A STUDY ON READINESS OF THE TEACHERS OF THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA, REGARDING USAGE AND DEVELOPMENT OF E-CONTENT"

Synopsis of Ph.D. thesis

A report submitted in partial fulfilment for the

Degree of Doctor of Philosophy

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"December 2021"

INTRODUCTION

The 21st century has been rightly termed as digital era. Internet has brought considerable change in the lives of human beings. It has become extremely easy to connect with each other via internet from one part of the world to that of the other. Digital technology is ruling each aspect of human beings, be it industrial, medical field, sports, education.

The Indian government is additionally in favour of integrating technology into education – encouraging most educational institutions to migrate from blackboards to digital boards. Technology is going to be the most important growth driver in improving the standard of education in India. Digital India is an active slogan propagated by Prime Minister Narendra Modi. In 2014, he created the E-basta programme to plug e-learning in order to provide more computer-based education and interactive learning. The scheme was aimed toward making children free from the burden of carrying books to high school. Teaching is now quite ahead of blackboard and technology has been an integral a part of its development. It has transformed education and therefore the way, that folks learn and retain information. Therefore, its role within the way forward for education may be a fundamental part in maintaining the expansion and progression of today's economy. New Innovations in teaching and learning techniques have appeared, and higher education teachers are on the way to adopt at using new educational technologies in their daily classroom rather than using old teaching methods. Urdan and Weggen (2000), as an example, found that online learning constitutes just one a neighbourhood of e-learning; and further define it as learning processes that happen via the web and in blended classroom contexts. They stated that e-learning via e-content encompasses a wide range of applications and procedures, such as virtual classrooms and digital collaboration.

Educational Technology changes have been reflected in the evolving role of teachers and students in the learning equation. Technological changes – particularly online e-learning through e-content & web-based technologies – have resulted in needed of developing new curriculum design and modern teaching strategies, developing in-house techno-friendly infrastructures and separate financial provision for it.

Teaching through E-content has emerged as an important educational tool and provided the teachers a new instrument to expand the teaching-learning opportunities and enhance the teaching outcomes. The explosive growth in Information Technology (IT) and new

developments in learning science provides opportunities to create well-designed, learner-centered, meaningful and facilitated e-learning environments (Khan, 2005). The higher educational institutions, in order to be relevant and competitive in a globalised networked world, need to invest heavily in ICTs infrastructure and develop appropriate mechanism to advance e-content usage readiness besides developing a policy framework to promote.

India and Education

Higher education is critical to the country's entire growth, which includes industrial, social and economic development. India has the world's third-largest educational system. In today's world, the duty of Indian higher educational institutes such as colleges and universities are to provide quality-based education in the fields of education, research, and other fields in order to empower young for self-sustainability. The National Council for Educational Research and Training (NCERT), which creates a National Curriculum Framework, is a national agency that plays a vital role in formulating policies and programmers. The State Council for Education has a counterpart in each state. In India, though much importance has been given to Primary education, since past one decade, the Government has brought Higher education into mainstream as well. The government has been working on improving the quality and content of Higher Education in India. Many schemes and programmes have been initiated towards Higher Education.

ICT and Higher Education

The world has entered into an information age and developments in communication, information and technology opened up new and cost-effective approaches for providing the reach of higher education to the youth also on those that need continuing education for meeting the stress of explosion of data, fast changing nature of occupations and lifelong education. A few initiatives have been taken by the Ministry of Human Resource Development (MHRD) to promote digital education literacy in the country:

- With the utilization of data and communication technology (ICT), SWAYAM is meant to supply one integrated platform and portal for online courses to hide all education subjects and skill sector courses. More than 28 lakhs learners thus far are enrolled in 1000+ MOOCs courses that run through SWAYAM.
- e-Shodh Sindhu is that the project of the govt aims at providing access to quality electronic resources including full text, bibliographic and factual databases to academic institutions at a

lower rate of subscription. FOSSEE is Designed by the MHRD, the Free and Open Source Software for Education (FOSSEE) project aims at promoting use of opensource software in educational institutions to improve the quality of education, reducing dependency on proprietary software. This project may be a component of the National Mission on Education through Information and Communication Technology (ICT) and MHRD.

Use of Technology in Indian Education

India is understood together the world's top education destination within the global education industry. With several universities and colleges, India has been successful in attracting bright talents everywhere the planet. Indian education system is healthy and built on strong foundations. India may not be the early adopters of technology in the education sector but with access to highspeed broadband internet and low-cost computers and mobile devices there has been growth in the use of technology for learning. Today India is one of the fastest growing markets for e-learning based products and services like teaching through e-content. There are different ways technology can be used to bring improvement in the Indian education system. Even government aims to increase digital literacy of the country by bringing out favourable policies to give push to technology-based teaching-learning. Many entrepreneurs and start-ups have grabbed this opportunity to develop technology based educational products for private and government based schools, colleges and universities. Digital revolution in India's education sector started with management colleges just like the Indian Institutes of Management. The university and colleges gradually began to adopt digital practices, from providing computer labs to totally electronic libraries. Laptops became common in institutes and among the scholars studying business management courses. Gradually, at colleges and universities, it evolves into a new manner of teaching and learning. Exams were not limited to pen and paper because it was replaced by computerized exams. PowerPoint presentations have evolved into a new way of submitting collage assignments and projects. It was soon realized that learning not revolved round the ability to only read & write. In the occurrence of digital era, drivers of change like Artificial Intelligences, robotics, nanotechnology etc have a powerful impact on the evolution of education. These growth drivers also are the demographics of the business landscape and therefore the skills that are required to satisfy the stress of the longer term. That is why it's important to include digitization within the learning process which can help students in critical thinking, innovation, collaboration and problem solving. Along with primary syllabus, the curriculum should also specialise in technology, innovation, general skills and business management.

