedures (Younas et al., 2025).

Promoting educational research that creates effective educational designs which facilitate the acquisition of competencies is essential for the success of online education. The purpose of this SLR was to examine the development of educational research on E-learning in order to spot trends in the themes under investigation, ascertain the predominant methodological viewpoints, and assess the applicability of this knowledge in the practice of university teaching (Gasser et al., 2025). It also provides the development of the educational research performed on E-learning over the past decade. The characterization of the primary research areas of interest in science, the methods employed to address these online educational events, and their effects on the digital transformation of education identification was the main objective. This study has been conducted to find out the underlying issues related to E-learning in developing countries. Furthermore, the outcome of the research will help in improving the quality of E-learning in higher education. This SLR was conducted with following main objectives: The most notable theories and the most popular measures used were critically reviewed to analyze thirty-three research papers. Bibliometric analysis has been conducted. In terms of sources and citations, this will be used to determine the trends of a chosen body of literature, word clouds, and a tree map.

## **2. Review of Literature**

### **2.1 E-Learning**

E Learning is an innovative method for offering a well-designed, learner centered, interactive, and accelerated learning environment to anyone. This is possible by combining the qualities and resources of technological devices with various types of E-learning materials suitable for an open, accessible, and scattered



educational environment (Han and Li, 2025; Proff et al., 2025). While face-to-face communication is still thought to be important in the educational process, the usefulness of E-Learning has been studied and debated for decades. The stated benefits of distance education are thought to be related to cheap college tuition fees, improved test scores, more task engagement, and decreased dropout ratio (Ren et al., 2025).

Table 1 shows different definitions stated by different authors. In 2003, Bates and Poole stated that E-Learning can be applied with the help of different models. Gokah et al. (2015) stated that E-learning is a way of learning where students stay home and attend online classes. Different authors have added meanings to the development. The comprehensive definition is that it is the change in teaching and learning and the shift in advancement of new technology, which has spread the idea that education can be transferred in an electronic environment from the classroom and books with little adaptation. This teaching approach gives teachers the tools to enable students to broaden their horizons through Internet access and digital technologies. The method offers learners the ability to communicate and exchange experiences with each other (Tawfik et al., 2021).

**Table 1**

*Definitions of E-Learning*

| Authors                 | Definitions                                                                                                                                                                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bates & Poole (2003)    | There are different forms of E-Learning and models, which can also be applied.                                                                                                                                                                                      |
| Gokah et al. (2015)     | E-Learning is a specific way of studying a course or curriculum in which students never attends on-campus access to educational services, because they study online.                                                                                                |
| Ryan et al. (2016)      | In the context of HE the term E-Learning is often referred to as the course that is completed online.                                                                                                                                                               |
| Aparicio et al. (2017)  | Arguing that the principle of E-Learning was not, the first term used to design the use of computerized applications for the learning process. Author has defined 23 principles that are used for learning purposes in computers.                                   |
| Kumar et al. (2018)     | E-learning is the "learning of digital resources and media"                                                                                                                                                                                                         |
| Rodrigues et al. (2019) | As a creative digital platform based on framework and other types of instructional content, whose primary purpose is to ensure that students are provided with an accessible, fun, and engaging learning environment that promotes and enhances learning processes. |
| Valverde et al. (2020)  | The future of E-Learning must be based on the open and fair standards of digital capability of education.                                                                                                                                                           |
| Woldegiorgis (2026)     | Up scaling online is part of the "new normal" that higher education institutions must adjust to.                                                                                                                                                                    |

*Source: Developed by the authors*

**2.2 Theoretical Perspective**

Behaviorist and Constructivist theories are mostly used. There is considerable controversy in modern education about whether teachers should use the way they provide materials through direct teaching, on the other hand, constructivism, in which teachers function as learning facilitators (Li et al., 2022). There is nonetheless, a key difference between the concepts when discussing the teacher's duty. They are the center of everything and take responsibility for the preparation and delivery of educational materials for students. Teachers promote positive conduct and punish undesirable behaviors. The behavioral learning theory says that the things which are externally motivating, like awards and good behavior privileges, promote good educational development (Gunawardhana, 2020).

The concept of constructivism is the theory or idea that students generate their own knowledge, based on interactions with their surroundings, including interactions with others (Martins et al., 2025). Teachers applying constructivist-learning theory demonstrate the relevance and significance of a specific subject to students and encourage them to become experts in their field (Imran et al., 2023). Students are invited to investigate the topic. Professors using constructivist-learning theory recommend that students exercise in



critical thinking, and participate in groups such as debates and learning projects that are problematic (Younas et al., 2025).

Table 2 is representing the comparison for two theories highly popular about the educational sector. It is advisable to take constructivist methods to introduce E-learning as a concept for distant learning when comparing theories of learning. The current tendency of learning centers and most students makes them choose constructivism approaches. The theoretical basis from behaviorism to constructivism must be moved by new technologies for distance learning (Muneeba, 2024). Educational technology is expanding quickly and its transfer will produce more consequences that are positive. Modern social practices need students to analyze, build knowledge, and learn from a constructivist viewpoint using technology (Finlay et al., 2022).

