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A Comparative Study of Online Courseware in UK, USA and India: A Systematic Literature Review

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As online courseware continues to grow in the country, learners are getting help from educational programmes in their studies. This work provides a systematic literature review of online courseware across several fields. The goal is to investigate the current status of online courses in the UK, the USA and India. This paper present the systematic categorization of online courseware based on a structured, systematic review and thematic content analysis of the available literature. Several studies have been conducted to compare face-to-face instruction against online courseware in order to analyse which format gives the best learning outcomes. The review focuses on characteristics that influence learning experiences in online courseware, with a great emphasis on professional education and teacher training. The research methods of quantitative and qualitative analysis are used in the study. According to the findings of the research papers included in the review, the UK has published a greater number of scopus indexed papers, while the US and India have published a greater number of peer-reviewed indexed papers. The study discovered that thematic research type analysis methods are more used in the UK and the US, but descriptive methods are more commonly used in India. The review of 20 publications which are available in open access platform were randomly selected from each country. The total 60 publications were reviewed which were published between 2000 and 2021, is based on systematic database searches undertaken in July 2021. The study findings were that most of the studies that were indexed in the scopus publication were conducted in the UK in comparison to other countries. The quality of literature was also good in the UK compared to the other selected countries.

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1 INTRODUCTION

The rapid growth of Information and Communications Technology (ICT) has transformed the design and administration of learning programmes in higher education institutions.

The birth of the Internet was one of the most substantial achievements of information and communications technology.

The use of communication tools in classroom learning and teaching methods aids in the improvement of educational content in schools, universities, and institutions. One of the reasons there is so much debate over online courseware is that there are so many purported advantages and applications for it. And one of the most essential things is its effectiveness in educating people, its application for career development, its cost-effectiveness in combating the high costs of higher education, postgraduate education, and the ability to provide an international education to anyone with a wireless connection[1]. A large number of studies have been conducted in the reviewed literature to determine whether computer-mediated education in the form of online courseware is superior to traditional face-to-face teaching in contexts of teaching strategies and academic performance[2].

In this article, researchers investigate the comparative analyses between the Indian, American and British education systems in the perspective of a literature review[3]. The researchers are conducting several studies comparing various online learning and teaching platforms such as online courseware, e-learning, MOOCs, and web-based online learning in the UK, USA, and India in order to determine which format provides the best learning outcomes. Although the numbers of students taking online courseware are increasing[4], the following are 60 reviews randomly selected from recent comparative studies of the three forms indicated by the United Kingdom, the United States, and India. The main emphasis will be on summarizing the findings of these investigations. It is frequently demonstrated in literature reviews that teaching and learning are determined mostly by the teaching format, since many other elements play important roles[2].

2 ONLINE COURSEWARE

The term ‘open access’ emerged in 1991 as a result of the awareness that academic scientific communication needed to be made easier. Open access to

literature refers to users and libraries having free online access to content. Courseware is an open and liberated digital publication of high-class teaching materials structured as courses that are made accessible to the public for free through the World Wide Web[5]. The world's growing student population necessitates the establishment of a new generation of institutions that are younger, more efficient, and technologically advanced. As a result, authorities are rethinking their courses, hiring extra academics, and increasing collaborations with real-world[6] academics and organizations. Online courseware is becoming a valuable option for increasing access to advanced interactive resources distributed under open licenses by leading universities throughout the world[7].

3 RESEARCH METHODOLOGY

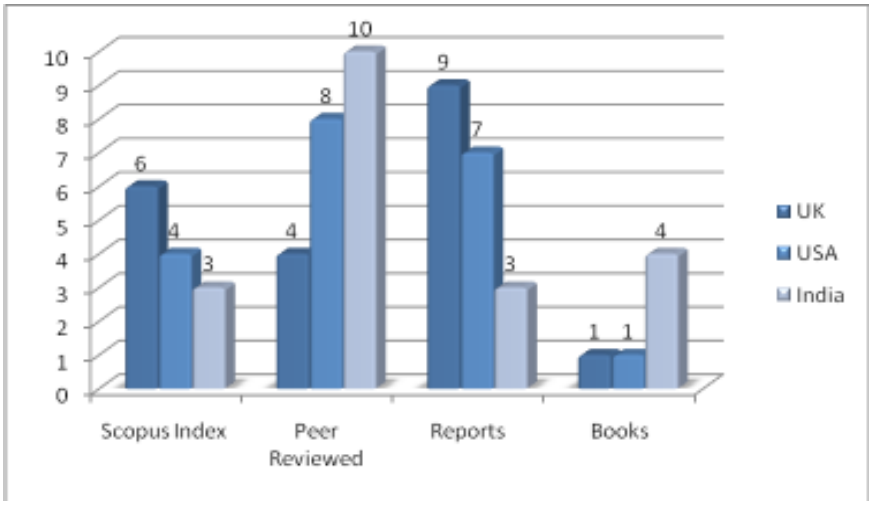
In this section, we discussed the quantitative study[8]with an exploratory and descriptive scope[9]used in the studies. It was decided to conduct a technological and methodological literature assessment of online courseware systems[10]. The steps in the entire research process could be summarised as follows:

- Determine the purpose of the review, produce a review concept, and create a review methodology.
- Find the research, choose the studies, and analyse the reviews.
- Summarize the findings of the review.