Concept of e-content

Wide varieties of digital materials are available online. Some of the standard materials which are available freed from cost or with minimum restrictions are often used, reused and modified by teachers and students for his or her teaching and learning. As printed textbooks are too expensive, the students are switching from printed textbooks to digital course materials. These products increase interactivity and social participation for both teachers and students. E-content is one of the materials that may be generated, developed, reused, and distributed. All sorts of material developed and provided through various electronic media are referred to as e-content. e-content is out there in many subjects and most levels of education. It is often employed by big variety learners with diverse needs, different backgrounds, and former experience and skill levels. According to oxford dictionary 'e-content is that the digital text and pictures designed to display on sites.' consistent with Saxena Anurag (2011) 'e-content is essentially a package that satisfies the conditions like minimization of distance, cost, effectiveness, user friendliness and adaptability to local conditions. Well developed e-content are often delivered repeatedly to different learners. Individual course components i.e., units, lessons and media elements like graphics and animations are often reused in several contexts. Unluckily, existing materials cannot be automatically transformed into e-content materials by just making them available from an online site. A systematic and a scientific approach is required to develop quality e-content. The e-content should follow appropriate instructional design methodology to assure meeting of learning objectives and expected outcomes.

E- Learning through E-Content: Indian Perspective

India has evolved into an "information heavy society" over the last decade, and there is an increasing need to embrace the use of technology in the field of education. In this regard, the Policy notes that one of the central principles steering the education system are getting to be the 'extensive use of technology in teaching and learning, removing language barriers, increasing access also as education planning and management'. The use of e-content for e--learning is seen at all levels of educational system. India has seen a fair amount of progress in usage of e-content for eLearning for higher education. The only way to bridge the growing division in public and private education in India can be tackled by utilizing e-content usage for e-learning and online learning. A website named Coursera, provides such online courses through collaborations with various well recognised and National level Universities and

Institutes across. The one such very fashionable open online course in India is MOOCs which collaborates with National level Institutes as IITs and brings in these online courses. The courses are all free and provide free certificates of completion who are done and have completed all the quizzes and peer evaluation assignments in the respective courses. Moreover, even the state universities in India have started their wing of graduate and post-graduate programmes within the sort of online education. E-content has become extremely popular for teaching online. The rise in Internet users and the revolutionary changes that have happened in education have created a fertile environment for teaching through e-content method to grow. Once characterized by the normal classroom model, education today has become learning that's instant, online, self-driven and on the go. The journey of higher education in India has been marked with innumerable milestones – most recently, e-learning. The Government of India (GoI) is robust supporter of e-learning and therefore the Department of Electronics and knowledge Technology are actively developing tools and technologies to market it. These are econtent development, R&D technology initiatives, human resource development projects, and faculty training initiatives to improve through e-learning. The rapid increase within the Internet connectivity within the previous couple of years has been a crucial catalyst for the expansion of e-learning in India which can help make further inroads. Fuelling this growth are going to be India's education system. Soon, universities will see more students accessing this coursework from outside the normal campus and classroom. The Digital India Policy involves investment in digital infrastructure, development of online teaching platforms and tools, creation of virtual labs and digital repositories, training teachers to become top quality online e-content creators, designing and implementing of online assessments, establishing standards for content, technology and pedagogy for online teaching-learning. The Policy imagines the creation of a fanatical unit for the aim of designing the event of digital infrastructure, digital content and capacity building to supervise the education needs of both school, higher education universities and institutes.

Teaching through E-Content in India: Present status

In this age of virtual education, one of the challenges before our universities and colleges is to develop skill in higher education teachers related to educational technologies, like skills related to develop and use e-content for specific subject, solved problems which are occurring during teaching through e-content, timely upgradation in e-content for making it more advance. In this direction, the initiative taken by UGC in collaboration with Consortium for

Education Communication (CEC) to train the teachers and provide funds for multimedia & e-content development is gaining momentum. e-content is packaging of data in electronic form which may be retrieved by the utilization of electronic devices. UGC has constituted a committee to work out the equivalence of e-content with research paper or textbook publication.

In India, face to face teaching is still the popular method for teaching. A technology enabled teaching method can be face to face as well as virtual through various educational technology and internet. The new approach should be to blend both in order that more students can learn with existing infrastructure and human resources. The time is ripe to develop a new model of blended face to face as well as virtual mode of education. there are subjects which require practical training which could be provided on university campus, industry, hospitals, workshops or in relevant situations. What we need is only to coordinate and manage this blended mode of teaching effectively. India must make several steps e.g., expansion of education system, adoption of new techniques such as multimedia and use of e-content for teaching etc. which will visualize the concept of virtual classroom. In fact, packaging of knowledge through e-content may enable teachers to contribute to knowledge field. Each teacher has some strength in their subject area. Teachers desire to express and share it. This technology provides opportunities to them to contribute to their respective strength areas.

It is great importance to empower universities to operate efficiently in the digital age. Professors should get appropriate training that enhances their digital literacy and provides them with useful tools to design courses that reflect access to a rich range of knowledge sources and resources on the internet and in digital libraries. It is importance to allocate funds for teacher and staff support services, and highlight good practices of blended learning and teaching, open and flexible education, and the effective use of MOOCs and Open Educational Resources (Alexander et al., 2017; Johnson et al., 2016).

The Education Ministry has released a new education policy with a vision of reshaping the education system in India. The education policy aims to transform the education standards of India by the end of 2040. Few of the changes in the Online Education System As per the New Education Policy (NEP) 2020

- Existing e-learning platforms, such as DIKSHA and SWAYAM, will be enhanced to provide teachers with a user-friendly and well-structured environment. These platforms are going to

be updated with some set of tools like two-way audio interface and two-way video which will help the teachers to conduct online classing and monitor the progress of students.

- Digital infrastructure: The new education policy will include some investment within the creation of public digital and interoperable infrastructure which will be utilised by multiple platforms. This new digital infrastructure is going to be created by keeping in mind that the technology-based solutions provided through it don't become outdated with time.
- Training for Teachers: Teachers are going to be trained to use online learning tools and platforms. Besides this, they're going to even be trained with additional skills in order that they will manage the web platform themselves. Using digital content and tools, the training will focus on boosting teacher-student interaction.
- Learning Games & Simulations, Virtual Reality, and Augmented Reality will all be part of a digital repository that will be built. The system is going to be given the general public system for rating by the user to analyse the standard and effectiveness. Besides this, some fun based learning tools like gamification of Indian art and culture are going to be created with instruction manual. These instructions are going to be available in several languages in order that everyone can know it easily. For the distribution of e-content to students, a secure backup system will also be offered.
- Standards of Online Learning: the quality of the content, pedagogy and technology for the digital education are going to be set by the NETF and other appropriate bodies. These standards will enable the govt to line guidelines for classrooms. India's e-learning and digital learning methodologies.
- Creating a fanatical Unit for Digital Education: a fanatical unit for the aim of promoting digital learning are going to be established within the MHRD. The unit will take care of the web learning need of the varsity also as education. This centre will comprise of experts from the sector of education, educational technology, administration, e-governance, digital pedagogy and IT. These experts are going to be working in delivering high quality education to the scholars and resolving their queries.