**Table 2**

*Theory Comparison*

|                              | <b>Behaviorist Theory</b>                                                                                                 | <b>Constructivist Theory</b>                                                                                                                                                |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Describing theories briefly  | Behaviorism focuses on the concept that all behaviors' are learnt via environmental interaction.                          | Constructivism is a method of learning that allows individuals to actively build or develop their understanding and that reality is determined by the learner's experience. |
| Learning and knowledge facts | It is related towards having a positive or negative attitude with students, which results in motivation and satisfaction. | Learning and knowledge depends upon the ability of a learner's experiences. Learners analyzes their own knowledge.                                                          |
| Learning concepts Based on   | Dealings with the surroundings Teachers                                                                                   | Pre-existing knowledge Students                                                                                                                                             |

*Source: Developed by the authors*

The teacher employs active learning practices in the constructivist environment to shape activities and tasks (so that students can go from simple to complex), examine information, find concepts, and build knowledge and meaning (Woldegiorgis, 2026). In today's world of online education behaviorism and constructivism, continued to be significant, the implications for online learning need to be defined to identify and execute effective practical applications to have a beneficial effect on learning. The use of technology in online classes has progressively switched from behavioral to constructivist theoretical underpinning due to the rise in the usage of educational technologies. Teachers more typically choose to use a mixture of these two techniques to best satisfy all students' learning styles. However, many learning strategies continue to rely on more intensive learning techniques and arguments in order to support the validity (Martins et al., 2025).

A combination of these two principles is the current learning method with the best of support, since they are used in connection with educational technology. There are many components to be examined, including curriculum, evaluations, and resources to determine which theory is more valid on different tasks. While there seems to be a tendency towards more constructivist learning approaches or the combination of the two ideas, the route to determining exactly what teachers should do continues to remain ambiguous (Muneeba, 2024).

The conclusion that can be drawn is that the focus is towards student learning approach. Therefore, it is recommended that the theory of constructivism can easily be applied and used. The main advantages are that students experience different things and learn from them, which in a way add up towards their knowledge. In other words, knowledge is created (Finlay et al., 2022; Mahajan et al., 2023). A student takes pieces and puts them in a puzzle to complete their part of the story; they are continually adding towards their knowledge. Above all, learning is an on-going process; there is no age limit for learning things and applying them in our real lives. We all have our own knowledge package, which is gained through experiences and our beliefs, which are different from one another.

### **2.3 Impacts of Covid-19 on E-Learning in Education Sector**

In order to gain from the sharing of knowledge and ideas, E Learning education is thought to be directly dependent on effective interpersonal interaction between all students and teachers who are involved,



just like any other traditional educational method (Roman and Plopeanu, 2021). Due to Covid-19, more than 120 countries have shifted from a physical classroom environment to an electronic learning environment (Imran et al., 2025). Meanwhile, to fight against Covid-19 pandemic, practically every country has issued an order to close public schools and higher education institutions as a precautionary measure to prevent the virus from spreading. The conventional method of education has been replaced by a modern method of learning (Shahzad et al., 2020).

#### ***2.4 Challenges and Concerns of Students and HE during Covid-19 and Post-COVID***

Students may encounter a variety of challenges when participating in distance learning through virtual classes. These challenges can significantly impede their ability to concentrate on the material, retain information presented during lectures, and engage in substantive discussions due to environmental and situational factors (Finlay et al., 2022). Some specific difficulties students may experience include, but are not limited to, a lack of access to a private or quiet space within their home, the inability to secure alternative childcare, distractions arising from close proximity to other household members, and background disturbances from pets (Martins et al., 2025). Furthermore, privacy concerns may deter students from activating their computer cameras during virtual sessions. Students may feel uncomfortable being observed by others or may be dissatisfied with their physical appearance or the state of their living environment. Additionally, students may be apprehensive about revealing their socioeconomic status and fear judgment based on their living conditions. Many of these challenges are exacerbated by pre-existing disparities and inequities in resources available to students (Kuperman et al., 2026).

Mental health issues are at least twice as common during pandemics, and symptoms including depression, anxiety, tension, and mood swings are frequently linked to these situations (Finlay et al., 2022). The COVID-19 confinement, dubbed the "world's largest psychological experiment", affected a variety of demographics and situations (Seed Ahmed et al., 2025), including university students, who displayed signs of depression and anxiety, suicidal thoughts, extreme distress, and elevated levels of perceived stress (Proff et al., 2025). People who work while pursuing academic courses have been significantly impacted by the shift towards digital education. Because it provides flexibility and convenience that work well with their hectic schedules, online education is very beneficial to this working class. Roughly 94% of modern professionals say they would be willing to stay with an employer who supports their professional development (Ren et al., 2025). This suggests that the vast majority of modern professionals prefer online and distance learning platforms (Gopika and Rekha, 2025).

One of the problems that teachers and students have come across is the lack of awareness and skills as to how to make use of available technologies for their education. Many researchers believe that preparation, for instance through computer courses, is fundamental and needs to be delivered if E-learning is to benefit both teachers and students (Aldulaim., 2021). However, it is important to bear in mind that the education system depends on technology. However we cannot ignore the occasional problems like lack of technological knowledge, acquiring and maintaining infrastructure (Ractham and Chen, 2019).

Another difficulty that has been found in applying E-Learning in higher education is that a number of developing countries have inadequate access to highly qualified professors, well-prepared students and adequate resources (Holmstrom and Pitkanen, 2020). Teachers do not have sufficient knowledge about the subjects they are teaching in some of the developing countries (Rendi and Yeni Rahmawati, 2024). This is the major issue, which they are facing and needs attention. Moreover, students, on the other hand, do not get the opportunities in order to use digital learning tools in an appropriate manner (Holmstrom and Pitkanen, 2020).

#### ***2.5 Post-COVID Reforms and Recommendations in Higher Education***

This global impact has provided social scientists with the unexpected opportunity to research a natural experiment in which people's conduct reflects real life in its natural environment. A large number of research papers are underway to investigate its impacts on various sectors of the economy (Muneeba, 2024). As with other industries, the outbreak of Covid-19 triggered numerous changes in education, and it is expected that this action would significantly influence students and their success. According to the recommendations of the



government, many educational institutions worldwide have moved temporarily to digital learning methods. This is equivalent to 91 per cent (1.6 billion) of the total number of students worldwide who have been affected by this sudden transition, according to recent updates (Imran et al., 2023).