4 DESCRIPTIVE ANALYSIS

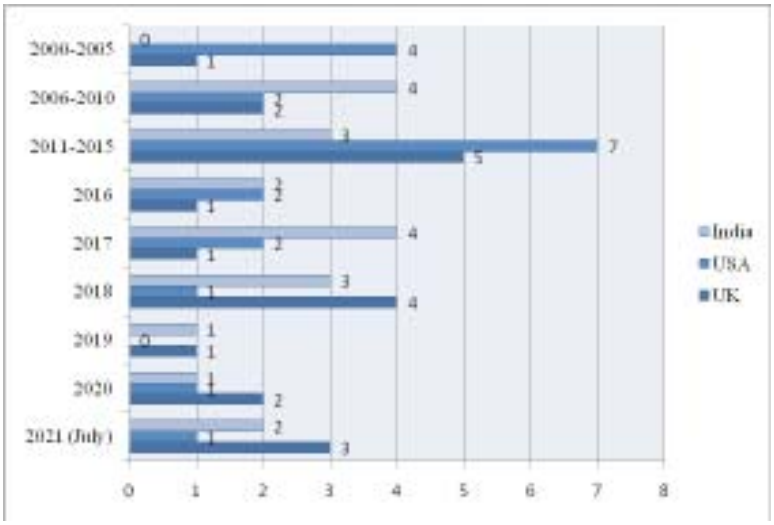
The study analyses 20 publications from each country, randomly selected from open access websites that published 60 research papers between 2000 and July 2021. The purpose of the descriptive analysis is:(i) it offers fascinating insights into online courseware from three countries: the United Kingdom, the United States, and India. It supports in visualizing the various online learning research approaches that have been presented in the scientific literature so far. The descriptive analysis uses three key criteria to classify the available literature: (i) distribution of publications by type of Indexed article publication, (ii) distribution of publication by year (iii) distribution of publications by specified thematic research type.

Figure 1. Types of Indexed articles publication



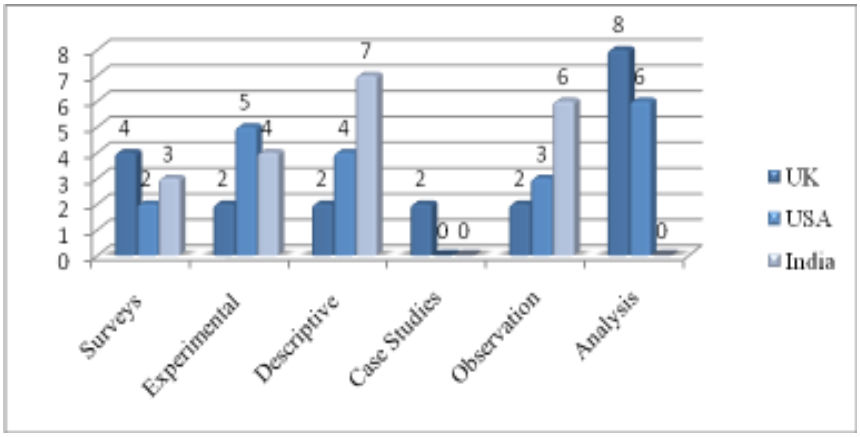
The domain-specific distribution of the 60 research items may be seen in Fig. 1. The analysis uncovered a plethora of online courseware domains.The UK has published a greater number of scopus indexed papers (06), and reports (09) published in comparison to the USA and India, while India has published a greater number of peer-reviewed indexed papers (10) and book chapters (04) on online courseware in comparison to the UK and USA.

Figure 2. Year-wise analysis of the selected literature from the UK, the USA and India



The study analyzes 60 research papers published between 2000 and June 2021. Each country has included 20 research papers. A year-wise analysis of the selected papers is illustrated in Fig. 2. It is worth noting that the number of publications increased dramatically between 2011 and 2015. Until 2019, there was only one publication related to online courseware from the UK and India. In the year 2019, USA has no publication and also there were no publications on online courseware in India between 2000 and 2005.

Figure 3. Distribution according to the specified thematic research type



Thematic research types represent a large portion of all available research types out of 60 research items of online courseware that have been identified, seen in Fig. 3. The analysis method is followed from the United Kingdom and the United States, whereas the descriptive method has more studies from India and the analysis method has none from India. The USA and India have no case studies of the specified thematic research type.

Table 1: Top Ten Application or Sources of Online Courseware Platforms for Higher Education in the UK[11], USA[12] and India[13, 14]

S. No	UK	USA	INDIA
1.	**Brightwave**[15] https://www.brightwavegroup.com	**Blackboard**[16] https://www.blackboard.com	**e-Gyankosh**[17] http://egyankosh.ac.in
2.	**DeltaNet**[18] https://www.delta-net.com	Coursera[19] https://www.coursera.org	**e-PG Pathshala**[20] https://epgp.inflibnet.ac.in
3.	**e-Learning Centre by Learning Light**[21] https://www.learninglight.com	**edX**[22] https://www.edx.org	**National Programme on Technology Enhanced Learning (NPTEL)**[23] https://nptel.ac.in
4.	**Future Learn**[24] https://www.futurelearn.com	**Kadenze**[25] https://www.kadenze.com	**Spoken Tutorials**[26] https://spoken-tutorial.org/
5.	**Hubken Group**[27] https://www.hubkengroup.com	Khan Academy[28] https://www.khanacademy.org	**SWAYAM**[29] https://swayam.gov.in
6.	**Learning Pool**[30] https://learningpool.com	**Masterclass**[31] https://www.masterclass.com	**Swayam Prabha**[32] https://www.swayamprabha.gov.in
7.	**Loop**[33] https://courseloop.com	**Pluralsight**[34] https://www.pluralsight.com/	**Talk to Teacher**[35] http://aview.in/index
8.	**Lothian Learning**[36] https://www.elearninglist.com	**Skillshare**[37] https://www.skillshare.com/	**The National Digital Library (NDLI)**[38] https://ndl.iitkgp.ac.in
9.	**Titus Learning**[39] https://www.tituslearning.com	**Udacity**[40] https://www.udacity.com/	**Vidya Mitra**[41] https://vidyamitra.inflibnet.ac.in
10.	**Virtual College**[42] https://www.virtual-college.co.uk	Udemy[43] https://www.udemy.com/	**Virtual Labs**[44] https://www.vlab.co.in/

Table 1: shows the applications/sources of online courseware platforms for higher education in the UK, the USA and India. These resources are listed alphabetically. After comparing all the e-learning platforms from these

countries,the researcherssay that Future Learn is the most popular and excellent platform in the UKreaches 15 million learners[45], followed by the USA, Coursera reaches 77 million learners[46] and, in India, SWAYAM is the most popular and excellent platform. This is in addition to the 25 lakh learners who have already registered for SWAYAM's 571 courses for the January 2020 semester. Since March 23, 2020, approximately 50,000 people have always accessed SWAYAM[47].