Teachers Readiness for Teaching through E-content

As usage of e-learning through e-content increases across the globe in higher educational institutions, the teachers as well as student's readiness will become critical. Aydın and Taşçı's (2005) observed that it needs to address the issues related to environment readiness, technical readiness, content readiness, and financial readiness. Further, there are other factors such as age of teachers and students, education of teachers, that may have an impact on usage

of e-content readiness, and thus are considered as important factors in usage of e-content readiness. For the present study, e-content readiness was conceptualised as the competency and skills of the teachers for using e-content for their classroom teaching. Many researchers have recommended different models and frameworks which can be used for assessing e-content usage readiness of individual universities and institutions.

The attention should be on readiness of teachers which will be critical to its success. They need to be skilled in the use of ICTs and trained in how to develop the course materials for e-content besides pedagogical approaches.

In the current 'pandemic circumstances', with virtual learning replacing in person learning experiences, students and teachers are compelled to reimagine conventional learning and teaching techniques. The Policy's introduction at this key juncture is vital because it describes the vision of education for future generations and will be a critical tool in the construction of a "self-reliant" India. Our education system was never very efficient in the best of times. It has become immensely prejudiced and faulty as a result of the COVID19 epidemic. Online teaching is the major focus of offering learning opportunities while schools are closed. For this goal, the government, the National Council of Educational Research and Training (NCERT), and hence the Central Board of Education (CBSE) have issued many sets of rules and programmer. Learning schemes, teaching videos, sites and portals for learning opportunities abound on the internet. The NCERT released Alternative Academic Calendar, video of instruction, digital editions of textbooks, and links to other such information are the primary contents of all government sites and programmers.

University Readiness for usage of e-content for classroom teaching: (e-Readiness of the universities) An electronic (e-Learning through e-content) readiness assessment is the evaluation of a universities ability to accept and use ICTs and their applications for teaching. It also indicates its preparedness to participate in the information and knowledge society, which is reflected in the degree of integration of ICT. Therefore, an e-content usage readiness assessment identifying related issues, before and during an e-content usage initiative is critical to its implementation. The Centre for International Development at Harvard University produced 'Readiness for a Networked World: A Guide for Developing Countries.' (RNW) states: "Readiness is that the degree to which a country is prepared to participate in a networked world." to which a community is prepared to participate in the networked world." According to Machado (2007), in the higher education sector, e-Readiness is "the ability of

Higher Educational Institutes and the capacity of institutional stakeholders, to benefit from educational technology (or e-learning through e-content).” Borotis and Poulymenakou (2008) defined e-learning readiness as “the mental or physical preparedness of an organisation for some eLearning experience or action”. The objective of the present study was attempted to assess some dimensions of the different faculties of the universities and colleges which will help them to evaluate themselves and make themselves more techno friendly. Thus, e--readiness assessment shows a difficult patchwork of changing levels of ICT access, usage of content, and applications in an institution. The evaluation of e-readiness involves a process of identifying the underlying factors that are likely to act as barriers to the deployment of e--content usage. Generally, in universities of higher education, the introduction of an innovation or upgrading of existing learning procedure is likely to be struggled, as faculty members are sometimes used to established pedagogies and practices. Hence, it is imperative to assess their perceptions and attitudes towards accepting technology as a teaching and learning innovation

STATEMENT OF THE PROBLEM

Keeping in mind the aim of discussion a study was planned, entitled “**A study on readiness of the teachers of the Maharaja Sayajirao University of Baroda, Vadodara, regarding usage and development of e-content**”

RESEARCH QUESTION

The present research proposed to dwell on the following questions, in which needed to address upon:

1. Are the teachers of the Maharaja Sayajirao University of Baroda, Vadodara ready to use the e-content for their teaching?
2. What are the various factors which affect their readiness for the usage of e-content for their teaching?
3. What is the computer and internet related technical competencies of the teachers?
4. Are the university teachers interested in using e-content for teaching?
5. What is the knowledge level of the university teachers regarding e-content?
6. What are the challenges the teachers are expecting in the usage of e-content for their teaching?
7. What are the suggestions for increasing the readiness of the teachers to use the e- content for teaching?

JUSTIFICATION OF THE STUDY

The rapid proliferation of technological advancement into the educational system witnessed the change in the face of higher education over the decades. Rosenberg (2001) expressed that since the 1990s it has become increasingly clear that we are living in the information age and our society are becoming knowledge-based. The biggest growth on the internet and the area that will prove to be one of the biggest agents of change will be learning. Instructional content or learning experiences given or enabled by electronic technology are referred to as e-learning. Cruthers (2008) said that in today's technologically driven age, e-learning has become an important tool enhancing the delivery, interactional facilitation of both teaching and learning processes. Tuparova et. al. (2006) expressed that e-learning is a combination, implementation, and relationship of the activities for learning and teaching via different electronic media. These technologies have extensive potential to be used for many forms of education like formal and nonformal educational forms such as distance and open learning. Tuparova et. Al. (2006) "Teacher's attitude towards e learning courses in Bulgarian universities published in journal current developments in technology-assisted education." Main fold benefits, as well as a tremendous advancement in technological developments in this field, have forced higher education institutions to utilize its advantages for teaching, research, and community outreach. Powell (2000) highlighted those advantages such as asynchronous training, training at an individual pace, just-in-time training, and cost-effectiveness lure the institutions to e-learning. Wannemacher (2006), said that universities should be ready to adopt e-learning systems to improve learning as well as to gain a competitive advantage. Many researchers worldwide believe that technologies used will enhance the quality of education, as it offers tremendous opportunities for increasing the efficiency and effectiveness of education in the future Krishnakumar (2011) and Navani and Ansari (2016) elaborated that because of the rapid advancements in information and communication technology (ICT) coupled with the gradual and regulated expansion of the telecommunication sector, the increasing adoption of e-learning in higher educational institutions is gaining momentum in India also as globally. The introduction of ICTs in higher education has huge implications for the whole education process ranging from investment in ICT infrastructure to the use of technologies in dealing with Access, equity, administration, efficiency, pedagogy, and educational quality are all important challenges. In the 21st century, e-learning has emerged as the new paradigm of modern education combing the online segment with the conventional face-to-face component. It is now recommended as an