The importance of teacher professional development has increased in the wake of the digital transition brought on by the Internet. It is acknowledged that professional development is essential to giving educators the abilities and information they need to successfully negotiate the challenges of the digital age (Lim et al., 2023). The requirement for focused and efficient professional development is increasingly crucial as educators work to adjust to changing pedagogical approaches and technology environments. This is important not only for improving the effectiveness of individual teachers but also for developing a teaching community that is proficient with technology and can satisfy the varied demands of students in the twenty-first century (Martins et al., 2025).

### ***2.6 Challenges and Opportunities for the Developing Countries in Terms of E-Learning***

There are enormous populations in the developing world; therefore, technological development needs time to be easily accessible and beneficial to the whole population (MacLeod and MacDonald, 2020). Another challenge is the lack of knowledge and the systemic approaches toward technology. The failure to provide funding for implementing technology and the transformation of the education system through technology and administration (Nawaz, 2015).

Developed countries also faced some issues regarding technology based learning. In the near future, technological advancements may lead to the thinking that considers teachers redundant. Things may be done in a robotic system. The major issue is that the dropout ratio is increasing. In order to overcome the challenges, they have to implement the entire system in such a way that it is user friendly and that the dropout ratio will decrease (Hagans and Good, 2013).

There are opportunities for the developing countries in terms of E-learning. Once a smooth functioning system is implemented, there will be a chance for economic growth, and that will help in the development of human resources. Whereas, for the developed countries, they can use the resources and technology to their fullest level. Full financial support has been given, and they have trained faculty members in order to handle technology. An information based economy is being built up for a better tomorrow; this will benefit the entire economy in order to improve their standard of living and therefore, help them to meet global competitiveness (Hermawan, 2021). The Covid-19 is a 'game changer' that causes socio-economic suffering and disrupts the status quo. These disruption, present chances for creativity to reinvent existing institutions and restructure their supporting ecosystems (AlMalki and Durugbo, 2022).

Table 3 indicates differences related to E-learning in higher education institutes (Denis, 2019; Nawaz, 2015). Countries such as Germany, Denmark, Switzerland, Netherlands, Canada, Spain, Poland, and England are well-developed countries. Where the economy is strong, the level of exports is higher than their imports, and the unemployment rate is lower compared with the developing countries.

Moreover, developing countries such as Pakistan, India, and Malaysia have a low standard of living, and the employment and illiteracy rates are high.

**Table 3**

*Differences of E-Learning Between Developed and Developing Countries*

| <b>Sr. No.</b> | <b>Developed Countries</b>                                           | <b>Developing Countries</b>                                                                     |
|----------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1              | Well trained staff in order to handle things                         | Less trained staff for handling the use of electronic based learning.                           |
| 2              | Government is providing financial support                            | Lack of financial support from the government                                                   |
| 3              | Proper training facilities given                                     | No proper awareness about E-learning                                                            |
| 4              | Electric supply and internet facility is without any interruption    | Electricity shortage and internet failure results in de-motivation among teachers and students. |
| 5              | Fully motivated and can easily understand the handling of technology | Students are not motivated toward learning electronically.                                      |



| Sr. No. | Developed Countries                                   | Developing Countries                                                  |
|---------|-------------------------------------------------------|-----------------------------------------------------------------------|
| 6       | Every child is well equipped with the latest gadgets. | Most students and teachers do not have proper access toward computers |
| 7       | No power shortage, can easily work.                   | Some countries like Pakistan and India have power shortages.          |

Source: Authors; data extracted from Denis (2019); Nawaz (2015)

This research and SLR aims to provide a comprehensive overview of the impact of COVID-19 on the higher education sector, particularly concerning higher education institutions (Otto et al., 2024). It examines the challenges that universities are currently facing as a result of the pandemic, as well as the strategies that these institutions are implementing to mitigate the profound effects of this crisis, which has adversely affected numerous sectors, businesses, and industries. Additionally, this study endeavors to offer a measure of hope and direction for all stakeholders engaged in the international higher education system. It will also present informed suggestions, advice, and recommendations designed to aid decision-makers within the realm of higher education (Otto et al., 2024).

### 3. Methodology

#### 3.1 Search Strategy

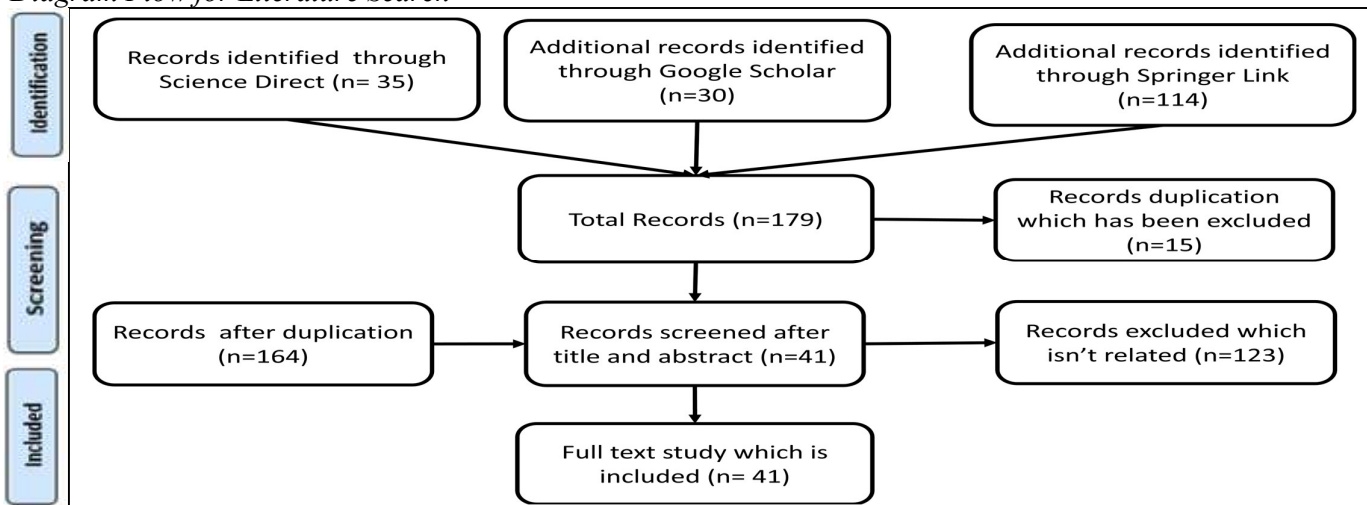
The search was conducted from the scientific databases such as Science Direct, Google Scholar, and Springer Link, from 2019-2025. The terms, which have been included to search for the relevant studies, included "E learning", "Online-Learning", and "Higher-Education". Articles, which have been included, were written in the English language. Relevant publications have been taken into consideration to check the impact of Covid and post-Covid on education.

