CHAPTER 2
REVIEW OF LITERATURE

The present research aimed to study the teachers' readiness for using and developing e-content for classroom teaching. This literature reviewed from other studies that are directly or indirectly related to the teacher's readiness to use e-content for their classroom teaching. The literature is reviewed under themes that are derived from objectives as follows; personal characteristics of teachers, readiness to use e-content, computer & internet usage, prerequisite & advance competency related to computer and internet, knowledge regarding e-content, teacher's readiness to use e-content with available infrastructure. For the present study, the literature is divided into the following two categories.

2.1 Conceptual Review

2.2 Empirical Review

2.2.1 Studies Conducted in India

2.2.2 Studies Conducted in Abroad

The conceptual article and empirical studies show that various efforts made by the government, colleges universities, and teachers define the teacher's readiness to use e-content for teaching in higher education. These include teachers' individualities, perception towards technology and its integration in higher education, prerequisites and advanced computer training, ICT infrastructure availability, budgetary provisions in colleges and universities. The different aspects which are influenced a lot on once readiness to use any product. The above moderating variables are beyond the control of the colleges and universities. However, there are other dominant variables like the motivation of teachers, benefits of using e-content, the time factor, infrastructure available, etc. On these factors' the researcher had reviewed several studies done by other researchers.

2.1 CONCEPTUAL REVIEW

Gaikwad and Randhir (2016) from S.N. Arts, DJM Commerce, BNS College Sangamner, Pune, Maharashtra & Ness Wadia College of Commerce, Pune, Maharashtra, India gave their opinion on "E-Learning in India: Wheel of Change" E-Learning has been proven to be a successful method of training and education. It is becoming a way of life for many citizens in our country.

Several universities do offer online student support services, such as online advice and registration, e-counseling, online textbook purchase, and student newspapers. E-learning has the potential to overcome the non-availability of adequately qualified teachers in rural India. Live online tutoring; streaming videos and virtual classrooms are some of the solutions that e-learning can offer to these problems. While there is no substitute for effective and organized classroom teaching, e-learning is the best option.

It is proved that the developing wave of adaptive learning will help higher education, women, and government. E-learning is increasing the percentage of the literate population in the total population of India. E-learning plays a vital role in educational development as a wheel of growth in the education sector. It is expected that if India and developing countries proceed as joint ventures and work mutually on the issue of e-learning, it will be beneficial for the development of the educational sector.

Joshi (2014) from Department of Microbiology, Shri R. K. Parikh Arts & Science College, PETLAD, Dist. Anand, Gujarat, India, expressed in the article entitled "E-Content Development: Prospects and Challenges" that the Ministry of HRD, Government of India has introduced several e-content development programs viz., National Programmes on Technology Education Learning (NPTEL) by offering free online video lectures in engineering, science and humanity courses. NPTEL is an open courseware initiative collaboratively started by seven Indian Institutes of Technology. The purpose of e-content development is to create an information-rich society. Everyone in society is empowered to create, receive, share and utilize the information for their progress. Very well designed, developed, and validated e-content will provide access to high-quality meaningful digital content and serve as an effective virtual teacher. With the advances in internet technology, web-based e-learning systems are gaining popularity. Being online, these systems provide an opportunity to learn any

course/subject from any part of the world at any time. It may be helpful in resource-saving in terms of time, money, paper, etc. that will improve the accessibility to the course instructors as well as students. In consideration of the changing trends in ICT (Information and Communication Technology) and scarcity of time, the role of e-learning has increased. Once the course contents are digitized using some Content Management System (CMS) and the same are made available on the web, they can be effectively used by researchers, instructors, and students anywhere at any time. Technology is a tool that can and should be effectively harnessed and utilized in the practice of education. E-Learning is naturally suited to distance learning and flexible learning, but can also be used in conjunction with face-to-face teaching, in which case the term blended learning is commonly used. E-learning does not seem to replace the conventional classrooms with blackboards but it seems to coexist with the already existing system.

Uttam (2013) from Department of Mass Communication & Journalism, Tezpur University, Tezpur, Sonitpur, Assam, in an article entitled "Information and Communication Technology in Higher Education in India: Challenges and Opportunities" expressed that the role of ICT in education has become increasingly important. There has been an unprecedented growth in the use of ICTs in teaching, research, and extension activities. One of the changes it has brought about is the way teachers interact and communicate with the students and vice-versa. Higher education in India is plagued by the challenges of inadequate technology access and inequity coupled with economic considerations and technological know-how, it remains to be seen how Information and Communication Technology can burgeon the students and how it can foster change in this aspect. The optimal utilization of opportunities arising due to the diffusion of ICTs in the higher education system presents enormous challenges. Nonetheless, it has become an indispensable support system for higher education as it could address some of the challenges facing the higher education system in the country it can provide access to education regardless of time and geographical barriers. Similarly, wider availability of course material in education that can be shared utilizing ICT can foster better teaching. While technology can influence the way how students are taught, it would also enable the development of collaborative skills as well as knowledge creation skills. ICT-enabled education will ultimately lead to the democratization of education and it has the potential for transforming higher education in India.

BJEKIĆ and et al. (2010) from Kragujevac University – Technical faculty Čačak, Serbia, Department of information technologies, expressed in the article entitled "Teacher Education From E-Learner To E-Teacher: Master Curriculum" that E-learning and e-teaching systems are involved in teachers' professional activities and development in several ways: (a) If e-learning/e-teaching is the technology which supports the process of teachers' learning of university courses, the teacher is in the position of e-learner; (b) If e-learning/e-teaching is the content of the teachers' university curricula to be applied in the teaching process, the teacher switches from the position of e-learner to the one of e-teacher in blended or total e-learning systems.

E-teaching requires a wide spectrum of e-roles. Teachers in an e-education environment must acquire sufficient knowledge about e-teaching and e-learning. Training of using e-learning method in the classroom can give high quality and readily accessible professional development opportunities for active teachers, and make the teaching profession more attractive (e.g., by providing online resources for teachers and new connections to colleagues and mentors) to help address the teacher recruitment and retention problem." The authors suggested that an e-learning potential is a powerful tool for directing the teachers' quality challenges and obtaining e-teaching competencies. E-learning for teachers must reflect the principles of effective teachers' professional development.

Chandwani and Anilkumar (2010) from Rajkumar Kawalramani Mahavidyalaya & Dayanand Arya Kanya Mahavidyalaya, Jaripatka Nagpur, gave their opinion on "E-Learning Initiatives in India" Uses of e-learning applications can raise the level of education, literacy, and economic development in underdeveloped and developing countries. E-Learning has the potential to provide practical online education to distant learners. It is commonly referred to as the international use of networked information and communication technology in teaching and learning. It has gained faster acceptance and application in the world but is yet to be developed in terms of quality and standard in India.

Aggarwal (2009), from Institute of Management Studies, Rohini, and Delhi expressed in an article entitled "Role of e-Learning in a developing country like India" that the government of India is taking various measures to improve the communication systems. Social Implications of e-learning are very important to be understood for the success of e-learning in India. The social implications of e-learning may be categorized

into the following types of issues: cultural, gender, lifestyle, geographical, religious/spiritual, literacy, disabilities, and the digital divide. Within the cultural issue's category are content, multimedia, writing styles, writing structures. The students and researcher need to know the "rules of the road" of written assignments, and what participant roles are expected and/or tolerated; and, if the expectations are not met, who is responsible for keeping discussions and homework on track. Literacy should be a given for an online course, but it cannot be overlooked. Accessibility to technology and the training to use this technology will help reduce the digital divide, the gap between the haves and the have-nots.

Thus, the author concluded, that there needs to be a mindset for the adoption of e-learning. The other point is content. In underdeveloped countries, e-learning can raise the level of education, literacy, and economic development. This is especially true for countries where technical education is expensive, opportunities are limited, and economic disparities exist. However, one of the problems with e-learning in India is the lack of course content, especially outside the mainstream focus areas of IT education, English-language content, and tutorial-like courses. India will continue to adopt the concept of e-learning to meet its communication needs and seize business opportunities.

Gambhir (2008), from UGC Academic Staff College, University of Pune, Maharashtra, India, said on "Effective Use of E-learning in India: A Step Toward Enhancing Higher Education" The revolutionary change which is taking place in Information and Communication Technologies (ICTs) has dramatic effects on the way universities carry out their functions of teaching, learning and research, particularly on the creation, dissemination, and application of knowledge. These developments pose unprecedented challenges to higher education institutions in developing countries, particularly in India

In other words, increasingly, several universities worldwide including some in India are making positive attempts to implement e-learning strategies to enhance equity, quality, share instruction technology resources, compete in a global environment of higher education and meet the rising demand for tertiary education. The need for e-learning in India is a great challenge. One of the biggest, if not the greatest, the problem is to overcome the digital divide, an endeavor in which the government needs to take the lead role. The public needs to be exposed to computers and join the information revolution. People need to expose their children to computers as an enabler to learn and

integrate learning. The government has established computer literacy programs to take IT to the masses, particularly rural people.