alternative mode of teaching and learning in most of the higher educational institutes of our country. The evolution of the internet and advancement in information and communication technology has led to the emergence of the latest approaches in teaching, learning, and training. Thus, these situations possess a challenge to the teachers as students are exposed to enormous rich sources of information and vast expertise from various parts of the world. Therefore, teachers as important stakeholders of the educational system must gear up to accept and adopt the skills for adapting and implementing e-content for their teaching to provide worldwide exposure to the students of higher education. Teachers play a crucial role in integrating ICTs for teaching, bringing transformations in the curriculum, and bringing the e-learning system into the mainstream of educational programs. Thus, the need of the hour is that all the higher educational institutes, be it colleges or universities gear up, to adapt this technology completely for its usage in the education sector. The reorganization process emphasizes the importance of embracing ICT integration to enable learners to thrive in a global world. Odunaike et.al. (2013) expressed that although the need to implement e--learning is critical, there is also a need to recognize the fact that the process of implementing e-learning in an institutional setting and inserting it into the tutorial context of a university may be a complicated endeavor. It requires not only a robust technical infrastructure to support the delivery of the e-learning courses but more importantly, the complete acceptance of it would-be users as well, for example, faculty members and students. Before implementing technology-enabled education, it is necessary to identify obstacles and issues so that solutions can be found. Such planning entails a complex process that ideally should be institution-specific. In line with this, the teacher's readiness to use e-content for their teaching is critical because it provides key information on the characteristics of the students to enable and to decide in areas that need to be improved to access the maximize the success of e--learning initiatives. Lowther, et. al. (2008) expressed the need for teachers' readiness to use e-content for teaching primarily apart from institution's readiness in terms of infrastructure, technological readiness, environment readiness, financial readiness, and content readiness. That readiness of teachers is defined as teachers' perception of their capabilities and skills required to integrate the technology into their classroom teaching. This is the important factor that has a direct impact on technology integration. Machado (2007), explained e-readiness in the context of higher education as the ability of higher educational institutions and the capacity of institutional stakeholders to generate learning opportunities by facilitating computer-based technologies. Thus, the institutions, as well as the teacher's readiness, are crucial for a technology-driven educational system. Thus, the assessment of the responsible

variables influencing the e-readiness of the teachers and their environment, finance, technology, and content of the courses need to be reached well. Apart from these certain demographic variables like age, educational experience, gender, knowledge regarding e--content, technological competencies, interest in e-content are considered important in assessing one's readiness for using e-content for their teaching. Teachers need to utilize the internet, collaborate with peers, and interact with trainees for assistance, teacher's readiness should be assessed before they the institutions.

Therefore, the present investigation sought to establish the readiness of the teachers of the Maharaja Sayajirao University of Baroda, Vadodara in integrating e-content in their teaching. Thus, such kinds of studies can be primarily the starting point for any educational institution that aspires to implement this technology into their educational system.

An extensive review of literature of the readiness of the university teachers for the usage of e-content for their teaching was conducted. Many attempts have been made in systematic research investigations across the world to find out the e-readiness of teachers. Countries like Malaysia, Iran, Turkey, Afghanistan, Bulgaria. Nigeria, Kenya, Sudan, Vietnam, Ghana, Nairobi, China have conducted e-learning readiness surveys, assessment of e-learning readiness, analytical studies on technology integration in education by teachers, studying attitudes and perceptions of teachers in higher education towards e-learning, higher learning, adoption of learning among instructors.

However, a dearth of similar research was found in India. Very few attempts have been made in studying the readiness of teachers from Indian universities.

The review of literature in this field when persuaded did not highlight even single research. Study on the investigation over the readiness of the Maharaja Sayajirao University teachers towards usage of e-content for their teaching. Therefore, the present investigation entitled "A Study on Readiness of The Teachers of The Maharaja Sayajirao University of Baroda, Vadodara, Regarding Usage and Development of e-content for their classroom teaching", is planned. This study will be carried out to understand the various factors which may affect the teacher's readiness for the usage of e-content for their teaching. The personal factors like the age of the teacher, their areas of specializations, their computer and internet-related technical competency, their knowledge about the e-content, their interest in e-content will be studied concerning their overall readiness towards usage of the e-content for their teaching.

Further, it is also planned to study the readiness of teachers from various aspects like environment, technology, financial and content of the course. Many models have been identified to assess the e-readiness of the teachers like the Chapnick (2000) e-learning readiness model, Borotis and Poulymenakou (2004) e-learning readiness model, Psychaeis (2005) e-learning readiness model, Aydin and Tasci (2005) e-learning readiness model, etc.

All these models have highlighted the various criteria for assessing readiness. The common factors are environmental readiness financial readiness, technological readiness, and content readiness. Thus, these four aspects have been planned to incorporate in the present investigation. Thus, the findings of the study may give directions for setting implications in terms of robust actions which can be initiated at the Maharaja Sayajirao University of Baroda. The government of India, Ministry of HRD, and University Grants Commission have taken up initiatives to integrate technology into higher education. Several national and state-specific schemes have led ICT initiatives at Indian Universities. National Educational Alliance for Technology (NEAT) platform will provide extensive use of technology not only for teaching research extension but also for planning and administration of educational data at both school and higher education. The main forces of the technological interventions will be on improving the teaching-learning environment and making it efficient enough to compete with the world-clad education system.

For this, optimum utilization of technology, various pilot projects at the higher education level have been initiated to ensure the maximum advantage of ICT for quality education for all in India. Thus, the present investigation is planned in such a manner that the findings can highlight the factors responsible for the readiness of university teachers in using e-content for teaching concerning the institution's readiness, technological readiness, financial readiness, and content readiness. Thus, the results may highlight the areas in which integrated efforts have to be made to upscale the usage and development of e-content for teaching. Further, the present study will also bring to the surface the various expected challenges which teachers might face in the usage of e-content for their teaching. Also, the suggestions and recommendations will be sought by the university teachers in improving the usage and development of e-content by them for their teaching.