#### 3.2 Selection Criteria

Criteria for selection were done through the PRISMA statement, Preferred Reporting items for Systematic Reviews and Meta-Analysis (Moher et al., 2009). In the critical evaluation and summary of the literature, PRISMA used similar educational research to update educational policies (Luo et al., 2020). In the inclusion criteria, articles that have been included were on the use of E-learning in higher educational practices. At the initial level of the identification stage, records were taken from different databases with the help of relevant keywords. After the total number of articles was displayed, the screening process began. This is where articles were screened accordingly after reading the titles and the abstract. Data, which was not included, was not relevant according to the study. Finally, the article, which has been included, was the one, which was relevant and has a full text study. Figure 1 shows an SLR process with the help of the PRISMA flow diagram.

Figure 1

Diagram Flow for Literature Search





### 3.3 Data Extraction

In order to develop extensive literature review, a methodological framework was conducted. It is a systematic review, which aims toward providing a comprehensive and understandable outline of the data, which are related to the key concepts underpinning the topic area (Vinet and Zhedanov, 2011). Therefore, to determine the eligibility procedure and to build a literature review, flowchart was created. This flow of diagram shown in figure 1 showed that the total number of records, which were taken from Science Direct, were 35 whereas from Google scholar the total records were 30 and Springer Link was 114. This added up to 179 in total, 15 records were duplicated and 123 records were excluded after screening. Therefore, the remaining records, which have been taken into consideration for literature review studies, were 41 papers. After the selection, articles were studied carefully in order to find out the main finding within the papers.

Table 4 shows the summary of and findings of selective papers. These findings are stating that in the developed countries, the implementation of E learning is a success but in some countries, both teachers and students are facing difficulties. Looking at the data taken from Pakistani studies we came to know that in the fiscal year 2019 there were some barriers related to the implementation of technology. Therefore, the use of it was also, to some extent, difficult. In the year 2025, people of Pakistan seem to adapt to the technological changes in a positive manner. They seemed to be adjusted well with the use of E learning systems.

**Table 4**

#### *Main Findings of the Studies*

| <b>Authors</b>                  | <b>Year</b> | <b>Main Findings</b>                                                                                                                                                                 | <b>Countries</b> |
|---------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Palvia et al. (2019)            | 2019        | Dropout ratio is high, needs training. They need technology rich context. Government support is much needed                                                                          | India            |
| Ali, Uppal, and Gulliver (2019) | 2019        | Some barriers related with the use of technology; such as; language barriers, not well qualified staff, electricity failure, net issues etc.                                         | Pakistan         |
| Rafiq and Ameen (2019)          | 2019        | They have to prepare things according to the latest technology. So that the use of it in the educational sector will be easy                                                         | Pakistan         |
| Nortvig et al. (2019)           | 2019        | Student's satisfaction level has increased; positive learning outcomes and they are well motivated toward the use of technology.                                                     | Denmark          |
| Schmidtlein and Milton (2019)   | 2019        | E-learning based education was a success.                                                                                                                                            | Jordan           |
| Reis et al. (2019)              | 2019        | Provided values and, digitalization of education will create knowledge among teachers and students                                                                                   | Portugal         |
| Samir et al. (2019)             | 2019        | Students are not motivated toward studying online as some of the students lack concentration.                                                                                        | Egypt            |
| Denis (2019)                    | 2019        | Positive attitude toward the use of technology                                                                                                                                       | Canada           |
| Kumar Basak et al. (2019)       | 2019        | Some teachers require technological skills; others are well equipped with the latest technology.                                                                                     | Canada           |
| Rafiq (2020)                    | 2020        | The students looked upon their attitudes toward the sudden shift in a positive manner. In order to further increase the use of E-learning, the government should provide some funds. | Pakistan         |
| Mseleku (2020)                  | 2020        | Challenges were welcomed and the results were towards a better future.                                                                                                               | Canada           |
| Iivari et al. (2020)            | 2020        | Sudden shift toward the new era has caused problems. Skills required for handling. Some suffered while others benefited from the usage.                                              | Finland          |
| Shahzad et al. (2020)           | 2020        | Some positive effect on students and teachers for the usage and handling of technology                                                                                               | Pakistan         |