Historically, e-learning has been regarded as an unimportant and marginal activity by comparison with face-to-face, on-campus forms of teaching and learning. This state of affairs is changing rapidly, the change driven by enthusiasm among educators and trainers in the application of Internet-based information and communications technologies. This new technology has been taken up with equal enthusiasm by higher education systems, universities, and established "dual-mode" institutions. However, there are many challenges facing Indian education. E-Learning may provide universities with a means of exceeding the newly formed competition, by taking full advantage of their traditional, already established reputations.

2.2 EMPIRICAL REVIEW

2.2.1 *Studies Conducted In India*

Paliwal and Singh (2020) carried out a study entitled "Teacher readiness for online teaching-learning during COVID-19 outbreak: a study of Indian institutions of higher education." This study aimed to assess higher education institutions (HEIs) teachers' readiness to handle online education based on the online teaching readiness competencies model. Teachers' competencies are a vital part of teaching online which has become the need of the hour in this COVID-19 outbreak. Because of the need for emergency response and strategies to minimize learning disruption at higher education, the study identifies the online teaching readiness competencies possessed by the online teaching communities and provides guidelines to enhance their capacity to build up the longer-term resilience of education systems. The study will be a ready reckoner for online training competencies which can be used as training need analysis to make each teacher highly competent to impart knowledge using online teaching platforms A structured questionnaire had been adopted to survey and collect data from 296 teachers of Higher education institutes (HEIs) across India. The questionnaire consisted of 29 constructs. The constructs were measured using a five-point Likert scale ranging. In the first step confirmatory factor analysis (CFA) is carried out, by using the software IBM AMOS-26. The initial model is generated for five constructs and outcomes are used to analyze the model's goodness of fit and construct validity. In the second step structural equation modeling (SEM) is carried out to do the path analysis of the proposed model.

The findings of the study highlighted that the level of course design competencies, communication competencies, time management competencies are not sufficient among the teachers of HEI of India, whereas the technical competencies possessed by the teachers meet the requirements for readiness to handle online education. The findings of the study show the importance of developing supportive faculty development programs by Universities and institutions where all teachers of HEIs can be imparted training in the concerned areas mainly to learn the right online teaching techniques and strategies to keep their learners engaged. Also, the internet connectivity issue affects learning online, Institutions and Universities should expand their services in providing a 4G network to the faculty. Due to a lack of immediate feedback, teachers were unable to assess students' understanding during online lecturing.

At present, the most urgent task in front of Indian institutions of higher learning is to develop online teacher communities through facilitating inclusive holistic development of teachers. The findings further suggested a need for companies to develop some online teaching-learning software and user-friendly virtual tools and position the existing tools suitably to enable teachers to boost their online teaching readiness competencies related to appropriate course design, efficient time management, and effective communication with required technical skills. To be effective, it requires all the key stakeholders of the online higher education system e.g. online teaching communities, the concerned management, Indian education system, and apex bodies along with private players to put collective efforts toward online teaching readiness and effective teaching-learning and develop a holistic support eco-system in the post-Covid-19 scenario.

Lakshmi and et al (2020) conducted research entitled "Assessment of E-Learning readiness of Academic Staff and students of Higher Education Institutions in Gujarat, India." The main objectives of the study were: To study the infrastructure available in the institutions adopting e-learning practices, the opinion of stakeholders regarding e-learning, its benefits, disadvantages, and challenges, and study the familiarity of faculty members and lab administrators with respect to the use of various e-learning tools. The major findings of the study were Majority of the stakeholders had a positive perception towards the concept of e-learning and believed that it has many benefits. However, they felt that e-learning helps to a lesser extent in maintaining

transparency, face-to-face contact, and interactivity. These factors might hinder their readiness for e-learning. Also, unreliable technology and a lack of faculty members' confidence and expertise to use this platform in the teaching environment were seen as the biggest barriers in e-learning. Hence, felt the immediate need to plan for training programmes that will help in improving the confidence of faculty members in using this platform and would increase their e-learning readiness.

Jestin and et al (2019) conducted research entitled "Infrastructure and facility readiness for providing E-Learning and allied services in the engineering college libraries of Kerala." The objective of this survey was:

- To know the infrastructure and networking facilities available in the engineering college libraries of Kerala.
- To know the various equipment and facilities available for the usage and sharing of e-resources in the engineering college libraries of Kerala.
- To list the suggestions for improving the use of e-resources in the engineering college libraries of Kerala.

The geographical scope of the study was limited to the state of Kerala and the demographic ensemble the set as the professional librarians in the engineering colleges of Kerala. The vast majority (i.e.) 90.4 percent of the respondents reported that their library is automated. The high majority (i.e.) 80.8 percent of the respondents stated that their library has LAN network access. Nearly one-fifth (i.e.) 19.2 percent of the respondents accepted that their library maintains a website. More than half (i.e.) 59.6 percent of the respondents reported that their libraries are digital types of libraries. One-third (i.e.) 32.7 percent of the respondents mentioned that 11 to 20 PCs are available in their library. One-third (i.e.) 30.8 percent of the respondents were a member of another library consortium. More than half (i.e.) 55.8 percent of the respondents' library has sufficient infrastructure to use web-based resources 12. Nearly half (i.e.) 44.2 percent of the respondents specified that one server-class machine is available in their library. A small (i.e.) 11.5 percent of the respondents agreed that one Laser Printer is available in the library. One-third (i.e.) 30.8 percent of the respondents accepted that one CD Server is available in the library. Nearly half (i.e.) 46.2 percent of the respondents specified that one LCD Projector is available in the library. Nearly half (i.e.) 49.0 percent of the respondents stated that a UPS capacity of more than 5 KVA is available in their library.

As per the study, it was clear that developments in ICT enabled library professionals to introduce new services and augment the understanding and usage of library resources, especially e-resources. Although most of the colleges surveyed had well-equipped libraries with enough e-resources, the infrastructure, and allied services, to effectively tap the services require attention. It is also important that the library professionals be aware of the new technology and librarians must ensure that periodic refresher and training programs are arranged for staff. In general, the availability of infrastructure to support e-learning, in the engineering college libraries of Kerala, seemed quite satisfactory.

Gade and Agarwal (2018) conducted a study on "e-readiness of state open universities towards online learning: a study of BRAOU and UOU" This study attempted to explore the faculty members' e-readiness in two state-level open and distance learning institutions in India, namely Dr. Bhimrao Ramji Ambedkar Open University, Hyderabad, and Uttarakhand Open University, Haldwani, in terms of institutional capacity and faculty readiness. The study was undertaken with the following objectives:

1. To assess the institutional capacity of BRAOU and UOU, in terms of e-Learning.
2. To identify the e-Readiness of the faculty members of BRAOU and UOU towards offering online programmes.
3. To suggest the measures for success in e-Learning adoption in the state open universities of India.

For eliciting the e-Readiness objectives of the universities, five e-readiness indicators namely: i) infrastructural availability, ii) access to infrastructure, iii) manpower availability, iv) Institutional ICT policy and regulatory framework, and v) ICT deployment in the activities were assessed. The Observation Schedule was qualitatively analyzed based on the information assessed therein and unstructured discussion held with ICT Heads and Administrative Heads. The Questionnaire was made available through an *e-Survey creator* for two weeks. An analytical study using an e-Survey Questionnaire and an Observation schedule was designed to assess faculty members' e-Readiness at BRAOU and UOU. Data for the study was collected using a self-designed Questionnaire to examine the e-Readiness of the faculty members and an

Observation Schedule was used to assess institutional capacity. For assessing the e-Readiness of the faculty members, a Questionnaire was developed to assess the willingness, attitudes, and self-efficacy of the faculty members towards e-Learning. The study population comprised all the faculty members of the two universities. There were 41 faculty members at BRAOU and 55 faculty members at UOU, during the survey period. A total of 63 faculty members participated in the survey, of which only 47 respondents completed the questionnaire. The following were the findings of the study:

- Technical Willingness was high, which means that faculty members were willing to adopt e-Learning but insist on attending training sessions before offering such programmes.
- Pedagogical Readiness was also scored high as faculty were ready for designing and presenting content online for the e-Learning course. However, they needed improvements in terms of blending e-Learning technologies with the pedagogical needs of their discipline.
- The Pedagogical Willingness was classified as high e-readiness, which stated that faculty members were quite willing to remodel contents into digital and virtual content and were ready to apply the latest technologies for the dissemination of knowledge in their area.
- Personal Attitude was classified as very high which means that the faculty had positive opinions or value for a condition of readiness and were self-motivated to accept transitions, innovations, and modifications.