OBJECTIVES OF THE STUDY

1. To study the profile of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara.
2. To study the overall Readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, regarding the usage of e-content for their teaching.
3. To study the overall readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara regarding the usage of e-content for their teaching, in relation to the following variables:
    a. Age
    b. Status of Job
    c. Area of Specialization
    d. Teaching Experience
    e. Computer & Internet Usage
    f. Computer & internet related technical competency
    g. Perception towards Technology
    h. Knowledge regarding e-content
    i. interest in e-content for teaching
4. To study the variable wise significant differences in the overall readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, regarding the usage of e-content for their teaching.
5. To study the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, regarding the usage of e-content for teaching in relation to the following **aspects**:
    a. Environment aspect
    b. Financial aspect
    c. Technological aspect
    d. Course Content aspect
6. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with self, regarding** the usage of e-content for their teaching.

7. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with self,** regarding the usage of e-content for their teaching.

8. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with department,** regarding the usage of e-content for their teaching.

9. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with department**, regarding the usage of e-content for their teaching.

10. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Financial aspect** regarding the usage of e-content for their teaching.

11. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Financial aspect**, regarding the usage of e-content for their teaching.

12. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Technology aspect in relation with self,** regarding the usage of e-content for their teaching.

13. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **technology aspect in relation with self**, regarding the usage of e-content for their teaching.

14. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Technology aspect in relation with department**, regarding the usage of e-content for their teaching.

15. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **technology aspect in relation with department**, regarding the usage of e-content for their teaching.

16. To study the variable wise readiness level of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Course content aspect** regarding the usage of e-content for their teaching.

17. To study the variable wise **significant differences** in the readiness of the selected teachers from Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Course content aspect**, regarding the usage of e-content for their teaching.

18. To study the **Expected Challenges** for using e-content for teaching by the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara.

19. To seek **Suggestions** of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, for the usage of e-content for their teaching.

20. To study the Readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara regarding the development of the e-content for teaching

NULL HYPOTHESES OF THE STUDY

1. **There will be no significant differences** in the **overall readiness of the selected teachers** from the Maharaja Sayajirao University of Baroda, Vadodara, **regarding the usage of e-content for** their **teaching**.

2. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with self**, regarding the usage of e-content for their teaching.

3. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Environment aspect in relation with department**, regarding the usage of e-content for their teaching.

4. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Financial aspect**, regarding the usage of e-content for their teaching.

5. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the t**echnology aspect in relation with self**, regarding the usage of e-content for their teaching.

6. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **technology aspect in relation with department**, regarding the usage of e-content for their teaching.

7. There will be no **variable wise significant differences** in the readiness of the selected teachers from the Maharaja Sayajirao University of Baroda, Vadodara, with respect to the **Course content aspect**, regarding the usage of e-content for their teaching.

ASSUMPTIONS OF THE STUDY

1. The selected teachers from The Maharaja Sayajirao University of Baroda, Vadodara, will Opine on their readiness regarding the Usage of e-content for their teaching.

2. The readiness regarding the usage of e-content for their teaching by the selected teachers from The Maharaja Sayajirao University of Baroda, Vadodara will vary, according to the following variables:

    - Age
    - Status of Job
    - Area of Specialization
    - Teaching Experience
    - Computer & Internet Usage
    - Computer & internet related technical competency
    - Perception towards Technology
    - Knowledge regarding e-content
    - interest in e-content for teaching

DELIMITATION OF THE STUDY

1. The study will be delimited to selected Teachers from the Maharaja Sayajirao University of Baroda, Vadodara.
2. The study will be delimited to finding out the Readiness of teachers, selected from the Maharaja Sayajirao University of Baroda, Vadodara, will be in terms of Usage of e-content for teaching.

3. The study will be delimited to the following aspects in terms of studying their readiness regarding usage of e-content for teaching.

    - Environment aspect
    - Financial aspect
    - Technological aspect
    - Content aspect

OPERATIONAL DEFINATIONS

1. **e-content:** In the present study, 'e-content' refers to the content or information available over network-based electronic devices. It can be in any form like digital textbook/e-book, e-articles, e-videos, e-lectures, e-journals, e-slides. 'e-content' is interactive, customized, and allows social collaboration.
2. **Teachers' Readiness for e-content usage and development:** it refers to the mentally and physically state of teachers' readiness in which they are prepared to receive the benefits of electronic contents usage and development for classroom teaching.
3. **Environmental readiness related to self:** refers to teachers' self-motivation, willingness, interest in e-content, technology-oriented capabilities and skills, experiences of using technology, readiness to devote personal time, progressive nature to use new technology.
4. **Environmental readiness related to the department:** Having the department environment in terms of supportive, motivating culture, and productive approach of the department to adopt and use e-content, appreciation by the head for showing interest in the educational technology, preparing teachers for the usage of e-content.
5. **Financial Aspect:** Refers to the budget allocation for user-friendly and developing e-content friendly environment at both the level, i.e., Department and University.
6. **Technology readiness related to self:** refers to availability and accessibility of software, proper technological infrastructure, stable internet connection, etc.

7. **Technology readiness related to the department:** refers to Software; Hardware, upgraded hardware labs, internet connectivity, electricity, Flexibility of the system; Technical Skills, and Support staff availability in the department.
8. **Course Content Aspect:** Refers to the flexibility of content, suitability of the subject area for e-content, digital reference resources for developing and using e-content for classroom teaching.

REVIEW OF LITERATURE

The present study aimed to study the teacher's readiness for using e-content in their 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 teacher's 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. It is available on the following two categories.