| <b>Authors</b>             | <b>Year</b> | <b>Main Findings</b>                                                                                                                                                                     | <b>Countries</b> |
|----------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Bogdandy et al. (2020)     | 2020        | With the help of E-Learning, students found it useful. Therefore, it was a success. They both enjoyed it.                                                                                | Hungary          |
| Almaiah et al. (2020)      | 2020        | Three main issues have been identified: financial support, technical issues with the computers, and management issues.                                                                   | Oman             |
| Mishra et al. (2020)       | 2020        | Educational sectors are suffering due to the sudden shift in technology. Lack of resources, no financial support, and no proper training given                                           | India            |
| Shek (2021)                | 2020        | The concept of E-learning was taken as a positive outlook.                                                                                                                               | China            |
| Sathishkumar et al. (2020) | 2020        | The process of E-Learning becomes quite popular.                                                                                                                                         | India            |
| Chaturvedi et al. (2021)   | 2021        | It made a significant effect on student's mental health. Education and routine of students has been affected                                                                             | India            |
| Zawack (2021)              | 2021        | Implementing E-learning will help boost up the economy and better digital HE will be provided                                                                                            | Germany          |
| Fernández et al. (2021)    | 2021        | Teachers' stress levels and anxiety have increased dramatically over the period.                                                                                                         | Spain            |
| Vladova et al. (2021)      | 2021        | Students and teachers are well satisfied with the implementation of new technology.                                                                                                      | Germany          |
| Lips (2021)                | 2021        | Positive effect of E-learning on both teachers and students                                                                                                                              | Germany          |
| Canovan and Fallon (2021)  | 2021        | Some parents and teachers faced difficulties.                                                                                                                                            | Canada           |
| van Zyl (2021)             | 2021        | Lives have been affected after the shifting from physical classroom toward online activities.                                                                                            | Netherlands      |
| Abu Talib et al. (2021)    | 2021        | Increased stress levels, workload increased, difficulties from the technical side, low communication quality between teachers and students.                                              | Oman             |
| Saileret al. (2021)        | 2021        | Successful implementation of technology and the use of it by both teachers and students                                                                                                  | Germany          |
| Gupta (2021)               | 2021        | Government funding will better improve upon the E-Learning programs                                                                                                                      | Switzerland      |
| Iglesias et al. (2021)     | 2021        | The concept of E learning has gained a lot of importance in the field of education. Students have achieved better results.                                                               | Spain            |
| Cicha et al. (2021)        | 2021        | Students believed that they could learn more and better with the help of technology. Positive attitude                                                                                   | Poland           |
| Roman and Ploeanu (2021)   | 2021        | Some students are facing problems, like; less space at home, certain family conflicts etc.                                                                                               | Romania          |
| Li et al. (2022)           | 2022        | The acceptance of online teaching and learning practices is characterized by a moderate to high level of endorsement                                                                     | Hong Kong        |
| Finlay et al. (2022)       | 2022        | The sequence of learning modalities implemented during the academic year, beginning with virtual learning followed by blended learning, may have had an impact on students' perceptions. | United Kingdom   |
| Mahajan et al. (2023)      | 2023        | The recent advancements in IT, particularly in the realms of AI and machine learning, are significantly transforming the structure of higher education.                                  | Malaysia         |
| Imran et al. (2023)        | 2023        | Instructional methods have changed, particularly in education institutions, due to rapid innovations.                                                                                    | Oman             |



| Authors               | Year | Main Findings                                                                                                                                                                 | Countries |
|-----------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Otto et al. (2024)    | 2024 | The research have highlighted the possibilities of inverted, flipped, blended, and hybrid modalities.                                                                         | Denmark   |
| Muneeba (2024)        | 2024 | The need for technology integration in education was brought to light by the pandemic's transition to remote and hybrid learning.                                             | India     |
| Martins et al. (2025) | 2025 | Reduced sleep quality is reportedly common among students upon joining the university setting and has been linked to a number of detrimental health outcomes.                 | Brazil    |
| Younas et al. (2025)  | 2025 | Teachers can employ digital resources in the classroom thanks to digital technology, and the curriculum teaches aspiring foreign language instructors how to use these tools. | China     |