Miglani and Awadhiya (2017) conducted a study on "Mobile Learning: Readiness and Perceptions of Teachers of Open Universities of Commonwealth Asia" in Indira Gandhi National Open University, New Delhi, India. Researcher realized the need for Open Universities to identify the readiness for and perception of m-learning among their teachers which will help them to plan and implement m-learning strategies in the teaching-learning process. Through this study, efforts had been to assess and evaluate readiness and perception towards m-learning of the teachers of Open Universities of Commonwealth Asian countries. This study examined the m-learning readiness and perception of the teachers of eighteen Open Universities spread across five Commonwealth Asian countries (Bangladesh, India, Malaysia, Pakistan, and Sri

Lanka). A survey method was adopted to collect the data required for the study. The questionnaire was developed based on the literature review. The online survey was conducted to collect the necessary data. The survey link was sent to 600 teachers from eighteen Open Universities of Bangladesh, India, Malaysia, Pakistan, and Sri Lanka through e- mail. The sampling method was purposive sampling under a non-probability sampling method. Out of 600 surveys administered, a total of 126 responses (a response rate of 21%) were received, out of which 102 were used for analysis.

Readiness to engage in m-learning was categorized into (a) Device Readiness and (b) Skill Readiness. Device Readiness was assessed based on the availability of a mobile phone with Internet capability and optimal screen size. All the respondents (100%) had mobile phones. Out of a total of 102 respondents, 88 respondents (86%) had mobile phones with Internet capability. Moreover, 83% of the respondents had mobile phones with a screen size of more than 3 inches, which meets the criteria of optimum screen size. These devices were varied: smartphones, tablets, Phablets, iPads, etc. It can be inferred that the majority of the teachers of Open Universities had device readiness to engage in teaching and learning through their mobile phones. This study indicated that teachers of Open Universities have a readiness for m-learning in terms of the availability of the mobile device and Internet connectivity. Also, a significant number of teachers have acquired the 'Basic skills' needed for m-learning, however, the percentage of teachers ready with 'Advanced skills' is less. As technology is rapidly evolving, it is important to bring those with 'Basic Skills' technologically at par with those teachers who possess 'Advanced skills. This is only possible through systematic workshops, training and retraining. It is recommended that teachers with 'Advanced skills' should be trained to become master trainers to impart higher skills to their colleagues. Apart from technological skills, it is also important to deliver the content in a pedagogically relevant format. It is important to customize the framework and instructional design for m-learning.

The study also demonstrated that the teachers were aware of the possible features and benefits of M-learning and its possible applications in ODL. Teachers at Open Universities had positive perceptions towards m-learning. However, respondents were neutral about the replacement of e-learning with m-learning. Many contradictions still exist in this area that needs to be addressed in future research on the substitution of e-learning with m-learning and possible scenarios. Hence, it is time for Open

Universities to look into modalities for providing m-learning, given the scenario that learners and teachers are both ready. For this, a top-down planning strategy should be adopted by these institutions to bring about significant, successful change at the institutional level. Future studies may focus on establishing a conceptual framework for the implementation of m- learning to help institutional policymakers make better decisions about prioritizing their goals and objectives that align with the institution's vision and mission.

Navani and Ansari (2016) conducted a study on "a study of e-learning readiness of university faculty", in Department of Agricultural Communication College of Agriculture, G. B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India. The present investigation was carried out to measure the e-learning readiness of teachers' in a State Agriculture University (SAU) in Northern India with the following specific objectives:

1. To study socio-personal and psychological characteristics of SAU teachers,
2. To assess their e-learning readiness,
3. To study the relationship between socio-personal and psychological characteristics of SAU teachers with their e-learning readiness

The methodology used for sample selection for the present study was purposively selected. Teachers in the College of Agriculture of PAU were considered as respondents for the present investigation. The study sample was selected by using stratified random sampling with proportional allocation. Socio-personal characteristics of Teachers were considered critical while studying e-learning readiness. These included Age, Gender, Educational qualification, Designation, Annual income, teaching experience, Computer literacy, Achievement motivation, Access to internet facility, mobile phone ownership, and use, Perceived usefulness, Perceived ease of use, Attitude towards e-learning (taken as independent variables). The e-learning readiness was taken as the dependent variable for the study. The study sample included three designations (Assistant Professor, Associate Professor, and Professor) of the faculty members. The study sample comprising 30 Assistant Professors, 16 Associate Professors, and 24 Professors (total sample size, N=70) was finally selected for the study. A structured questionnaire was used for data collection which included close-ended as well as open-ended questions.

Annual income, teaching experience, computer literacy, achievement motivation, and attitude towards e-learning readiness had a positive correlation with total e-learning readiness (ELR) whereas educational qualification and designation had a negative correlation. Thus, we can conclude that those teachers who were senior (higher designation) and had high educational qualifications do not think positively that e-learning can make an impact on learning outcomes. This was expected and was also a reflection of the generation gap. Thus, it can be concluded that the teacher's age, gender, annual Income, teaching experience, educational qualification, computer literacy, designation, achievement motivation, and attitude towards e-learning do have a significant impact on the e-learning readiness of the teachers. The results of the present investigation revealed various parameters of the e-learning readiness of teachers.

Azimi (2013) conducted a study on "Readiness for Implementation of E-Learning in Colleges of Education". The main objective of this study was to assess the readiness for implementation of e-learning in terms of readiness categories including; ICT infrastructure, Human Resources, Budget and finance, Psychological and Content of e-learning in different types of colleges of education from the point of view of Heads/Principals. The survey approach was used for data collection. The sample size was 35 students and 31 for heads/principals. E-Learning implementation from point of view of heads/principals with respect to ICT infrastructure readiness, human resources readiness, budget and financial readiness, psychological readiness to implementation of e-learning, content readiness to implementation of e-learning were assessed. After analysis of related questions, it was found to be the same for all types of institutions as the observed contingency coefficient to be non-significant.

ICT infrastructure readiness was one of the important components of the implementation of e-learning. Mean values on several computers connected to the internet of various types of institutes showed that only 5 computers were connected to the internet in government colleges, in private aided colleges, and computers connected to the internet in private unaided colleges. Statistically, these were found to be equal as revealed by ANOVA. Frequency and percent responses for the question does the college has an official website revealed that on the whole it was found that 93.5% of the colleges possessed an official website and only 6.5% of them did not have one. About the installation of servers in colleges, it was found that 42.5% of the colleges installed servers and 54.8 of them did not install them.

When responses were elicited for the question does the college have adequate equipment to support the e-learning initiative, 64.5% of the respondents indicated yes and the remaining 35.5% of them indicated No Contingency coefficient test revealed a non-significant association between type of institute and responses, indicating a similarity in the responses pattern of Heads irrespective of the type of institute they belong to. In Human resource readiness questions, for the question on having a plan to train staff and faculty members for any new technical skills which are required in the future are verified, it was found that 45.2% of the Heads indicated Yes and 54.8% of them indicated No.

It was found that a majority of 67.7 % of the heads indicated that their colleges have a working environment ready for the implementation of e-learning and the remaining 32.3% of them did not have. The responses on having resources necessary for the implementation of e-learning for faculty members and students it was found that 51.6% of the Heads indicated Yes and 48.4% of them indicated No. Heads indicated that 48.4 % of the faculties have necessary skills for the implementation of e-learning and the remaining 51.6% of them did not have.

In Budget and financial issues, when responses were elicited for the question Does the college have a budget for implementing e-learning 38.7% of the respondents indicated Yes, and the remaining 61.3% of them indicated No. On the whole, it was found58.1 % of the college was financially ready to venture into e-learning and the remaining 41.9% of them did not have. In psychological readiness to implementation of e-learning it was found that assessing for learning styles of students and faculty members;48.4% of the respondents indicated not yet planned, 29.0% of them indicated included in the plan, and remaining 22.6% of them indicated completed.

The responses elicited for the transition from traditional to digital issues and advanced management, Heads of the institutions indicated that 48.4% of the faculty members and students accepted most, 41.9% of them just accepted and the remaining 9.7% of them resisted. 48.4% of each head indicated that laptops/home computers and cell phones/pages like high tech devices owned by faculty members and students and the remaining 3.2% indicated none. For content readiness of e-learning implementation, on the whole, it was found that 77.4 % of the Heads indicated that competency assessment is required upon completion of instruction, and the remaining 22.6%

indicated for some. When the Heads were asked about the desired competency goal that require improvement of motor skills, a majority of them indicated Yes, followed by 32.3% of them indicated somewhat and none of them indicated a very few to none.