Table 2:Top 10 Universities that offer Online Courseware in the UK, the USA and India48

S.No	UK	USA	India
1.	**University College London[49]** https://www.ucl.ac.uk	**Johns Hopkins University[50]** https://www.jhu.edu	Indira Gandhi National Open University **(IGNOU)[51]** http://ignou.ac.in
2.	**University of Edinburgh[52]** https://www.ed.ac.uk	**Northwestern University[53]** https://www.northwestern.edu	Sikkim Manipal University **(SMU DDE)[54]** https://smude.edu.in
3.	**University of Manchester[55]** https://www.manchester.ac.uk/	**The University of California[56]** https://www.universityofcalifornia.edu	**IMT Distance and Open Learning Institute[57]** https://www.imtcdl.ac.in
4.	**King's College London[58]** https://www.kcl.ac.uk	New York University[59] https://www.nyu.edu	Symbiosis Centre for Distance Learning[60] https://www.scdl.net
5.	**University of Warwick[61]** https://warwick.ac.uk	University of Texas at Austin[62] https://www.utexas.edu	MP Bhoj (Open) University[63] https://mpbou.edu.in
6.	**University of Glasgow[64]** https://www.gla.ac.uk	**Georgia Institute of Technology[65]** https://www.gatech.edu	**Maharshi Dayanand University (DDE)[66]** https://mdu.ac.in
7.	**University of Sheffield[67]** https://www.sheffield.ac.uk/	Boston University[68] https://www.bu.edu	Dr. B.R. Ambedkar Open University (BRAOU)[69] http://www.braou.ac.in
8.	**University of Birmingham[70]** https://www.birmingham.ac.uk	The Ohio State University[71] https://www.osu.edu	**Netaji Subhas Open University[72]** http://www.wbnsou.ac.in
9.	**University of Leeds[73]** https://www.leeds.ac.uk	University of Maryland[74] https://www.umd.edu	Acharya Nagarjuna University[75] https://www.nagarjunauniversity.ac.in/indexanu.html
10.	**University of Nottingham[76]** https://www.nottingham.ac.uk	**University of Pittsburgh[77]** https://www.pitt.edu	Karnataka State Open University[78] https://www.ksoumysuru.ac.in/

According to Table 2, the top ten universities that offer online courses are located in the United Kingdom, the United States, and India.Table 2 demonstrates that University College London (UK)[79], Johns Hopkins University (USA)[80],

and Indira Gandhi National Open University (IGNOU) (India) are ranked first for providing online courses[81].

5 ONLINE COURSEWARE IN UK

As per all the reviews, developed countries such as the UK are in a better position to reject the incorrect models that were previously used in sophisticated countries[82], such as the United States and India.The high level of British education is well known across the world, and many people aspire to graduate from one of the country's universities. This aspiration is considerably easier to achieve nowadays. Students who are unable to relocate and study in a foreign country can benefit from using online courseware[83]. For review, articles on onlinecourseware in the UK have been taken from various resources, like journals, books, reports etc. The reviews of this paper are chronologically given in each section as-

The researchers used meta-analysis as a research method to review literature on the use of the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) framework for designing and developing instructional materials that can provide more people with access to high-quality higher education. The researchers used ERIC to find publications relevant to online learning course efficacy studies in order to create a synthesis of scientifically rigorous knowledge in online learning courses1. Another study on the extent to which courseware creators in various Universities in Nigeria use and submit their courses as OER, as well as the hurdles to successful OER use and publication, notably in their academic libraries7.cited a study on how the COVID 19 epidemic and school transition to online platforms have impacted education in the United Kingdom[84]. Published research in three first-quartile innovative educational publications indexed in JCR-SSCI. The total samples of 248 publications. MOOCs were discovered to be the most explored e-learning medium. The case study was the most commonly used methodology[85]. Further,study on systematic literature review of block chain-based applications across many fields is revealed in the study. The goal was to look into the current state of block chain technology and how it could be used. The findings were based on a hierarchical, systematic evaluation and thematic content review of the literature found[10].

Reported that the study to determine the impact of the online learning and AIEd marketplaces on increasing access to learning and increasing the effectiveness of low to advanced skills in the English profession. The investigation found over 200 providers of online learning for adult learners with low-intermediate capabilities in England. Approximately 100 private training

providers, over 50 Further Education colleges, and 22 MOOC platforms are included. Higher education institutions provide a few online courses, although many collaborate with MOOC sites. There are over 400 online learning developers. The majority created online learning solutions that may be broadly characterized as: online learning management practices; publishing tools and applications; and digital content for the teaching process[86]. Another study investigate the consequences of these various modes for the structure, configuration, and monitoring of online learning and propose a framework to assist practitioners in identifying their own profession and developing effective programmes and systems premised on the study's findings[87]. Another study looked at some important characteristics, but it also examined and questioned the value of research that compares individual online learning, e-learning, and blended learning formats. Educational and learning were complicated processes that were influenced by factors other than the teaching modality. The review included 44 peer-reviewed publications and papers published between 2014 and 2017 and was based on systematic database searches conducted in 20172. Further study of current research trends in many fields on Massive Open Online Courses, or MOOCs. The goal of this study was to identify current research trends in MOOCs and limit them down to what topics were covered in recent MOOC papers[88].