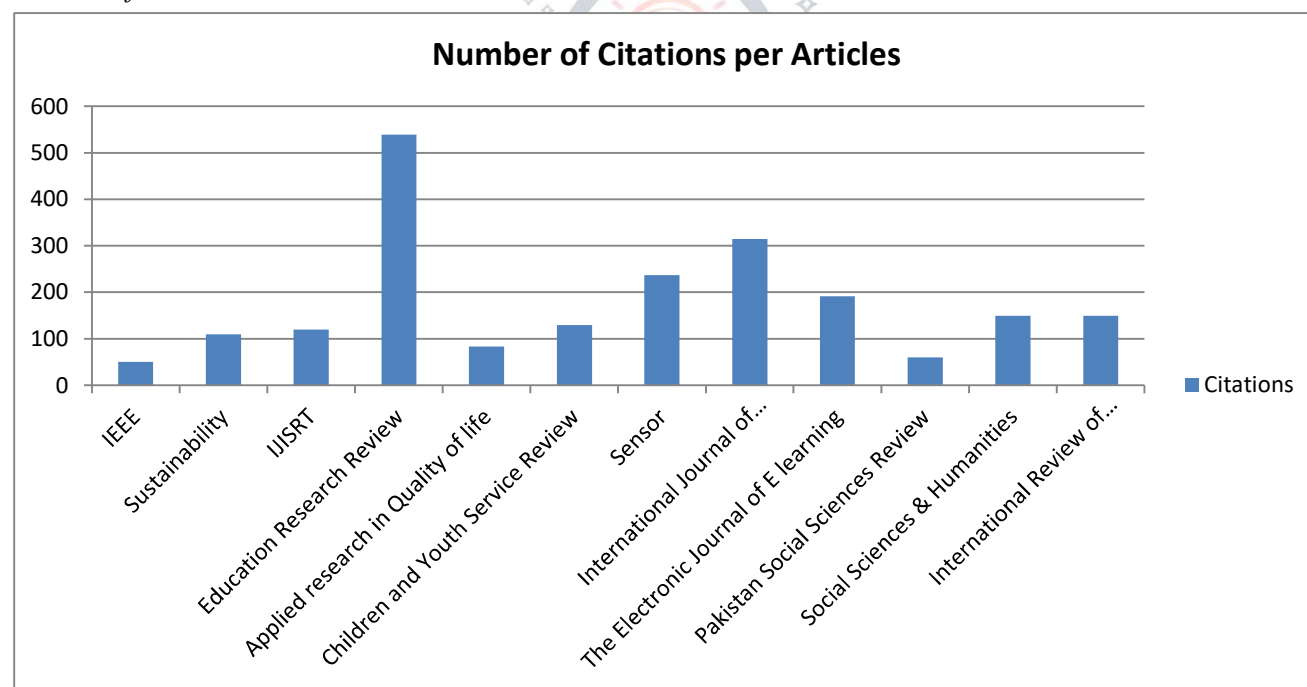
Source: Developed by the authors

#### 4. Results

Figure 2 represents the total number of citations per article selected for this study. The highest number of citations is for the journal "Education Research Review": the total number of papers, included in this journal is 7 with 539 total citations. The second journal with the highest citation is "International Journal of Educational Research". The total number of papers included is 6, with 315 total citations.

**Figure 2**

*Number of Citations Per Journal.*



#### 4.1 Bibliometrics Analysis

Analyses are done using bibliometrics software. Tree map, Topics, which are trending, most relevant words and the growth of the latest words have been analyzed. The hierarchy of keywords taken from papers selected from Science Direct is shown in figure 3. The word, which has been used frequently, is Covid-19; usage of this word is 25%, which means, 15 times, it has appeared. The percentage of use for Online-Learning is 11%, which means 7 times this word has appeared. Then comes higher education, the percentage used is 5%. This entire procedure is telling us how many times words have been used in the selected papers for study.



Figure 3

Tree Map, Hierarchy of Keyword

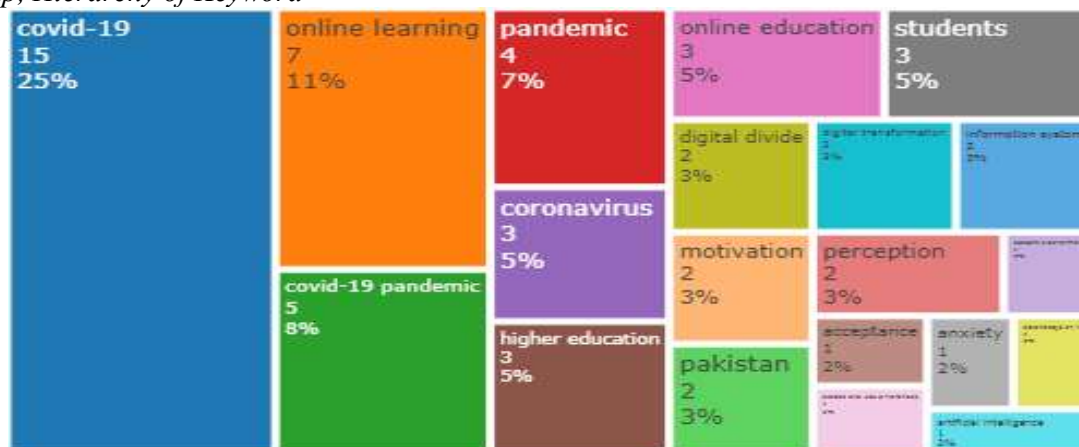
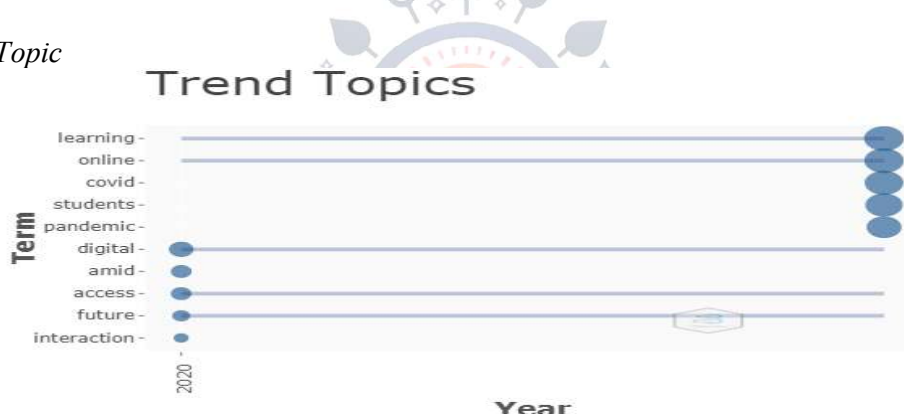


Figure 4 shows topics which were trending these days: are Covid-19, online education, and students. The impact of Covid-19 on businesses and education has resulted in a big loss. Educational sectors have been shut down, and businesses are running at a loss. The entire economy is in a big crisis around the world.

Figure 4

Most Trending Topic



As seen in the previous two figures, the words, are Covid-19 and online education appeared the most. Figure 5 also explained that the most relevant words appearing in the papers are Covid-19 and online education. The effect of Covid-19 has led the entire world to transition into the digital. Adopting new and latest technologies, some countries that are well developed can handle digital transformation well. In some countries, which are third-world where transformation takes time and is costly, adopting technology is quite difficult. They need well-trained staff.