Agariya and Singh (2012) did research on "e-Learning quality: Scale development and validation in Indian context" in Department of Management Studies ABV- Indian Institute of Information Technology and Management, India. This study aimed to develop reliable and valid e-learning quality measurement scales from the learner as well as faculty perspectives in the Indian context. As is the case of the Indian scenario, despite having a huge base of students and a need for a well-established e-learning model, the existing e-learning services are far from satisfactory. Still, the use of this alternative form of education is very limited and the lecturers are continuing with the traditional form of teaching. Through this study, an attempt was made to bridge this gap and develop quality measurement scales specifically catering to India to facilitate quality learning in the online environment and facilitate the e-learning industry to grow at a much faster pace than ever before.

A total of 21 students and 15 faculty members were interviewed for major issues that existed. In the questionnaire survey, a total of 414 and 310 responses were received from the faculty members respectively. The exploratory factor analysis was performed with the first half of the data (207 and 155) to identify the major e-learning quality dimensions based on which authors had proposed the constructs from both the perspectives, which were confirmed through confirmatory factor analysis and validated through Structural equation modeling by using the other half (207 and 155) of the data. An in-Depth Interview was conducted of length with 21 students and 15 faculties of different institutes and universities all across India. The duration of the in-depth interview varied anywhere between 15 to 20 minutes. A list containing 65 dimensions extracted from the literature review is given to the interviewee along with a brief description of each dimension. Based on the results of the depth interview the questionnaires were modified.

This research study had developed two measurement scales based on five factors from a perception of both learner and faulty for measuring service quality of e-learning service providers. From the learner's point of view, the major factors were: Course Content, Design Structure, Collaboration, Industry Acceptance, and Value

Addition. From the faculty's point of view, five factors were course content, design structure, transparency in assessment, technical know-how, and engagement (from student).

Krishnakumar and Kumar (2011) conducted a study on "Attitude of Teachers' of Higher Education towards e-Learning" The Objectives of the Study was to find out the attitude of teachers working in colleges of engineering and technology and university departments towards e-learning and whether the teachers differ in their attitude towards e-learning based on certain background variables and also the teachers differ in their attitude towards e-learning based on ICT familiarity.

The methodology adopted for this study was the Survey method. The population of the study consisted of teachers of higher education in Tamil Nadu. Teachers of Higher Education here in this study referred to teachers serving in colleges of engineering and technology and university departments. The sample was selected from the higher educational institutions where there was an e-learning facility. The teachers were selected based on purposive sampling. 255 teachers were selected for the study. The attitude of teachers of higher education towards e-learning tools was developed by the researcher. The tool consists of 16 statements. Out of the 16 statements, 10 were positive statements and 6 were negative statements.

The teachers, those who are possessing and do not possess the knowledge of computer causes a change in the attitude towards e-learning as the mean difference is in favor of teachers who possess computer knowledge. Teachers, those who had blogs and teachers who had no blogs, significantly differ, in their attitude towards e-learning and their mean differences are in favor of teachers having blogs. There was no significant mean difference in the attitude towards e-learning based on the variables like, e-mail ID, courses attended in computer and net access facilities. It was concluded that teachers having net access at institutions and both in the institution and home differ significantly in their ICT familiarity. The mean difference was in favor of teachers those who had net access both in the institution and at home were having more ICT familiarity. Teachers having e-mail id and teachers who did not have e-mail ID differed significantly in their ICT familiarity. The mean differences were in favor of teachers who were having e-mail IDs. Teachers differed in their ICT familiarity with and without the knowledge of computers. The mean difference was in favor of teachers who

knew computers. Teachers significantly differ in their ICT familiarity because of having and not having their blogs. The mean difference was in favor of teachers who had their blogs. There was no significant mean difference in the ICT familiarity with reference to the variable name, teachers who had attended courses on the computer.

Mayya (2007), MGM College, Udupi conducted a study on "Integrating new technology to commerce curriculum: how to overcome teachers' resistance" There are two-fold objectives of this study. They are (i) To find out the opinions of Commerce Teaching College teachers about their inability to use modern technology in their classrooms and (ii) To offer suggestions and methods to overcome these constraints to use modern technology in their classrooms.

The sample consisted of 76 Commerce Teaching College lecturers from 20 colleges belonging to Udupi District. The sample was based on a random sampling method. The sample consisted of 46 males (60.53%) and 30 females (39.47%) Only first-grade colleges imparting arts, science and commerce, and computer science were being covered. Both Government and Private Colleges were selected. The researcher interviewed commerce teachers regarding their beliefs about adopting technology in their classrooms. To prompt a discussion of this topic, the teachers answered an open-ended questionnaire. This survey asked questions about the availability of computers and modern technology in colleges used for teaching. The study highlighted the following findings:

- Teachers were motivated to use a computer when a computer is available in their classroom.
- An element of compulsion may speed up the process. At present no compulsion on the part of commerce teachers of Udupi District to study and to use modern technology in the classroom. "I get my salary without using modern technology in the classroom," a respondent remarked.
- Many teachers believed that the lack of adequate computers in the colleges was responsible for the effective implementation of new technology. Even a proper training facility was not available to teachers to acquire ICT. Two colleges were not having any computers in their college.

- Computer access in colleges is also a determining factor in acquiring this knowledge. However, it was not necessarily the case that a college with low access does not have enough equipment; it may be that the amount of equipment was adequate but inappropriately organized in the college. Equipment should be organized in such a way to ensure maximum access for all users. There were a lot of restrictions for the teachers to have access to those computers, a teacher felt.

- Lack of internet access in colleges was a stumbling block in many colleges. Udupi District revealed that 70 percent of the colleges did not have internet access, 80 percent of the Government Colleges did not have adequate computers. There was no free internet access to teachers in any of the colleges of Udupi District. Out of the internet having college, majority of colleges were having slow dialup connection, which was used for computer department purposes. Teachers were not having free access, any motivation to use this access.

- Teachers were not having training in the skill of PowerPoint presentation; still they use the chalk and talk method. Out of 76 respondents, only 23 were having their e-mail access, many are not knowing its effectiveness and utility.

- 70 percent of the teachers felt that modern technology had a very litter scope in Indian Higher Education. They felt that unless teachers were trained, adequate numbers of modern equipment are provided; ICT has little scope in Udupi District.

- Resistance to change was a factor that prevents the full integration of ICT in the classroom. This resistance can be seen in terms of teachers' unwillingness to change their teaching practices, and also in terms of institutions finding it difficult or being unable to re-organize in ways that facilitate innovative practices involving ICT. Out of 20 colleges surveyed in Udupi District, only 8 colleges were having LCD Projectors. 13 colleges were having Overhead Projector.

- Teachers who did not realize the advantages of using technology in their teaching were less likely to make use of ICT. Any training program needed to ensure that teachers were made aware of the benefits of using ICT. Such training programs were not being organized in Udupi District.

- Little evidence was found to support the view that age affects levels of teachers' ICT use. Some very senior teachers were ICT experts. Younger teachers were no more likely to make use of ICT in their work than their more experienced colleagues.

- There were some pieces of evidence to suggest that male teachers belonging to the sample population use more ICT than female teachers. One of the female lecturers remarked that the compelling conventional household responsibility was a constraint to preparing an extensively ICT-oriented class.

- It was also observed that while students almost always have some contact with computers during their secondary schooling, the same is not true while they undertake PUC of Degree. It is probably true that except Mangalore University every Indian University provides some type of computer facility for undergraduate students. However, in Mangalore University courses there is no expectation or encouragement for students to use these computing facilities as an integral part of their course. Some faculty felt that this was one of the constraints for the development of modern technology in the classroom in Udupi District.

2.2.2 *Studies Conducted In Abroad*

Doculan (2016) did a study on "e-learning readiness assessment tool for Philippine higher education institutions" with the objective of ensuring that the actual benefit of e-learning is valid in appropriate situations, there is a need to measure the readiness of an organization or individual, appropriately. Further, e-learning models may not be appropriate to use across countries due to the varying needs of the role-players.

The core of the questionnaire was a set of items relating to issues that have been proposed in the literature to assess the readiness for e-learning. Moreover, it assessed the factors that influence the success of e-learning initiatives. The items were close-

ended and developed specifically for this study. These were divided into three sets of factors reflecting the structural division of roles in higher education institutions. These were institutional, teacher, and student factors.