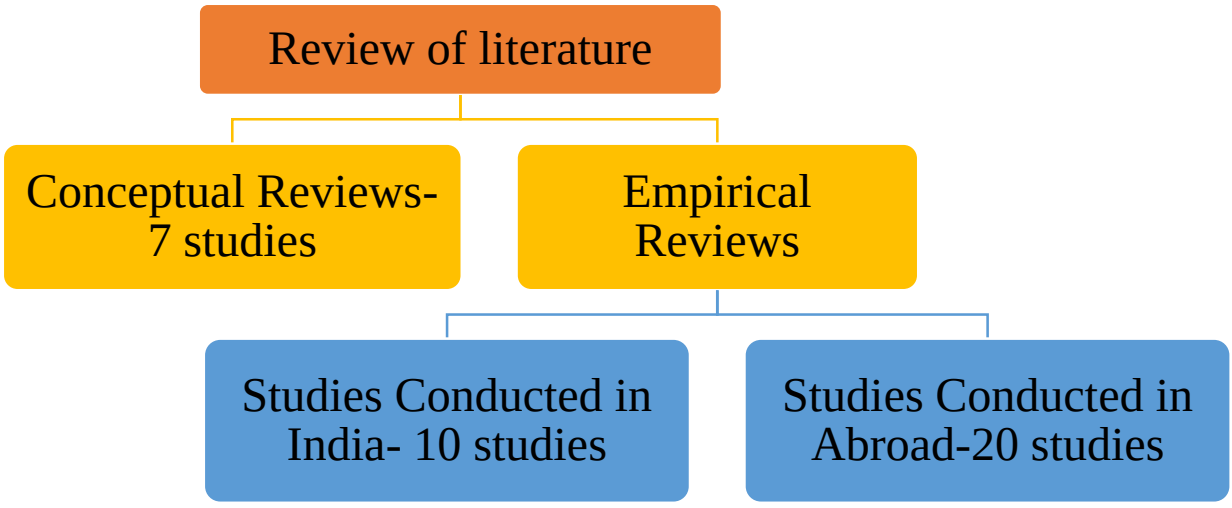


Figure:1 figure is showing the division of review of literature

The conceptual articles 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.

There are seven conceptual articles 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, 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 university teachers' 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 & purposive sampling techniques.

While reviewing the literature, the investigator found the researches mainly on e-learning Readiness assessment studies, digital curriculum implementation in colleges, teachers' perception toward educational technology, developing a framework for assessing e-learning integration, the attitude of higher education teachers towards using and developing e-content for the various course, influencing actors which are affecting e-learning readiness, prissiness to e-teaching & e-Learning but no studies were found teaching through e-content & assessment model for checking Department & Teacher's Self readiness for using e-content for classroom teaching. The majority of studies were found on e-learning and development, no study was found on the usage of e-content for teaching. Very few studies have been conducted in India related to checking the Readiness of university teachers for the usage and development of e-content for their teaching.

From the above trend analysis, it can be concluded that no study was found in India for developing assessment models for modelling 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 & usage and teacher e-content usage readiness have

been conducted aboard. Very few studies conducted to check the e-readiness of the University & college regarding environment aspect, technological aspect, financial aspect, Course-content aspects has done in Indian contact. Very few studies have done been 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 (teaching through e-content) educational technology in classroom teaching. No study was found on staff or teacher training programs 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 e-learning development. Thus, the present study will find out the readiness of teachers of The Maharaja Sayajirao University of Baroda, Vadodara, regarding the usage of e-content for their teaching.

Methodology

The present research aimed to study the readiness of teachers for using and developing e-content for their classroom teaching of The Maharaja Sayajirao University of Baroda, Vadodara. The study also focuses on the expected challenges related to the usage of e-content faced by teachers during their classroom teaching. The survey method was used for data collection for this study. The present chapter describes the steps followed in methodology to conduct the study. They are as follow:

5.3.1 Feasibility study
5.3.2 Population of the Study
5.3.3 Sample of the Study
5.3.4 Construction of Research Tool
5.3.5 Validation of Research Tool
5.3.6 Reliability of Research Tool
5.3.7 Pre-testing of the research Tool
5.3.8 Collections of the Data
5.3.9. Scoring and Categorization of Data
5.3.10 Plan for Statistical Analysis

5.3.1 *Feasibility Study*

The reason for conducting the feasibility study was to know the readiness of higher education teachers for using e-content in their classroom teaching, a pilot study was conducted in April 2017 – June 2017 at the Maharaja Sayajirao University of Baroda, Vadodara. The pilot study was carried out to investigate the level of readiness of faculty teachers for using and developing e-content for their classroom teaching. To study the readiness of teachers regarding usage and development of e-content in relation with selected aspects i.e. environment aspect, human resource aspect, Financial aspect, course content aspect. To study the expected barriers for teachers in using and developing e-content. The sample consisted of thirty teachers from different faculties of Maharaja Sayajirao University of Baroda, Vadodara. The sample of the study was selected from a discipline like Science and Technology, Humanities, social science through purposive sampling technique from the Maharaja Sayajirao University of Baroda, Vadodara. A structured questionnaire was prepared for data collection.

The finding of the feasibility study revealed that the selected teacher's purpose of using a computer for emailing, for data storage, for making PowerPoint presentations & making notes for their classroom teaching. The finding of the study also shows that the teachers were less familiar with e-content, but teachers were highly interested in teaching through e-content. The findings of the study also revealed that teachers had high readiness related to usage aspects namely environment, human resource, financial, and Course content.

Also, the result of the feasibility study found that the teachers had high readiness for the development of e-content. Teachers had a high level of readiness for the development of e-content related to all aspects namely environment, human resource, financial, and course content. The result of the study showed that the teachers were having high competency for prerequisites skills and advanced skills related to computers and the internet. The result of the feasibility study showed that teachers expected more barriers to the usage of e-content which indicated the need to undertake an in-depth research study. The results of the pilot study showed that teachers are using & developing e-content, for different reasons and facing barriers while using & developing e-content but to find out the readiness of teachers from the Maharaja Sayajirao University of Baroda, Vadodara for usage & development of e-content.