Figure 5

Most Relevant Words

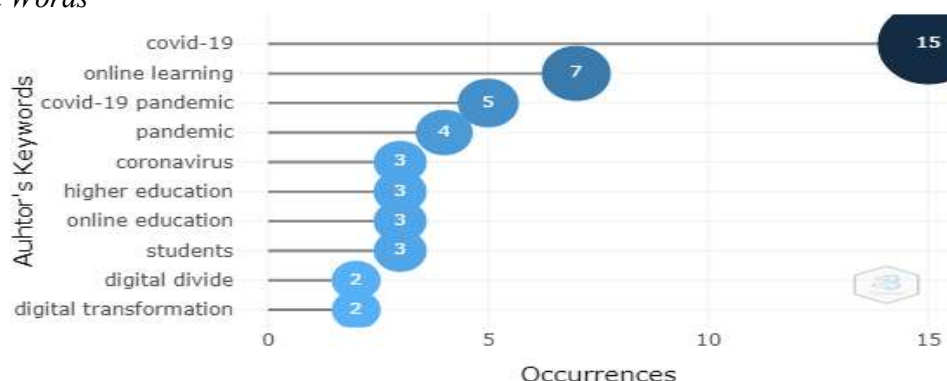




Figure 6 shows Word Growth, the word that appeared the most is Covid-19, next is Online-Learning and then higher education. After analyzing, the conclusion drawn is that, since 2019, Covid-19 became popular, and due to this, the world is in a tough situation. Education has become online. People are working from home.

**Figure 6**

*Word Growth*

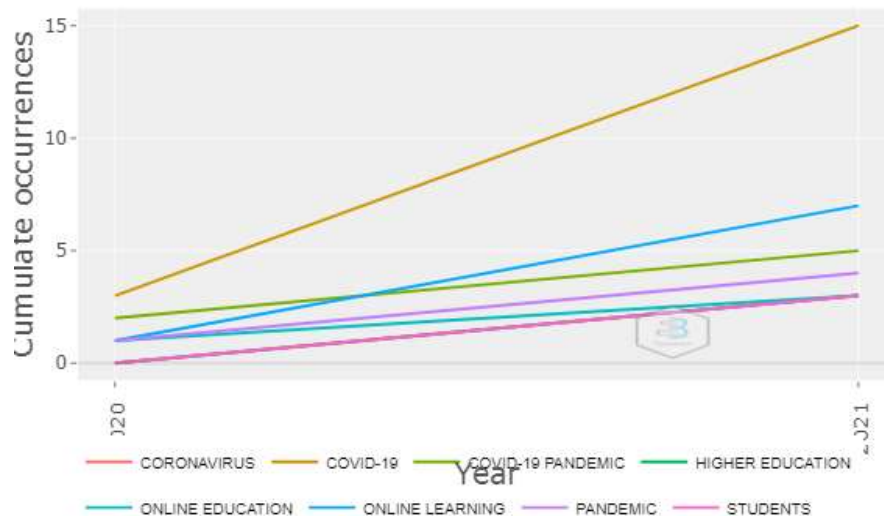
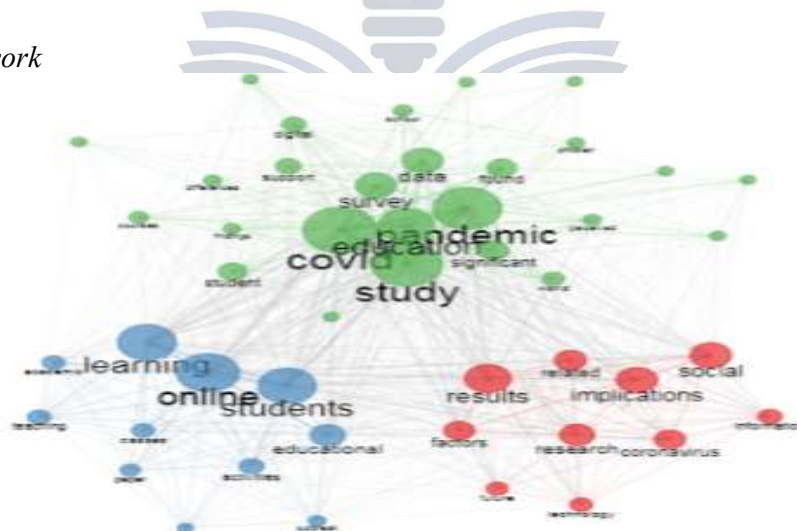


Figure 7 shows a co-occurrence network, which states that interconnection terms are occurring simultaneously, which means that the green part represents the study of Covid-19 and education. Whereas, the blue area represents the learning of online students. The red area represents results, research, and implications.

**Figure 7**

*Co-Occurrence Network*



## 5. Discussion

This study aimed to investigate the performance of teachers and students during Covid-19. The research gives a variety of insights on the issues while maintaining the theoretical lens. One problem, which has been identified by the teachers of HE, is that it was hard to deliver online-applied courses. The complete procedure was systematically shown in the presence of the students. This review analyzed the cited research papers on Covid-19, HE, and E-learning. Research articles from 2019-2025 were found and screened out using the PRISMA flow diagram. The study's introduction listed the current research goals. This section



includes conclusions, limitations, and suggestions for further study. It offered a novel and thorough definition of E Learning by using the Bibliometrics research approach.

While going through all the research papers we came across that the most frequently used word by the authors is Covid-19, which has been used 15 times. The second most used words is Online-Learning, used 7 times. The most trending words were Learning, Online, Covid, Students, and Pandemic. The total number of highest citations per article is from the journal "Education Research Review", with 7 papers and 539 citations. The second-highest citations are from the journal "International Journal of Educational Research", with 6 papers and 315 citations.

The period following the onset of the COVID-19 pandemic has revealed the transformative potential of technology in reshaping higher education institutions internationally. As traditional teaching methods have had to adapt, the relevance of online instruction has increased significantly, and it is expected that this trend will continue to evolve even beyond the pandemic era. This paper delves into the diverse array of technological platforms and tools that have emerged to support effective online knowledge acquisition. These include streaming conferences that facilitate real-time engagement, videoconferencing tools that enable interactive discussions, and web-based learning platforms that host comprehensive educational content. Additionally, educational applications, virtual presentations, online curricula, and messaging tools have become essential resources in enhancing e-learning methodologies (Gasser et al., 2025).