The instrument for the teacher described the profile of the teacher. Also, it measured access to technology, confidence, attitudes, training, and their perceived usefulness. The second instrument described the demographic profile of the student, measures access to technology and confidence. It also measured attitudes, training, social support, and perceived usefulness. Finally, the third instrument measured institutional readiness. It measures ICT infrastructure, administrative and resource support.

To verify the reliability of the instrument, data were taken from 28 faculty members of the College of Computer Science, 83 students, and 5 administrative officers of the Ifugao State University, main campus. This resulted in the reduction of the instrument from 27 to 24 questions.

Results showed that the instrument was reliable with each dimension in every role having a Cronbach's Alpha of 6 and above. The non-inclusion of some items in the questionnaire increased its Cronbach's Alpha which led to the compression of the instrument. It is therefore concluded that the tool was reliable and suited for the Philippine Setting. However, the students found the questionnaire time-consuming. While the instrument yielded positive reliability, it is recommended that it would still be reduced to shorten the time spent in answering. This way, students especially, would concentrate on answering and filling up the questionnaire. It was recommended further that factor analysis would be conducted to compact the tool. Finally, this tool was recommended for Philippine Higher Education Institutions which are considering implementing e-learning platforms, especially the state universities and colleges.

Demir and Yurdugül (2015) conducted a study on "Investigation of Effect of E-Learning Readiness Levels of Academic Staff on Those of Universities" in Hacettepe University, Turkey. This study aimed to investigate the levels of e-learning readiness of academic staff and universities to fill the gap in the literature. In particular, the effect of e-learning readiness levels of academic staff had on those of universities was examined within the scope of the study. A total of 96 academic staff members

comprised the participants of this study. Two different scales were used, one of which was developed by the researchers and administered to academic staff to measure the e-learning readiness levels of both academic staff and universities. A convenient sampling method was employed to collect data.

The results revealed two statistically significant findings. It was revealed that self-confidence had a positive and statistically significant impact on e-learning in terms of resource support. Moreover, it was seen that educational needs towards e-learning had a negative and statistically significant impact on the same factor. In light of the related literature, it is clear that academic staff need in-service training about e-learning, given their scores for the factors of self-confidence in e-learning and universities' support for staff is slightly higher than expected. It was also determined that the factor of infrastructure support was the lowest of all, in fact, even lower than the expected mean rank value of 3.5. The same goes for the factor of human resources and financial support in universities. Another point that needed to be emphasized was that stakeholders of academic staff and universities were two inseparable parts of the construct of e-learning readiness.

Rohayani (2015), did a critical analysis on "A Literature Review: Readiness Factors to measuring e-Learning Readiness in Higher Education" in STIKOM Dinamika Bangsa, Jambi, Indonesia. This study aimed to identify factors that need to be considered in assessing the readiness of e-learning. In This study literature review was used meta-analysis. Meta-analysis is a review of research results, especially on the results of research empirically related to e-learning readiness. First of all, the authors collected papers relating to e-learning readiness study using google scholar, EBSCO, and Proquest. Search papers were narrowed using the keyword "e-learning readiness ". Based on the results obtained 25 articles. Step two was authors examined the abstract of each paper and found 7 articles that met the criteria. Criteria used the papers that discuss the measurement of e-learning readiness in higher education. Next, the authors did examine the article to identify the factors used by researchers to measure the readiness of e-learning. Data results literature study grouped and sorted according to the study. For analysis, and to identify the factors most widely used by researchers to measure the readiness of e-learning.

Based on the literature reviewed, it was found that the previous research in this area indicated that, the measurement of e-learning readiness is essential to support the success of E-learning implementation in higher education, without having to spend the cost, effort, and time. The study found that skills and attitudes are the most significant factors that influence E-learning readiness. Each institution has different levels of readiness. Therefore, each institution should be more careful in determining the factors that will be critical to focus on measuring their e-learning readiness, to obtain accurate information, which describes the actual condition of their institution.

Mosa and et al (2015) conducted a study on "Technological Aspects of E-Learning Readiness in Higher Education: A Review of the Literature" Many higher education institutions have expressed an interest in implementing e-learning, and e-learning readiness is a critical aspect in achieving successful implementation. Higher education institutions should therefore assess their readiness before initiating an e-learning project. E-learning readiness involves many components of e-learning, including students, lecturers, technology, and the environment, which must be ready to formulate a coherent and achievable strategy. One of the aspects of e-learning readiness is technological readiness, which plays an important role in implementing an effective and efficient e-learning project. This study explored the gaps in the knowledge about the technical aspects of e-learning readiness through the conduct of a literature review. In particular, the review focused on the models that had been developed to assess e-learning readiness.

The review showed that there was a lack of investigation and agreement about the factors that shape the technological aspects of e-learning readiness; hence, a clear gap was identified in the knowledge on the technological aspects of e-learning readiness. This work indicated a useful direction in future research to investigate the factors related to the technological aspects of e-learning readiness.

Azlim and et al (2015) conducted a study on Utilization of Educational Technology to Enhance Teaching Practices: Case Study of Community College in Malaysia. In this study, the authors aimed to explore lecturers' perceptions about educational technology implementation and the factors that influence lecturers in utilizing educational technology in their teaching practices. A field survey using a structured questionnaire was conducted to achieve the goal of this research. The population is lecturers of a community college in Malaysia. A total of 39 respondents

had participated out of 54 lecturers. The survey has been divided into two sections which were related to the Demographic profile of respondents and Factors that influence the lecturers' utilization of educational technology in their teaching practices. Results from the demographic section, data on lecturers teaching experiences and teaching areas were collected. The majority of respondents with 49% had six to nine years of teaching experience, 31% had two to five years, 15% had more than 10 years and 5 % had less than one year of teaching experience. To measure the factors that influence the utilization of educational technology, 30 items with four Point Likert-scales have been constructed. Lecturers agreed that they had technical support as barriers to utilizing educational technology in their teaching practice. However, lecturers disagreed on those other items such as administrative support, computer self-efficacy, and accessibility of the educational technology have become the barriers for them to utilize such approaches in their teaching practices. Based on the findings, the administrator of the institution encouraged lecturers to utilize educational technology in their teaching practices. Moreover, lecturers also had positive perceptions that educational technology enhances and improves their teaching practices. However, the major barriers faced by lecturers to utilize educational technology in their teaching practices are technical support. The institution should improve the Internet and computer facilities. These technical supports should tag along with the expert support thus the educational technology can be fully utilized. The institution was also recommended to provide more training for lectures to sharpen their teaching skills in using educational technology, despite the lecturers had high computer accessibility and computer self-efficacy. Thus, there is a big potential to fully utilize the educational technology in the community college if the institution improves the technical aspects. Indirectly, students' performance and skills can also be enhanced to meet the community colleges' aims. To prepare students with the skills needed in the industry, the utilization of educational technology can support rapid changes in industrial demands.

Okinda (2014) conducted a study on "Assessing E-Learning Readiness at the Kenya Technical Teachers College" The main objective of the study was to establish a baseline aggregative e-learning readiness index for KTTC and derive recommendations to improve e-learning readiness and facilitate effective employment of e-learning technologies.

A survey design was used to capture the respondents' perception of the level of e-learning readiness along five dimensions using a five-point Likert scale. The population under study was 1724; 114 lecturers, 591 regular students, and 1,019-holiday students. The sample included 172 respondents (102-holiday students, 59 regular students, and 11 lecturers), representing 10% of the population. Self-administered questionnaires and interview schedules were used to collect data from the respondents. The study was carried out in two phases starting with the holiday students, during the final week of the 2013 April holiday session, followed by the regular students in the last week of June 2013.

E-learning readiness for each dimension of the five factors considered was measured by asking respondents to rate the extent to which they agreed with statements on the sub-factors considered in each category on a five-point Likert scale, where 1 represented Strongly Disagree and 5 Strongly Agree. In determining the percentage of relative readiness, agree and strongly agree were aggregated as agree. An index of 56.2% readiness level was arrived at by aggregating the individual readiness levels of the five factors:

KTTC's ICT infrastructure was e-ready, at an index of 62.8 %. Accessibility to the internet while in college (78.6 %), on mobile phones (71.5 %), and when not in college (53.8 %) were pointed out. Respondents also indicated that they had access to computers while in college (68.8 %) and when not in college (50.0 %). Wireless internet connectivity is also available within the college precincts through broadband connectivity. However, accessibility to the internet and computers when not in college is comparatively low. Such learners access computers and the internet through cyber cafes that are available in virtually every market center throughout the country, though at exorbitant cost. On aggregate, a 66.4 % readiness level was established for content development. KTTC's e-learning content that is taught is interactive (68.1 %), attracts and keeps learners using the system (67.4 %), appropriately targets learners (73.3 %), and accommodates different learning styles (70.8 %). The e-learning content is feasible enough to be taught over the computer, as the design is simple, user-friendly, flexible, intuitive and conducive (61.2 %), up-to-date, relevant, appealing, and user-friendly (61.1 %), and, it is user-friendly, well structured, and interesting (65.2 %).