In this study, the author discusses how some academic staff have obstacles in the online learning context, since they are increasingly expected to have higher levels of technology competency and expertise on top of their formal learning burden. This paper gives one lecturer's perspective and critical analysis of some of the issues faced by foreign students, as well as the consequences of an increasingly online delivery system for practice, based on thoughts on several years of enabling educational outcomes[89]. An added investigation was to provide a review of existing e-learning settings, including their characteristics, limits, benefits, and the primary factors influencing the acceptability of such techniques. The study was found to be important in developing a successful e-learning environment, with human, economic, religious, intellectual, organizational, and geographical elements[90].

Another study was to develop hypotheses for the development of an e-learning approach at Tripoli University's School of Engineering in Libya. He was developed in response to the recognized impediments to successful e-learning. The challenges were divided into three categories: technological, sociological, and economic. A SWOT model was established for the diagnosis of the institution's current stage of e-learning performance. The user-centered planning and experiential learning approaches were utilized in the creation, production, and deployment of an e-learning program for a module studied by

Year 4 students from the School of Engineering at Tripoli University. A series of organizational, methodological, and computational proposals for the establishment of an e-learning approach have been developed. These were generated from an examination of hurdles and the SWOT model in relation to the effective adoption of e-learning in Libyan Higher Education Institutes (LHEIs). This article discovered that improving students' learning opportunities and job performance through technological advancements in education meets the needs of an adaptable and varied learning environment[91]. Study looked into the perspectives and experiences to satisfy needs of students engaged in an online economic evaluation course. The data was obtained using a mixed methods technique, and thematic analysis was utilised to summarize the information and emphasise relevant conclusions. Participants recognized a number of positive and negative aspects of online learning, many of which have been widely reported in the literature[92]. Further study, the qualitative research strategy was used to investigate students' educational views and perceptions in online courses at a university. The interaction between students, instructors, and course content was evaluated using Moore's transactional distant learning theory. The study's participants were chosen using purposive sampling from three university departments[93].

The purpose of the study, was to determine the effectiveness of employing e-learning among secondary school students. Data was obtained from 45 students in Shah Alam, Selangor, who attended three different schools. SPSS version 19.0 was used to analyze the data[9]4. A further study found that universities in Egypt face many educational problems and obstacles that technology can help to overcome. Many Egyptian universities have adopted open source software, such as the Moodle e-learning platform. Moodle could be used as an e-content aid and to provide a variety of options for implementing asynchronous e-learning web-based modules. This paper demonstrates that using interactive e-learning features increases undergraduate students' motivation for the learning process[95].

The purposes of study as any course, at any higher education academic level, provided to students at a distance from the host organization, with a significant component supplied to students online. A survey method was adopted to collect data on the financial worth and scope of the ODL offering. While using this platform, the study looked at developments in around 400 mostly online courses presented by more than 100 higher education and higher education institutions. Separately, 175 ODL courses offered in collaboration with 17 commercial suppliers were found. It was also observed that the majority of the ODL presented by higher education institutions is at the postgraduate level; courses provided in collaboration with business entities are more evenly

distributed around the higher education educational levels[96]. A further research on the design and execution of online course materials was published. As part of the instructional design process, the author gives a critical analysis of some innovative learning patterns and comments on the congruence between education, motivations, and learners' outcomes. In this framework, the author emphasizes the importance of ongoing analysis and evaluation in order to promote effective online environment management[97].

This investigation was part of the Open Course Ware (OCW) movement, which demonstrates how innovative thinking and a commitment to resolving global issues can produce extraordinary results[98]. Explored a research was to search for evidence of e-learning in the workplace. The primary criterion for content inclusion was that it addressed the application of e-learning in the workplace. In this, some exploratory research was conducted utilizing the Google search engine. Organized management searches for documents using the phrase 'e-learning' in the archives and databases Web of Science, Psycinfo, Assia, Zetoc, ERIC, ABI Inform and Econlit[99].

6 ONLINE COURSEWARE IN USA

Firstly, university enrolment in the United States has been steadily declining, from 20.6 million in 2011 to 19 million in 2016[100], and this trend is likely to continue into the late 2021s[101].

For a variety of reasons, university enrollment is declining.

- The rising cost of a university degree;
- pessimism about the additional benefits of higher education
- A drop in the percentage of students who finish their degrees on time,
- The rising costs of commuting
- A reluctance to take on long-term debt, and
- Social problems, such as a reported lack of organizational support for low-income, minority, and international students[102].

Aside from declining enrollments, there is also the issue of shifting student demographics. Reviews show that the number of students aged 25 and above will rise[102]. For review, articles on online courseware in the USA have been taken from various resources, like journals, books, reports, etc. The reviews of this paper are chronologically given in each section as-

This is a cross-sectional quantitative study having a descriptive and experimental scope. Data was acquired independently from 1009 students from four nations who filled out surveys. Parametric, correlation, and statistical were used to examine the data. In the United States, Mexico, and Peru, the predictive model demonstrates that students' attitudes regarding online learning

have an impact on their intellectual involvement[9].

Reported a study on Online Teaching and Learning in Higher Education during the CoronaVirus Pandemic. The study aims to determine how Romanian universities decided to give information during the CoronaVirus epidemic, when universities had to change the learning system to entirely online teaching and learning in a relatively short period of time. In this context, the author examined students' attitudes toward online learning, their ability to absorb knowledge, and their use of E-learning platforms. A semi-structured questionnaire was used to conduct an online survey. Data was gathered from 762 students at two of Romania's top institutions. The results of the research revealed that higher education institutions in Romania were not prepared for exclusively online learning. The hierarchy of problems that arise in online learning has changed in the context of the crisis caused by the pandemic. Technical issues are the most important, followed by teachers' lack of technical skills and their teaching style being improperly adapted to the online environment. However, the last rank was assigned by students because of the lack of interaction with the teachers or poor communication with them[103].