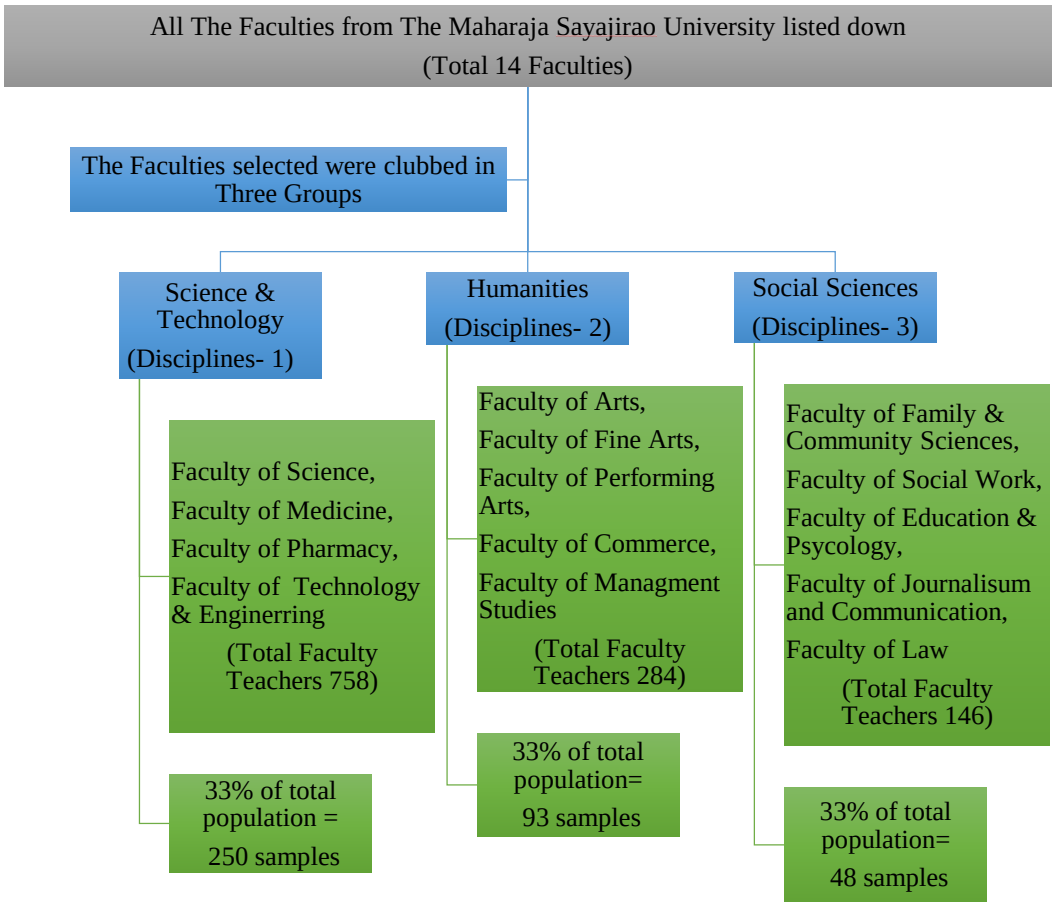
5.3.2 *Population of the study*

The study population comprised all the teachers from different faculty of the Maharaja Sayajirao University of Baroda, Vadodara city. The university has fourteen different faculties and around 1200 teachers. Information about faculty teachers was taken from the university diary in the year 2017-2018.

5.3.3 *Sample of the Study*

After deciding the population of the study, the next step was the selection of the sample. For this study, the sample was selected through the purposive convenient sampling Technique. Through the survey method, quantitative data were collected by the researcher. The university has fourteen different faculties. All the faculties from The Maharaja Sayajirao University were listed down and clubbed into three different groups.

It was decided to select nearly 1/3rd (i.e., 33% of the total population) of faculty teachers from each Discipline namely Science and Technology, Humanities, and Social Science through purposive convenient sampling Technique. Data collection was done from January 2018 to May 2018. The details about the total number of faculty teachers were collected from the University diary of 2017-2018. The details of a selected number of faculty teachers for the study from each group is as follows:



In total, three hundred and ninety-one faculty teachers were selected from three different categories, as a sample for collecting data for this study.

5.3.4 *Construction of the Research Tool*

5.3.4.1. Readiness regarding Usage of e-content:

A structured questionnaire was designed for data collection. The questionnaire consisted of nine sections in line with the specific objectives of the present research. They were related to the profile of the respondents, their computer and internet-related technical competency, Perceptions towards Technology, knowledge regarding e-content, interest in e-content for teaching, and Readiness for Usage of e-content for Teaching. The tool was constructed in the English language. Before constructing the tool, the relevant content was drawn by referring to the related literature in books, journals, and on the internet.

5.3.4.2. Readiness regarding the Development of e-content:

To study the readiness of the Maharaja Sayajirao University teachers regarding the development of the e-content, the investigator developed an in-depth interview schedule. The tool was constructed in the English language. Before constructing the tool, the relevant content was drawn by referring to the related literature in books, journals, and on the internet.

5.3.4.3 Description of the Research Tool for the readiness of the teachers regarding the usage of e-content:

To get complete data, a questionnaire was designed with nine sections. These sections were divided according to the objectives of the study. They were related to the background information of the respondents, their computer and internet usage, computer and internet related technical competency, Perception towards Technology, Knowledge regarding e-content, Interest in e-content for teaching**,** Expected Challenges, and Suggestions to improve the usage and development of e-content in classroom teaching.

Table-1 Description of the Research Tool

Section	Content	Response System
1	Background information (Designation, Gender, Age, Education Qualification, Status of Job, Area of Specialization, Teaching Experience, ICT Technology used for Teaching)	Checklist
2	Computer & Internet Usage (Frequency of using computer and internet, purpose, place of accessing)	Checklist
3	Computer & internet related Technical Competency (Prerequisite's skills, Advance skills, Online skills)	Three-Point Response System
4	Perception towards Technology	Three-Point Response System
5	Knowledge regarding e-content	Knowledge test
6	**Interest in e-content for teaching**	Three-point response system
7	Readiness of the Teachers for Usage of e-content for Teaching	Five Point Response System
8	Expected Challenges related to the usage of e-Content for Teaching	Four Point Response System
9	Suggestions	Five Point Response System

The details of the research tool are as follows:

Section 1: Background Information

Section 1 of the research tool was prepared to gather the personal and professional data related to the Teachers selected for the study. It included questions related to their,

- Designation
- Gender
- Age
- Educational qualification
- Status of Job
- Area of Specialization
- Teaching Experience
- ICT Technology used for Teaching

Section 2: Computer and Internet Usage

This section was prepared to gather information regarding the usage of Computer and internet usage by the selected teachers. The section included questions related to the following points:

- Frequency of using Computer & Internet
- Gadgets used to access the internet
- Place of accessing the Computers & Internet
- Purposes of using Computer & internet
- Devices to use the internet
- Type of Internet speed used

Section 3: Computer and Internet-related Technical Competency

Section 3 included the exhaustive list of statements related to prerequisite skills, advanced skills, and Online Skills. The tool consisted of a three-point scale with the options namely fully competent, partially competent, and not competent were mentioned. Each respondent had to choose one option for each statement mentioned. For prerequisite skills, nine statements were prepared, for advanced skills seven statements, and for Online skills, twelve statements were prepared.

Section 4: Perceptions towards Technology

This section was designed to seek information regarding one of the independent variables of the present investigation i.e., perceptions towards technology. The section included sixteen statements. Eight statements were positive and the other eight statements were negatively constructed. The respondents were provided with three options namely great extent, some extent, and less extent. They had to choose any one option against each statement and put a tick mark against it.