These findings were significant for institutions in developing countries that aspire to introduce e-learning for increased access to quality education anywhere, anytime, and at reasonable costs. In as much as the results point to an average readiness index of 56.2 %, there were high scores for what most organizations, managers, and individuals perceive as essential for the introduction of e-learning.

Yilmaz and Bayraktar (2014) conducted a study on "Teachers' attitudes towards the use of educational technologies and their innovativeness categories." The study aimed to examine Teachers' attitudes towards educational technologies in terms of individual innovations. For this purpose, answers to these research questions were searched: How are individual innovativeness properties of teachers and is there any relationship between individual innovativeness scores of teachers and attitude scores towards the use of educational technologies? The survey method was used to examine the attitudes of teachers towards the use of educational technologies in terms of individual innovativeness. 68 teachers working in Istanbul who were selected from Istanbul University Department of Computer Education and Instructional Technology training schools by using convenient sampling method attended to the research. The results showed that the individual innovativeness scale scores of the teachers, were in the Early Adopters category with the highest 941.2%) ratio, in the Late Majority category with a minimum of (14.7%) ratio. The early Adopters category was followed by the Early Majority with (27.9%) ratio and Innovators with (16.2%) ratio, respectively.

Secondly, Pearson Product-Moment Correlation Coefficient was calculated to determine the relationship between individual innovativeness scores of teachers and attitude scores towards the use of educational technologies. It seems that there was a significant positive and strong relationship between individual innovativeness scores of teachers and attitude scores towards the use of educational technologies ($p=0.000$, $r=0.875$). In addition, it was seen that attitudes of innovative teachers towards the use of educational technologies were positive.

Salam and et al (2014) did a study on "Lecturer's Perceptions and Attitudes towards the Usage of Online learning at Polytechnic" A total of 83 lectures (60 females and 23 male) from Polytechnic Ungku Omar (PUO), Polytechnic Sultan Salahuddin Abdul Aziz (PSA) and Polytechnic Seberang Perai (PSP) responded to the survey. A set of questionnaires was developed and used for this study. The instrument consists of

demographic information and uses 5 Likert scale items to determine the perception and attitudes towards using CIDOS in Polytechnic. The lecturers were randomly selected to collect information for this study.

The results of the study showed that more than half of the respondents (86.7%) had attended CIDOS training organized by curriculum and evolution division, department of polytechnic education but only 51.8% used CIDOS in their teaching and learning That 63.9% of respondents agreed that they don't have enough time to manage teaching materials while 42.2% of respondents agreed that CIDOS is not user friendly, too complex and difficult to use. The analysis of personal innovativeness with a mean range from 3.33 to 3.83 the highest mean is 3.83 of the respondent innovations like to experiment with new information technologies for their teaching and learning. Respondents still need to attend a course on using e-learning with mean values of 3.65. In Conclusion, the researcher mentioned that lecturers must be prepared and always accept any technology change to produce quality polytechnic students. Cooperation from polytechnic management and lectures is important to ensure that students have a high level of skill and knowledge. Taking the first step by using e-learning is best for all parties that give a lot of benefits in the future.

Contreras and Hilles (2014) from Faculty of Nursing-Benghazi University, Libya, Shadi, and Al Madinah International University did a research on "Assessment in E-Learning Environment Readiness of Teaching Staff, Administrators, and Students of Faculty of Nursing-Benghazi University*"*. The research design used in this study was quantitative and specifically, the researcher's implemented descriptive survey. This study was conducted at the faculty of nursing Benghazi University amidst the chaos in the country. Data were gathered by using the E-learning Readiness assessment survey proposed by Mercado (2008). The instrument has consisted of three different sets of questionnaires distributed for students, faculty, and administrators. Simply, E-learning survey being conducted, a total of 12 full-time teaching staff, 67 students, and 8 administrative staff participated in the e-Learning readiness survey. The result of the technology skills shown in the results is, 95.83% of the respondents had basic Internet skills, majority of them were comfortable using emails, navigating web pages, downloading files, and searching. However, a percentage of 74.31% for the Literacy on Software application category because some of them did not experience attending online classes before nor had used learning management system and had not participated in any seminar or workshop related to online learning activities.

The demographic profile of the students and the state of their E-Learning readiness showed that the majority of the respondents belonged to the age bracket between 21 to 25 years old that is 61.76% of the respondents that can be one of the causes resulting in a high percentage in technology skills and access. On the other hand, the respondents from 16 to 20 years old were 32.35% and 5.58% for the age bracket of 26-30, which was the smallest portion of the sample size. For the gender of the students, the majority of the respondents were female which is 77.94% and 22.06% were male. For the technology access, results showed that 93.38% of the students had access to a computer and 97.06% for the tools. However, the access to the Internet is 61.03%, the researcher suggested that Administrative Staff-mechanisms should also be put in place to motivate learners to pursue online courses; and for the Institution, a team should be set up to initialize and operationalize the use of LMS and prepare an implementation plan. Training plans should be developed to build the capacity of staff in e-learning management, instructional design, tutoring, content development, and quality assurance.

Ha and et. al., (2014) conducted a study on "e-learning readiness assessment model in Kenya's higher education institutions: a case study of university of Nairobi" to investigates the e-Learning readiness of lecturers from the University of Nairobi, the objective was to carry out a diagnostic eLearning readiness assessment of lecturers and determine the factors that influence eLearning readiness. The questionnaires were administered to the lecturers. The results obtained indicate that an overwhelming majority are ready. In addition, the study results showed that there was no significant relationship between age, gender, and level of education on eLearning readiness. The respondents were asked their technological readiness towards e-Learning concerning access to resources e.g. computers, laptops, and network infrastructure, this was because Learning is facilitated by the access to computers and availability of the internet. They were also asked questions regarding their technical skills in the user of the internet, online library, and their attitude towards eLearning. From the findings, the majority of the respondents agreed to a great extent that they had access to either a desktop computer or a laptop. In addition, the respondents indicated that the IT infrastructure at the University was not reliable enough to support the eLearning, On the other hand, 66.9 % of the respondents strongly agreed that they use the internet as a source of information and 51.7 % also strongly agreed that they had skills to access the online library and other resource databases.

Kituyi. and Tusubira (2013) conducted a study in Makerere University Business School, Uganda On "A Framework for the Integration of E-Learning in Higher Education Institutions in Developing Countries" with the Objective, " To study the current e-learning integration situation in Higher Education Institutions; To establish the requirements for developing a framework for e-learning integration; To design a framework for integrating e-learning in Higher Education Institutions and; To test and validate the framework for integrating e-learning in Higher Education Institutions.

A quantitative research design was used in the study. The questionnaire was designed to cover all the constructs of the blended theory. A sample of 341 respondents (staff and students) was selected from the five participating Higher Education Institutions. These institutions included Makerere University, Makerere University Business School, Kampala International University, and Kyambogo University. These were the top five universities in Uganda and had started using e-learning. On the other hand, descriptive statistics (means, frequencies, and percentages) were used to analyze the data. The researchers used descriptive statistics because they are easy to understand and interpret even with little knowledge of statistics. The findings indicated that the e-learning platforms Higher Education Institutions were using did not support certain capabilities such as audio learning, video learning, instant messaging, games, and leisure and engaging quizzes which are very important features for successful e-learning. Lecturers were not able to monitor students' continuous progress, mark tests and exams online in addition to conducting tutorials using the e-learning system. The requirements for the integration of e-learning and other learning methods were identified as the use of projectors, mixing face-to-face and e-learning, harmonizing course content for e-learning and face-to-face during the design phase, and incorporation of 3D pictures in face-to-face. In addition, the use of videos, audiotapes, guest lecturers, textbooks, and other reading materials and training were also suggested as requirements for successful integration of e-learning. This study examined the various teaching and learning methods used by Higher Education Institutions i.e. face-to-face and e-learning. Although these two methods were found to be lacking in several aspects if treated separately, the study findings indicated that the methods can perform better if integrated. The requirements for e-learning integration and the most applicable feature of e-learning information systems were identified. Several stakeholders for e-

learning integration have also been examined. The study has put forward a framework that can help improve e-learning integration in Higher Education Institutions in developing countries. The framework can be used to guide Higher Education Institutions management on which areas to concentrate to achieve the positive effects of e-learning in Higher Education Institutions. The study emphasizes the infrastructure and the ICT skills that must be attained by management, lecturers, and students of Higher Education Institutions in developing countries. The developed framework was validated and validation results indicated that the framework was indeed applicable, if well implemented.