This study analyzed 47 published articles and research on online learning and teaching since 2008, concentrating on how theories, practices, and assessments apply to the online learning environment using a qualitative content analysis technique. The goal of this paper is to offer practical advice to individuals who are developing online courses so that they can make well-informed decisions during their project execution. According to their findings, effective online instruction necessitates well-designed course content, motivated communication between the teacher and learners, complete educators, the development of an online learning community, and rapid technological advancement. It is intended that by doing so, an ongoing discourse of successful techniques for enhancing universities' and faculty's effectiveness in moving to online teaching will be sparked. Given the ongoing disputes about the expense and quality of higher education, this study could help to increase higher education as well as student enrolment and engagement[104].

Investigated the evolution of online learning in the United States. As educational technology advances, so will the methods by which we offer and absorb knowledge in both traditional and online classrooms. To enhance the quality of teaching we provide today and to encourage, inspire, and educate the students of the twenty-first century, it is vital to examine and comprehend the growth and breakthroughs in digital learning, as well as the range of methods to transmit knowledge. This study examines the development of distance education, starting with correspondence and the usage of postal mail and progressing through radio, television, and, eventually, online learning105.

Another study,he investigated information about the effectiveness of online learning by categorizing and summarizing the outcomes and obstacles of online learning as positive, negative, mixed, or null data. The meta-analyses on the effectiveness of online learning, the heterogeneous outcomes of student learning, and the internal issue of training program choice receive special emphasis. Considered as a whole, there is strong evidence that online learning is at least as strong as traditional learning[106]. Study includes background information on "Quality Standards" in online course development and delivery, as well as a system and self or peer assessment form through which faculty can be reviewed on their online classes and lectures[107].

Study looks into the characteristics of massive open online courses (MOOCs). To decrease the consequences of student separation, study has concentrated on involvement, incentive, and availability. The constructivist learning MOOC model (MOOCs) has a pedagogical structure that includes a social, global, interconnected method and strong independent learning for adult lifetime learners interested in academic or work advancement[108].

Reported that students' overall perceptions in virtual learning environments were explored in the study. Understanding students' perceptions on their online classes goes beyond simply determining whether or not they are satisfied to more subtle concerns regarding how elements inside and outside the classroom influence the online classroom. Students' experiences with online learning were investigated in this descriptive survey analysis4.Another study investigated in order to assist educational administrators and legislators in becoming more knowledgeable readers of information on online learning and its potential impact on academic emotions. The study includes the conceptual knowledge required to investigate the potential contributions of online learning to academic emotions, as well as a conceptual framework for understanding the required components of comprehensive productivity analyses, focusing on cost benefit analysis as an available technique in learning[109].Another research takes a mixed approach to studying the effects of online teaching on the professional identity of higher education professors, as well as the role of information technology in this approach. She looked at the findings of two qualitative studies that compared various groups of teachers. The first group included teachers who taught both online and face-to-face courses, but who clearly preferred the face-to-face classroom and struggled to maintain their professional identity in the online course. The second group consisted of online professors who had a track record of proficiency in online teaching and who apparently appreciated both technologies equally. She examined the outcomes of a survey of 223 higher education faculty members to determine how far the outcomes of the previous two studies might be generalized. This study identifies how online learning is transforming both teachers and the education sector in higher education, why many faculty are hesitant to teach online, and provides solutions

to these difficulties[110].

Another research carried out distance education vs. face-to-face teaching environments. It has been a subject since the 1920s. Over the decades and into the 1990s, the outcomes of hundreds, if not thousands, of research have been compatible: there are no significant differences in learning outcomes gained by students participating in face-to-face education or those participating in distance education. This holds true independent of the technological medium, the discipline, or the type of learner. Numerous studies, including meta-analyses, began to demonstrate substantial differences in favor of online learning around the year 2000. These investigations were concluded in a report from the US Department of Education titled "Meta-Analysis and Review of Online Learning Studies" in 2010[111].

Study reveals that access solutions are made possible by Open Educational Resources (OER) and online learning. The authors examine and compare open educational resources (OER) and online learning, as well as their potential for addressing human rights "to" and "in" learning. The authors investigated the effect on the financial feasibility of OER and online learning, as well as the prospective possibilities for bridging the higher learning barrier[112].

The authors observed minimal agreement in nomenclature, revealed some conclusive standards, and indicated developing avenues of investigation overall, the findings imply that the majority of the studies looked at were exploratory and descriptive, that the majority of online students are unconventional and Anglo American, and that few universities have written rules, regulations, or technological assistance for professors and students8.Cited a study that employed qualitative methodologies to assess students' impressions of the quality of online education based on their personal online learning experiences at two universities and one community college. Three students were subjected to observations and interviews. Various documents, both online and print, were gathered. Students' favorable and unfavorable experiences were investigated. There were also discovered factors that lead to those encounters[113].

Another study shows how the Massachusetts Institute of Technology (MIT) announced the Open-Course Ware project in April 2001, with the intent of making all of MIT's courseware publicly available on the Internet. The goal of MIT was not to create an e-learning environment. That month, MIT planned to officially begin its school, with 500 courses available online in the initial round. Lecture notes, course outlines, reading lists, and projects supporting traditional classroom teaching were all included in the course software. More than 2,000 courses will be available online within ten years. While posting particular course content online was already common, the organized grouping of freely accessible course materials from several academic fields into a standardized, accessible repository at the organizational level was a novel

technique. The project's name suggested a conceptual connection with open source software, and the initial announcement was used on the front pages of newspapers across the country[114]. An article observes how the internet has been integrated into traditional classrooms, as well as how the Web has been utilized to provide courses and certificates in online environments. The writers also talk about how students, traditional institutions, and online universities all play a role in e-learning. Online education has grown significantly, and with higher bandwidth, more engaging software, and higher instructor approval, it has become more widely used in e-learning[115].

A follow-up investigation into "Open Courseware and Developing Countries: Building a Community."This is the report on UNESCO's Forum on the Impact of Open Courseware on Higher Education in Developing Countries, which was held in Paris. Participants devised a joint course for the productive and creative use of freely shared educational resources, engaging colleges and universities from all over the world. They shared insights into the potential and complicated challenges involved in advancing opinions[116].