The sudden shift to online learning, necessitated by the urgent circumstances of the pandemic, presented a range of adaptation challenges for all participants in the educational process, students educators, and administrators alike (Amiri et al., 2026). As a result, higher education institutions are prompted to confront these challenges head-on, mobilizing their resources to implement solutions in an efficient and timely manner. It is crucial for institutions to not only clarify the intricacies of E learning processes but also to ensure that faculty and staff receive the technical training and support required to navigate this new educational landscape successfully. While the long-term repercussions of this significant transition to online learning and teaching within HEIs across the globe are still being assessed, it remains essential for institutions to develop specialized E-learning technologies. Such advancements will harness the power of these digital tools, further enriching the educational experience and promoting effective learning outcomes in an increasingly digital world (Clarke et al., 2024).

## **6. Theoretical Implications**

With this scenario of management-oriented SLR, its key value consists of illustrating that management and education researchers encounter multiple scenarios with ways to obtain primary data to address academic duties. In other words, without the freedom of choice, they have been using online teaching and have learnt how to operate with the available platforms in order to keep transmitting programmed information to their students.

Another contribution within is in terms of theoretical and practical implications, this particular study focused on the Constructivist theory. This, on the other hand, produced original pieces of work. In this undiscovered field, mapping has shown that online education, Covid-19 and management are research flows in the published works. This did not show a connection with Covid-19, but several investigations of the advantages and disadvantages of distant learning and online teaching were carried out for everyone concerned. These studies provided insights into the experiences and highlighted strengths and problems in order to enhance the quality of this kind of instruction.

## **7. Future Direction**

After a comprehensive study of future directions, it would be that E-Learning could be made easily accessible to the masses in third world countries. There is a marked difference between in person learning and online learning. After the pandemic, educational institutes can make use of the on campus classes and online classes effectively, so that learning can be enhanced. Institutions might not be able to switch totally to in person or on campus classes. Therefore, they have to come up with the idea to have a mixed situation of on campus and online classes, in order to maximize learning. This will be different for different students like for



junior years, more on campus classes, and for seniors, classes can be held online. So that there will be a balanced situation.

Therefore, it is reasonable to say that E-learning will be here in the future. It will evolve and become more handy for students with future updates and enhancements. New ways that teachers use will enhance the commitment of online courses to learners. More and more modules will be produced and put on the Internet in the future. It allows access from homes, private workplaces, books, or schools. This removes time and space limits. Video conferencing and interactive videos can also be utilized to improve the material provided for training and learning.

In turn, this will give students more effective training. They can advance at an optimal speed for the person who is involved in the education process. The usage of student groups ensures active learning. It is usual to digitize information and make digital libraries available worldwide over the Internet. Older publications from centuries will be online, providing information and a rich history to help students and institutions comprehend contemporary concerns and problems.

Tech-Savvy educators promote a favorable environment in which students find it pleasant to study. The technology training for instructors helps eliminate the technical division and is vital to E Learning success in schools. As technology progresses, teachers need to adapt new approaches to learning in order to make students learn more and in a better way. Therefore, adding technology to a classroom alone is not enough. Tech Savvy teachers are needed to manage the education of E learning.

With technology, training teachers will be in a better position to make use of E-learning without having to face any problems. Tech Savvy teachers are in a more powerful position to promote a positive environment, where students will be able to find learning enjoyable. It will help to eliminate the technological barriers, which is important for success. Schools must also assist professors in educating their students on internet security and digital citizenship. This allows the electronics in the classroom to be able to manage time wisely, and overuse of technology is avoided.

## **8. Conclusion**

E learning should be promoted to lessen the problems of remote learning. Modern technology, fast internet connectivity, constant electricity, security, ongoing maintenance, and efficient distance learning managers may be used to upgrade infrastructure. Universities of distance education should have a computer laboratory with enough computers and a fast internet connection. Lecturers and students should be skilled and trustworthy in using electronic equipment and have the required understanding of the manner of providing information. Technology may also be used to improve, rather than change, methods of instruction. Distance learning should be promoted.

Covid-19 has massively affected society and the way people are organized in the current world. The systemic problems inside institutions were identified, and long-needed improvements were made. This review looked at and evaluated the educational effects, with a specific focus on digital transformation and online learning. Numerous institutions and governments were not prepared to move to technology-based learning and work. This led to inequality problems, lack of access and ability to enable this process of education.

There have been various problems with changing from offline to online learning from the standpoint of students and teachers. Contents that cover the curriculum and motivate learner take one hour to generate. There have been some concerns as to the effectiveness of remote learning, future unpredictability, and concern over the long-term effects of this digital transformation on health, safety, and access. Others felt that this transformation caused tension and worry amongst individuals. However, certain individuals noticed improvements in performance and gave their peers and instructors knowledge and enthusiasm (Han and Li, 2025).

The skill of the teachers and the quality of courses delivered online must also be enhanced. There has been noteworthy development regarding teacher skills and course content using online teaching. Some of the recommendations offered in this respect include helping students to increase their skills, offering excellent electronic learning tools, and providing students with feedback.



### **Contribution of Authors**

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

### **Conflict of Interest Statement**

The authors declare no conflict of interest.

### **Funding Statement**

This research received no external funding.

### **Informed Consent**

Informed consent was obtained from all participants.

### **Data Availability**

This study relies exclusively on publicly available secondary sources, including corporate disclosures, industry reports, and peer-reviewed literature, all of which are cited in the References section.

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