Joseph (2012) conducted a study on "The Barriers of Using Education Technology for Optimizing the Educational Experience of Learners" at the University of Johannesburg, South Africa. The primary objective of this study was to investigate the use of technology within learning environments and its impact on teaching and learning.

Firstly, the study conducted a quantitative study on the nature of technology-based learning and how this practice contributes to teaching and learning. There is not enough large-scale concrete research that has been done on the topic and this calls for a strong and sustained case that will contribute to ensuring that technology enhances the educational experience of learners in a meaningful manner. Secondly, both teacher and learner technology integration barriers have been identified to increase the effectiveness of this practice.

Based on the findings technology was used in collaboration with traditional teaching it impacted positively on the education experience of the learner. The use of technology ensured that learners could work independently, solve problems, increased communication and collaboration, and have greater access to information. The findings also concluded that more research is needed on the topic, when curricular content and teacher motivation is considered with technology it can impact meaningfully on education.

Promise (2011) did research on "Factors affecting Teachers' readiness for online instructional usage in Nigerian Universities, a case study of Faculty of Education, University of Ibadan, Ibadan, Oyo-State, Nigeria" in Department of Foundation Diploma, Babcock University, Ilisan-Remo, Ogun State. It was a small part

of a larger study conducted investigating the factors affecting teachers' readiness for Online instruction in this institution. This study adopted an ex-post-facto survey design covering a cross-section of teachers in all the departments of the faculty of Education and it involves the collection of data on teachers' perception of online instruction. The study was also descriptive because it aimed at capturing the pattern of past behavior with, and attitudes towards online instruction among the target population. The faculty of Education consists of nine (9) departments with one hundred and twenty-three (123) academic staff in the 2009/2010 session during the time this study was carried out. The instrument used for the study is Likert type questionnaire, which is used for data collection.

This study revealed that there were perceived organizational facilitation toward online instructions usage in the faculty Education University of Ibadan which ranges from Educational culture in the faculty being ready for online instruction to easy implementation of online instruction in the departments, University Authority support for the use of online instruction and having technical support for teacher to use online instruction in the Faculty. Giant strides had been taken by the University Authority to support their lecturers through Mac Arthur Foundation Staff Training and Workshops on the use of computers for teaching/learning and research.

Bonanno (2010) conducted research on "Developing an Instrument to Assess Teacher Readiness for Technology – Enhanced Learning Developing the Instrument" at Malta University. the role of ICT in education is to support teaching and learning practices, enhancing the ways that educators can fulfill human development goals. Over recent years, the focus in education policy for many governments has been on the integration of ICT into educational development plans resulting in increased use of ICT in all aspects of education development, from fostering students' 21st-century skills to facilitating teachers' professional development and improving access to knowledge and information literacy through ICT. Teachers play a key role in integrating learning technologies in the educational process and in promoting these curricular transformations. Teachers need to be trained in making a pedagogical shift from content-oriented instruction to the development of process skills exploiting domain contexts. Moving beyond the operational 'curriculum oriented to develop skills in ICT and learning of subjects through ICT, one should prepare teachers for the transformational 'curriculum with its focus on learning processes and interactions that

assume a fundamental change in the organization of teaching and learning experiences. In this context, the criteria to assess teachers 'readiness should not only be the degree of integration of technology, pedagogy, and curricular subject knowledge but most important for moving beyond this level and using domain contexts to create learning experiences specifically developed to promote 21st-century skills.

Synthesizing the different dimensions proposed by these various instruments a 5-dimension model was developed to assess teacher readiness to TEL, dedicating a section for each dimension. The overall culture determines the pedagogical approach which in turn determines the education Environment of the institution and surrounding community. This will demand a range of ICT Skills (technological dimension) that will determine a teacher's interaction with the environment considering his /her psychological frame of mind. The culture determines the policies, curriculum, and design of learning systems by reflecting social norms and values concerning the nature and role of education and the use of technology according to this role in this culture, emerging technologies require new teacher roles, new pedagogies, and new approaches to teacher training

The environmental dimension takes into consideration the policies adopted that will determine (innovative) approaches promoting ICT integration in the curriculum and the process of educational transformation, learning processes through technology, this dimension also considers how technology is used to build dialogue and engagement with parents and the community. The Pedagogical dimension explores the type of learning processes mediated by technology resulting from the stage of technological integration, the type of learning resources used, and the teaching-learning practices promoted within or outside the classroom. The Technological dimension considers what a teacher can do to develop a range of professional teaching skills with technology demanded by these different institutional scenarios and pedagogical approaches. It also considers those competencies that enable the use of technology to improve students 'learning effectiveness and how to use ICT in different classroom settings, in different curricular areas, and how to make use of ICT in assessment. The Psychological dimension determines one's interactions with technology considering how individuals acquire, organize and deploy knowledge and skills. On a social level, it considers the beliefs about how technology affects one's interactions with others. The instrument provides an integrative model and approach emphasizing the network of interrelated

variables that operate in educational and training contexts based on TEL. Designing courses and learning experiences that involve the use of technology should be based on a SWOT analysis considering the cultural, environmental, pedagogical, technological, and psychological dimensions.

Assareh and Bidokht (2010) conducted a study on "Barriers to e-teaching and e-learning" in Tehran, Iran, Considering the rapid growth of Technology and Population seems inevitable that e-education is going to be the main agent for education. There has been much research into methods of enhancing the quality of learning outcomes of e-education and it has been considered from different perspectives, with a comprehensive literature review of research and survey data provided by concerning e-learning Institutes. This study is tried to outline a classification of barriers to e-learning and suggest appropriate solutions.

In general, four kinds of barriers were identified:

1. The Learners; which has subdivisions like a financial problem, motivation, assessment of their progress, isolation from peers, inadequate skills and experience in distance learning, affection, and social domain
2. Teacher; which has subdivision barriers like lack of adequate knowledge about e-teaching environment, the difficulty for assessment of different domain progress
3. Curriculum; ambiguity, quality, resource, teaching process, evaluation
4. The school; organizational and structural factors. Overcoming these groups of barriers needs more cooperation of related factors like curriculum developers, teachers, parent's students, social authorities, technological specialists, and also preparing virtual and actual interaction among children and teachers and society.

Distance education is not a new attempt; this kind of education like traditional systems of education has its barriers and necessities which should be considered for achieving learning outcomes. In this Global village, education is not restricted to a special place like schools, all learners should be life-long learners and it should not be restricted to time and place. New education should help students to learn how to learn and what to learn. It should encourage them to think critically and innovatively. Besides

all of these necessities, E-education like any other kind of education has a special kind of barrier that should be known and considered. Like other curriculum development, one should know the effective factors like the learners and their characteristics, their developmental age and tasks, their needs, their goals, and motivation. One should know the instructors and their necessities, their abilities, their talents, and needs. One has also to know about the place and the equipment which is needed for designing and delivering the course. Besides all of this preparation, one should remember the lack of enough interaction among learners and teachers should not lead to the isolation of students and feelings of anxiety for not learning the curriculum.

Lopes (2008) did a study on "Evaluating e-learning readiness in a Health sciences higher education Institution" in ESTSP, Instituto Politécnico does Porto. The study had presented a case study of an e-learning readiness evaluation, which occurred in ESTSP, a Porto's Higher Education Institution (HEI) dedicated to allied health sciences education. This study aimed to evaluate the e-learning readiness of a Higher Education Institution and report the results of its application in ESTSP, Porto's Allied Health Sciences Higher Education Institution. Along with that, this study presents a model to evaluate an HEI's e-learning readiness. Documentation review, observation, and two questionnaires were applied to collect data. The first questionnaire gathered information about students' skills, their access to equipment, and perceptions on e-learning. 273 students answered the questionnaire resulting in a 17% response rate. Professors' questionnaires gathered information about ICT usage and skills, access to equipment, and e-learning experience. 29 professors answered the questionnaire, almost half (49%) of ESTSP's full-time professors. It was found that students' access to computers and the Internet, one of the major initial concerns, was not as low as initially expected. Yet, this doesn't attenuate the need to invest in infrastructures, which lack was identified by professors and students. Together with the financial dimension, this is an area where ESTSP has a low e-learning readiness. Faculty skills are also an issue to consider.