7 ONLINE COURSEWARE IN INDIA

As per all the reviews, developing countries such as India are in a good position to refuse the outdated approaches[17]that were formerly used in developed countries like the United States.

As per the study, India’s online education system is currently valued at $247 million, with an average of 1.6 million users; it has been valued at $1.96 billion, with about 9.6 million users by 2021[17]. The following are the primary objectives of online education in India:

- Incredible expansion in Internet and smartphone penetration;
- The low cost of online learning;
- Government measures that are conducive to digitalization; and
- Rising demand for continuous learning among working professionals and job seekers.

Among the numerous government programmes designed to popularize open courses in India are Digital India and Skill India. Some examples are:

- MOOCs (Massive Online Open Courses),
- SWAYAM (MOOCs based on curriculum taught in classrooms from 9th grade to post-graduation),
- e-PG Pathshala (open courseware system for graduate students),
- e-Education (all schools are connected to the internet via broadband and free WiFi),
- Government initiatives such as e-Basta (digital school books), NandGhars (digital teaching aids)[102].

For review, articles on online courseware in India have been taken from various resources like journals, books, reports etc. The reviews of this paper are chronologically given in each section as-

Surveyed s in teaching and learning in higher education inIndia. This research examined teaching and learning trends in higher education during the COVID-19 Lockdown, using empirical evidence from central institutions in India. The study used a survey method, with an online questionnaire serving as the major data collection tool. The study looked at 19 Indian central universities that provide library and information science programmes. During the COVID-19 Lockdown, the zoom application was the most widely utilized for online education. The main challenge students experienced during online classes was a shortage of internet connectivity, and the use of webinars in the field of LIS is recognized as an essential source of information. Major consequences for the future of LIS teaching and learning in higher education were highlighted in the context of this research[117].Reported that discovering the factors that influence students' satisfaction and productivity in online classrooms, as well as establishing the relationship between these variables. The data was acquired from 544 responders who were studying business management (B.B.A. or M.B.A.) or hotel management courses at Indian institutions via an online survey[118].

The authors have discussed essential aspects that will enhance online education in India in this study. Digital marketing, the low cost of online learning, the ease of taking courses, public programs, business acceptance, and bridging the gap are all essential elements in the expansion of online education, according to the author. Inadequate digital infrastructure, trust, and the terminology used in online education are all challenges that are impeding progress. With the growing number of internet users in India, the study examines the potential for future growth in the education industry[119].

One more studyis concerned with online learning, which is a computer-based learning tool or network that allows us to learn from any place and at any time. The writers of this study conducted a literature analysis and provided an academic setting for the study by reviewing certain donations from various investigators and organizations on the concepts of online learning, Swayam, and e-PG Pathshala. This paper concentrated on the Swayam and e-PG Pathshala content for students, faculty, educators, and learners. Swayam is an initiative of the Indian government that enables the hosting of all courses from Class 9th to Post-Graduation through online learning. e-PG Pathshala is a UGC-funded MHRD project originally developed by the NME-ICT department. This study is an online learning platform for postgraduate students from a variety of institutes, organizations, and universities[120].Another study

examines the role of e-Learning in Indian Higher Education; ideas and elements of e-Learning; trends and issues; scope; forms of e-Learning, problems, the business sector; the influence of MOOCs; advantages and disadvantages; and the future prospects of e-Learning have been discussed[121].According to the purpose of the literature review was to better understand academic articles on the issue of e-learning, both technologically and in terms of its influence on students. The study identifies research gaps and suggests areas where continued studies should focus in order to fill in the gaps[122].

A different study explores the benefits and drawbacks of using open educational resources in today's educational system. The several important steps taken in India to promote effective ICT usage are also emphasized. The role of libraries in promoting the adoption of OERs in educational institutions is also discussed in the study[123].Carried out a study on defining online education. It has emerged as a strong contender for the next breakthrough educational technology, as it has been for many years. Several online courses have recently been made available, educating a large number of people on a variety of topics.The human experience of online education is set to change, and we need to be aware of the factors that are causing it. Every part of society is being influenced by technology, which is causing significant changes. However, there is one extremely significant and necessary aspect of society that has been accessed as well[124].Another study described the number of people taking Massive Open Online Courses (MOOCs) has increased. After the United States, India leads the world in enrollment growth. India has started a variety of programmes to offer MOOC courses in response to an increase in enrolment and the need for education in the country. NPTEL, MooKIT, IITBX, and SWAYAM are the platforms used in this study to offer courses in India[125]. This study provides a theoretical and technical backdrop for these platforms, as well as a description of their characteristics. In addition, utilizing web analysis, a comparative analysis of the platforms is presented. In India, there are certain obstacles to overcome when introducing MOOCs. Some of these barriers include: technological infrastructure, investment, diverse needs, learner adoption of MOOCs, and quality. The purpose of this study was to look into students' perceptions of open courseware in higher education institutions. With this goal in mind, the researchers decided to conduct a survey of students at higher education institutions. The ongoing investigation was a survey in nature. 418 undergraduate and postgraduate students from urban, semi-urban, and rural locations made up the study's sample. According to the research, students were not aware of the open courseware[126].

Another study givesan overview of the open courseware initiatives in India. This paper includes the provision of open-access resources, open digital repositories, and open courses in the field of higher education. The CEC, eGyankosh, Ekalavya, ePGPathshala, NCERT, NPTEL, and Sakshat sites are

only a few of the Indian open courseware projects covered in this paper[127]. Reported a study on development through E-learning in India. It will have a favorable impact on the results if it is correctly designed. Investigators found that E-learning is a beneficial tool for the development of India's educational sector in this research report. E-learning is the process of learning outside of the traditional classroom by leveraging electronic devices to obtain educational content. In most circumstances, it refers to an entirely online course, programme, or degree. The primary goal of this research paper was to comprehend the theory of e-learning as well as to investigate the many types of e-learning. It also summarizes a number of viewpoints on the traditional and modern worlds[128].