In ESTSP's specific case, this study allowed to attenuate the concern about the lack of student's access to computers and the Internet; detect the need for significant improvement of the technological infrastructures; identify the professors' need for ICT training and technological support, and acknowledge professors interest and openness towards e-learning. Last, but not least important, it may be an instrument to convince

the top-level administration of an e-learning strategy's importance and to gather its approval. Their commitment would increase ESTSP's e-learning readiness in the business dimension and even in the financial and human resources readiness.

Mercado (2008), College of Information and Computing Sciences, Saint Louis University, Baguio City, Philippines did research and formed a tool for "Readiness Assessment Tool for an e-learning Environment Implementation" This paper attempted to present a readiness tool cum needs assessment that would reflect the value of understanding the institution's current state and the different readiness parameters in implementing an e-learning environment. The various issues cited by the different kinds of literature cut across three crucial areas: student, faculty, and the institution (administration) itself. While aptitude to adapt to e-Learning may be anchored on several dimensions, the most obvious can be readily and practically measured are along these three areas identified.

The study concluded that by establishing the characteristics of successful online learners and online teachers as well as online learning–ready institution, one can assess the state of readiness of students, teachers, and the organization along with the implementation of an e-learning environment. The readiness criteria provide a goal for the institution as it develops its capability to implement an online learning environment. Being able to assess the status as to where the institution is currently positioned in relation to where it envisions itself to already set a milestone. Having these vital information sets already institutions to develop strategies as well as the timetable for achieving readiness in all the categories identified.

Kárpáti and et, al., (2008) conducted a study on "E-Teaching Readiness of Teachers the Effects of Personality Traits and ICT Skills on Changes In teaching Style of Experienced Educators" To identify ICT-relevant individual characteristics reflected in technology acquisition strategies, response to different types of mentoring and quality of course tasks, researcher correlated the California Personality Inventory (CPI), measuring key factors of the self and correlated it with their ICT Competency Inventory (ICT-CI) to reveal correlations between creative adaptation of ICT based teaching-learning methods and personality characteristics. The sample included 120 teachers who undertook the EPICT course of 120 lesson hours. ICT-CI and CPI were administered at the end of the course.

This study pointed out personality features that may be associated with success and failure to acquire ICT skills on a level sufficient for educational use. The strong correlation between certain characteristics of the self and success in ICT use seems to suggest that integration of digital teaching aids and methods may be affected by targeting both the professional and personal self of teachers through a targeted teaching environment, course content and mentoring methods. The ongoing ICT courses, therefore, were designed to suit not only the initial level of technical skills but also the mindset of teachers.

Agboola (2006) conducted a study on "Assessing the Awareness and Perceptions of Academic Staff in Using E-learning Tools for Instructional Delivery in a Post- Secondary Institution: A Case Study". The study aimed to investigate the preparedness & of the academic lecturers for the introduction of e-learning at the International Islamic University Malaysia. According to the researcher "e-learning is where the knowledge is delivered via electronic media. The study employed two types of instruments. The first was "Lecturer E-learning Perceptual Survey Questionnaire (LEPSQ)" with 35 items on a 7-point Likert scale ranging from "very strongly disagree" to "very strongly agreed", used for Collecting data from a proportional stratified random sample of 324 academic staff of the International Islamic University Malaysia. Another was the "E-Learning Readiness Survey" questionnaire, with 20 items based on short answers that were designed to collect data from 26 Deans or Heads of department in each department of the University.

The collected data was analyzed qualitatively based on the analytic procedures. The researcher applied correlation analysis. ANOVA and linear regression to test for the interactions among the variables of the study. The response rate was 98% totaling 324 respondents. Initial findings revealed that e-learning training and e-learning confidence were statistically significant predictors of both e-learning adoption and e-learning readiness.

The majority of the respondents were skilled in the required computer software skills such as word processor, spreadsheets or excel, databases, statistics package, presentation software, copy and transferring of files, document scanning, and creating PDF files. Regarding the respondents' abilities in various Internet tools, the findings were quite encouraging. Respondents have indicated that they acquired their computer and Internet training through formal training. Lastly, the majority of the respondents indicated that they accessed the Internet for 10 hours or more per week.

The study also revealed that academic staff was making progress, but more efforts would be worthwhile to overcome some hindrances, which were related to infrastructure and lack of personal capability. According to the researcher, e-learning confidence and e-learning training have a strong influence on both c-learning adoption and e-learning readiness when compared to the influence of gender on e-learning adoption and e-learning readiness.

Jamlan (2004) has conducted a study on "Faculty Opinions towards Introducing eLearning at the University of Bahrain". To assess faculty opinions on e-learning, a questionnaire was sent to 30 faculty members of the University's College of Education to determine how they perceive e-learning, and how they might choose to integrate it into their everyday teaching activities. Data was collected and analyzed by using descriptive statistics. Results indicate that faculty generally perceive e-learning as a positive force in helping students achieve their learning objectives. Answers to this questionnaire indicated areas of weakness like specifically those baseline technological and human resource prerequisites that are necessary to support e-learning that is not yet available at the University of Bahrain. Other baseline prerequisites were: staff training, well-prepared online courses and learning materials, sufficient groundwork for the smooth transition from traditional modes of learning towards e-learning delivery, and the implementation of a more robust technological infrastructure to support all the technical aspects necessary to launch and sustain e-learning.

2.3 TREND ANALYSIS

There are seven conceptual article and thirty empirical studies, from which only ten studies were conducted in India. In total twenty studies were collected and reviewed which are conducted abroad. The studies were conducted in different countries of India, Bahrain, the Philippines, South Africa, Libya, Iran, Indonesia, Porto, Kenya, Turkey, Malta, Malaysia. The timeline of reviewed studies ranged from 2004 to 2020. The methods used for data collection in all the studies reviewed were mainly survey-based. Questionnaires were used as the research tool in the majority of the studies. Sample of the studies mainly comprised of a university teacher and different faculties. The maximum sample size observed was 324 and the minimum size was 10. In the majority of the studies, the researcher used random sampling and purposive sampling techniques.

While reviewing the literature, the investigator found the research mainly on e-learning Readiness assessment studies, digital curriculum implementation in colleges, lectures perception toward educational technology, developing a framework for assessing e-learning integration, the attitude of higher education teachers towards using e-learning usage, development of e-content for the various course, influence factors which are affecting e-learning readiness, prissiness to e-teaching and e-learning but no studies was found on teaching through e-content and assessment model for checking Department and Teacher's Self readiness for using e-content for classroom teaching. The majority of the studies were found on e-learning and development, no study was found on the usage of e-content for teaching. Very few studies were conducted in India related to checking the readiness of university teachers for the usage of e-content for their teaching. One very fascinating study on the Coronavirus (COVID-19) outbreak was discovered by the researcher. According to the report, the globe has been thrown into chaos as a result of the Coronavirus (COVID-19) outbreak, which has also impacted the global education system. The global education system compelled an unanticipated and quick online teaching-learning intervention. Teachers' competencies, as well as their ability to change pedagogy and take on new roles, would be critical to online teaching preparation. In this context, the study had done.

2.4 CONCLUSION

From the above trend analysis, it can be concluded that no study was found in India for developing assessment models for checking higher education institutes or University Teacher's Readiness for Implementing e-content usage in their teaching. Compared to India, more studies on e-content development and usage and teachers' e-content usage readiness have been conducted aboard. Very few studies conducted to check the e-readiness of the University and college regarding environment aspect, technological aspect, financial aspect, Course-content aspects have been done in the Indian context. Very few studies have been done on challenges faced by the higher education teacher while using e-content for classroom teaching. Very few studies were conducted to assess the university or college readiness model for implementing (Learning through e-content) educational technology in classroom teaching. No study was found on staff or teachers' training programs for sufficient groundwork for the smooth transition from the traditional model of learning towards e-content delivery which is necessary to sustain e-learning. Factors like lack of infrastructure, lack of

digital content, cost of implementation, lack of proper training, etc. act as hindering factors in the usage and development of e-learning. Teachers' credentials are an essential part of teaching online, which has become extremely relevant in the wake of the COVID-19 outbreak. The study identifies the online teaching readiness competencies possessed by online teaching communities and provides guidelines to enhance their capacity to build the longer-term resilience of education systems, due to the need for emergency response and strategies to reduce learning disruption at higher education. Thus, the present study is proposed to find out the readiness of teachers of The Maharaja Sayajirao University of Baroda, Vadodara, regarding the usage and development of e-content for their teaching. The study will serve as a ready reckoner for online training competencies, which can be used as a training need analysis to ensure that each teacher is highly qualified to transmit knowledge via online teaching platforms.