Another study from India investigated how e-learning has grown in popularity in Western countries, but developing countries such as India have been unable to keep up with their Western counterparts in terms of adapting to such a concept.With this in mind, the authors of this study attempted to determine how students in technical courses in higher education in North India use and react to this novel learning style. This paper examines the use of e-learning technologies by these technical course students in this setting. It examines the responses of the same group of students, those who solely use traditional learning methods and those who also use e-learning methods, to questions describing the development of e-Learning in their courses[129].Elaborated on the study defining how information and communication technology has infiltrated every aspect of life. ICT, or the convergence of computer, communication, and content technologies, has piqued the interest of academia, business, government, and communities, who want to leverage it to create new profitable propositions. Each year, it becomes easier to utilize technologies such as a desktop computer, a palmtop, an iPod, and so on. The first century saw the emergence of a knowledge-based society, with information and communication technologies (ICT) playing an important role.The role of ICT in school instruction was also recognized in the National Curriculum Framework 2005 (NCF 2005). In light of this study, a significant paradigm shift in education is required, defined by the transmission of instructions, cooperative learning, multidisciplinary problem-solving, and the promotion of critical thinking abilities[130].

A further study indicates that E-Learning is in LIS education. With its scope and progress in Indian LIS education, this study emphasizes the importance of e-learning in higher education. This article also covers some of the key Indian projects as well as the target segments for online education. It emphasizes the importance of perception in relation to information technology and communication in order to better equip future leaders with these technologies. The article looks ahead to the future of e-learning in India, where the demand for higher education is comparable to that of wealthy countries.

Previously, it was assumed that e-learning was exclusively beneficial for distance learning programmes. But no one can disagree that e-learning is the most inventive Internet application, having done wonders around the world and also accomplished learning in the classroom as well[131].

An additional paper expressed his thoughts on Web-based e-learning in India.It is difficult to change the social backgrounds of learners, parents, and their economic circumstances in India because of the country's considerable social diversity. As a result, we are left with little choice but to give uniform or standardized teaching learning resources or approaches. A nationwide network that provides equal quality education to all students, including those from rural areas and villages, is required for high-quality education in India. Web-based e-learning is the one and only straightforward solution to this problem. In this paper, the author has presented some novel ideas for instilling the concept of Web Based e-Learning (WBeL) in the minds of young Indians, as well as some of the various ways in which they use it[132].This examination was an OpenCourseware initiative for e-learners. E-learning encompasses a variety of features and procedures, including computer-assisted learning, web-assisted learning, online education, and so on. eGyankosh-a National Digital Repository, CEC Learning Object Repository, Indo-German eGurukul on Digital Libraries, NPTEL, NCERT Online Textbooks, UNESCO-SALIS e-Learning Portal, and others are among the Indian institutions digitizing their course content and establishing open courseware. This paper describes an Open Courseware project in India that could be beneficial and necessary for e-learners[5]. One morepaper investigates why open courseware is a modern idea. The authors have to support a meaningful contribution to the learning and teaching programme. The learning materials in the OCW give students the opportunity to expand their knowledge outside of the classroom. These are in digital form and may be accessible online, cutting down on time and distance restrictions. Academics in India can play a key role in generating OCW resources for students in order to broaden the teaching and learning process, eliminating the restrictions of traditional educational settings and fostering a new culture of "Learning beyond the Classroom." The goal of this project is to raise awareness of the potential of OCWs among instructors and students[133]**.** One more study on the topic of "OpenCourseware: A Unique Opportunity for India." OpenCourseware (OCW), like Open Access (OA), is a relatively new educational movement that major institutions and colleges worldwide are capitalizing on for societal development.OCW allows students to share their knowledge outside of the usual classroom setting. Education universalization has risen to the top of the priority list, particularly in emerging countries. However, providing excellent education to rural areas has become a Herculean

effort in a vast country like India with a bilingual and multicultural population divided by huge geographical distances. The purpose of this study was to spread the word about OCW and educate instructors and students about its enormous potential in the educational context in India[6].

8 CONCLUSION

This study conducted a systematic review of the literature on Open Courseware systems[90], which are one of the opportunities for improving the quality of education and increasing access to higher education[7]. This paper evaluates different open courseware formats from the United Kingdom, the United States, and India to see which format is more effective in terms of learning outcomes and academic performance.Open courseware programmes are a key technique for increasing course accessibility and flexibility in institutions of higher learning, especially universities, with rewards for both students and educators[1]. The planned open courseware will help educational programs and learners to develop the skills, knowledge, to assist online students in concentrating on their studies, to encourage better teaching and learning, and to deliver varied online instructions. The present study supports in visualizing the various online learning research approaches that have been presented in the scientific literature so far. This study reveals that most of the studies on the courseware were conducted in UK comparison other to selected countries such the USA and India. On the basis of the study it is suggested that the research should be conducted on open courseware offered in India.

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Appendix-1 (Details of collected data from UK)

S.No.	Title	Year	Indexed Type	Thematic Research Type
1.	E-Learning and Students Motivation: A Research Study on the Effect of E-Learning on Higher Education.	2014	Scopus	Survey
2.	The Open CourseWare Story: New England Roots, Global Reach. England: Going Digital	2021	Scopus	Observation
3.	Study of UK Online Learning. Ewert Place: University of Oxford.	2010	Report	Case Study
4.	Learning Online: A Case Study Exploring Student Perceptions and Experience of a Course in Economic Evaluation.	2015	Peer Reviewed	Case Study
5.	The Challenges of Online Learning Supporting and Engaging the Isolated Learner.	2017	Peer Reviewed	Descriptive
6.	A Review of Literature on E-Learning Systems in Higher Education.	2016	Scopus	Analysis
7.	Literature Review of Evidence on e-Learning in the Workplace. UK: INSTITUTE FOR EMPLOYMENT STUDIES.	2004	Report	Analysis
8.	Improving the Effectiveness of e-Learning implementation in the School of Engineering at Tripoli University.	2015	Report	Analysis
9.	Review of the online learning and artificial intelligence education market.	2018	Report	Analysis
10	A literature review: Efficacy of online learning courses for higher education institution using meta-analysis.	2021	Scopus	Analysis
11	A Literature Review of the Factors Influencing ELearning and Blended Learning in Relation to Learning Outcome, Student Satisfaction and Engagement.	2018	Peer Reviewed	Analysis
12	A systematic literature review of blockchain-based applications: Current status, classification and open issues.	2019	Scopus	Analysis
13	Open educational resources (OERs) and courseware development in dual-mode universities in Nigeria.	2021	Report	Survey
14	The Design and Development of Online Course Materials: Some Features and Recommendations.	2010	Scopus	Experimental
15	A Review of Massive Open Online Courses: MOOC's Approach to Bridge the Digital Divide.	2018	Report	Analysis
16	A study on the student's perspective on the effectiveness of using e-learning.	2014	Scopus	Survey
17	Students' Learning Experiences and Perceptions of Online Course Content and Interactions.	2015	Report	Survey
18	Online learning: It is all about dialogue, involvement, support and control—according to the research.	2018	Book	Descriptive
19	Impact of COVID 19 and Online Learning on Education in UK.	2020	Report	Survey
20	Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations.	2020	Peer Reviewed	Experimental

Appendix-2 (Details of collected data from USA))

S. No.	USA	Year	Indexed type	Thematic Research Type
1.	Online Education and Its Effective Practice: A Research Review.	2016	Scopus	Analysis
2.	Online education in the USA.	2003	Report	Observation
3.	Distance Education and the Evolution of Online Learning in the United States.	2015	Peer Reviewed	Descriptive
4.	Access to Education with Online Learning and Open Educational Resources: Can they close the Gap?	2016	Report	Experimental
5.	Open Courseware and Open Source Software.	2003	Peer Reviewed	Experimental
6.	The Effectiveness of Online Learning: Beyond No Significant Difference and Future Horizons.	2015	Peer Reviewed	Descriptive
7.	Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective.	2020	Peer Reviewed	Survey
8.	Understanding the Implications of Online Learning for Educational Productivity.	2012	Report	Experimental
9.	Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies.	2010	Peer Reviewed	Analysis, Review
10.	The Impact of Online Teaching on Higher Education Faculty's Professional Identity and the Role of Technology: The Coming of Age of the Virtual Teacher.	2012	Peer Reviewed	Observation
11.	Impact of Open Courseware for Higher Education in Developing Countries.	2002	Scopus	Experimental
12.	Online Education: Worldwide Status, Challenges, Trends, and Implications,	2018	Peer Reviewed	Experimental
13.	U.S. Colleges are facing a demographic and existential crisis.	2017	Report	Analysis
14.	Demographic changes as destiny in college admissions?	2017	Report	Descriptive
15.	Teaching Courses Online: A Review of the Research.	2006	Peer Reviewed	Analysis
16.	Evaluation of Online Courses/Teaching in the Department of Clinical Sciences.	2015	Report	Survey
17.	Student Experiences in Online Courses: A Qualitative Research Synthesis.	2012	Peer Reviewed	Analysis
18.	Characteristics of Massive Open Online Courses (MOOCs): A Research Review, 2009-2012.	2014	Peer Reviewed	Analysis
19.	Students' Perceptions towards the Quality of Online Education: A Qualitative Approach.	2004	Scopus	Observation
20.	Comparison of students' use and acceptance of emergency online learning due to COVID-19 in the USA, Mexico, Peru, and Turkey.	2021	Scopus	Descriptive

Appendix-3 (Details of collected data from India)

S. No.	Title	Year	Indexed type	Thematic Research Type
1.	An Overview of MOOC in India.	2017	Report	Observation
2.	Web based e-learning in India: the cumulative views of different aspects.	2010	Peer Reviewed	Descriptive
3.	An Overview of Open Courseware initiatives in India.	2016	Peer Reviewed	Descriptive
4.	Trends and Issues of E-Learning in LIS-Education in India: A Pragmatic Perspective.	2012	Scopus	Experimental
5.	Open Courseware initiatives for e-learners in India.	2010	Peer Reviewed	Observation
6.	Open Courseware: Learning Beyond Classroom.	2008	Report	Descriptive
7.	Use of Open Educational Resources: Indian Scenario.	2017	Peer Reviewed	Observation
8.	Challenges and Opportunities for Online Education in India.	2020	Report	Observation
9.	Impact of Online Education in Indian.	2017	Report	Observation
10.	E-Learning: Usage among Indian Students.	2014	Report	Survey
11.	Prospect of e-Learning in Indian Higher Education: Trends and Issues.	2018	Scopus	Experimental
12.	Status and Scope of e-Education in India.	2014	Peer Reviewed	Experimental
13.	Changes in Teaching and Learning in Higher Education during Covid-19 Lockdown: A Study of LIS Students in India	2021	Scopus	Survey
14.	Online Learning with Special Reference to SWAYAM and e-PG Pathshala: An Overview.	2019	Book	Descriptive
15.	Awareness Study of Open Course Ware amongst Students of Higher Learning Institutions.	2017	Report	Survey
16.	Open Courseware: A Unique Opportunity for India.	2008	Peer Reviewed	Observation
17.	How India's ed-tech sector can grow and the challenges it must overcome. VC Circle.	2018	Report	Experimental
18.	Literature Review: The effectiveness of e-learning for imparting quality education to students.	2018	Book	Descriptive
19.	Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19.	2021	Scopus	Experimental
20.	E-Learning in India: Wheel of Change.	2016	Peer reviewed	Descriptive