Section 5: Knowledge regarding e-content

This section was developed to seek the knowledge level of the selected respondents regarding e-content. Section 5 included various types of statements like, fill in the blanks, true and false statements, and choice of appropriate words.

Section 6: Interest in e-content for Teaching

This section was designed to seek the information of the interest of the respondents in e-content for teaching. The section is comprised of fifteen statements. The responses were to be sought in a three-point scale responses system, i.e., fully interested, partially interested, and not interested.

Section 7: Readiness of the Teachers for the usage of e-content for Teaching

Section 7 was the main section of the entire tool. It consisted of the statements reflecting the readiness of the University teachers on several aspects to implement classroom teaching through e-content. Different subsections were made to seek the responses of teachers, keeping in mind their readiness related to the environment, finance, technology, and content of the courses taught at university. The two aspects namely Environment and Technology were further divided into statements related to self and department separately. Ninety-nine statements were finally approved and incorporated into the tool to check the readiness level of the teachers regarding their usage of e-content for teaching. The responses were sought on a five-point scale where options were marked as strongly agree, agree, neutral, disagree, and strongly disagree.

Section 8: Expected Challenges related to usage for Teaching

This section was designed to seek the opinions of the respondents regarding the expected challenges related to the usage of e-content for teaching. Twenty statements were prepared to obtain the opinions on the mentioned subject. The response system used was a four-point scale, namely great extent, some extent, less extent, and not at all.

Section 9: Suggestion related to the Usage of e-content for Teaching

Section 9 included statements to seek the agreement of the respondents towards the suggestions enlisted regarding the e-content usage by the teachers for their teaching. The section included twenty-three statements for which the four-point response system was used as strongly agree, agree, neutral, disagree, and strongly disagree.

5.3.4.4. In-depth Interview schedule for the readiness of teachers the regarding development of e-content

The in-depth interview schedule consisted of eight questions of open-ended nature. The questions were related to Status of Usage and Development of e-content, Faculty level Planning & Implementation, Future planning for improving usage and development status of e-content in the classroom, etc.

5.3.5 *Validation of Research Tool*

To check the validity of the content of the questionnaire, a developed questionnaire was given to the experts in the related areas. The experts were requested to review and give their comments as well as critical remarks for the content, framing of questions/statements, validity according to the objectives and aspects of the study, clarity of language, and response system used in the questionnaire. The suggested change by experts was incorporated before the tool was finalized. The Experts approached were from the following faculties:

- Professor, Department of Extension and Communication, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara
- Associate Professor, Department of Extension and Communication, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara
- Professor, Department of Education, Faculty of Education and Psychology, The Maharaja Sayajirao University of Baroda, Vadodara

- Professors, from the Institute of Extension Education, Anand Agriculture University, Anand, Gujarat
- Associate Professor, lady Irwin College, Delhi.

5.3.6 *Reliability of Research Tool*

After validation of the tool, the next step was to check the reliability of the research tool. The Test-retest method was used to measure the reliability of the tools. The coefficient of correlation was calculated between two sets of scores. The tool was administered to twenty selected teachers from different faculties of The Maharaja Sayajirao University of Baroda, Vadodara. After a gap of a few days, the tool was re-administered to the same group of teachers. A high correlation (0.82) was found between the two sets of scores revealing the high reliability of the tools.

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

Where r = Coefficient of correlation

X= Score of the First test

Y= Score of the Second test

5.3.7 *Pre-Testing of The Research Tool*

After checking reliability, pre-testing of the tool was done. The tool was pretested on ten teachers of different faculties of The Maharaja Sayajirao University of Baroda, Vadodara. The purpose of the pre-testing was to know the difficulty faced by the teachers in filling the questionnaire, the time required for filling up the questionnaire, and to check the clarity of the language. The teachers did not report any major difficulty in responding to the questionnaire.

5.3.8 *Collections of the Data*

To study the readiness of selected teachers regarding the usage of e-content for their classroom teaching, the researcher collected data from selected teachers from different faculties of the Maharaja Sayajirao University of Baroda, Vadodara from January 2018 to May 2018. All the selected faculties were covered by the researcher for data collection. Before starting data collection in different departments of faculties, the researcher had personally taken permission from the head of the departments for data-collection and took permissions and prior appointments from the selected teachers. The questionnaire was distributed to selected faculty teachers, and they were requested to fill out the questionnaire. The respondents returned the questionnaire within nine to ten days, but the majority of the time researcher had to remind respondents to return the filled questionnaire on time. The heads of the selected department of faculties were contacted and the purpose of the study was explained at first. The teachers were also contacted other than classrooms like common gathering places. In some faculties, Teacher Supervisors also helped researcher for gathering teachers for data collection.

Nearly five hundred and fifty forms were distributed amongst the faculty members for the data collection. Out of which three hundred and six questionnaires were received back out of which six questionnaires were unfilled and incomplete, so three hundred questionnaires were selected for final data analysis.

The reasons for receiving a smaller number of questionnaires, despite distributing more than five hundred questionnaires were that some of the faculties, teachers were unaware of e-content, so they were not ready to fill out a questionnaire. The researcher faced the following difficulties in data collection

- The busy schedule of the faculty teachers is due to their job duties.
- Unavailability of the faculty teachers in the department despite the frequent visits at a different time of the day by the researcher.
- Teachers were not satisfied with the length of the tool, so they did not fill questionnaire properly.
- The unwillingness of the respondents to fill out the questionnaire.
- Some of the faculty members lost the questionnaire and never returned.

- In many of the faculties, teachers misplaced questionnaires and asked the researcher for another questionnaire.
- Fixing up the schedule with the teachers for data collection in the various faculties was difficult.
- Faculty teachers needed repeated reminders to fill up and return questionnaires on time.

5.3.8.1 Collection of data for the readiness of teachers for the development of e-content

For the in-depth Interview schedule researcher approached the head of the departments and senior teachers of the department and selected them through the purposive sampling technique. The researcher had collected the data from fifteen teachers, their status of usage and development of e-content, planning and implementation strategies for usage and development of e-content, the hindrances in acquiring the e-content related infrastructure in their department, steps in motivating the teachers for using and development of e-content, efforts made by the department for preparing teachers for content digitalization and future plans for the development of e-content.

5.3.8.1.1. Interpretation of the data

In relation to the in-depth interviews schedule step, the researcher prepared transcripts from running notes. Verbatims were written of the responses given by the responses based on questions asked. Further, the responses were reported in finding, in the boxes, containing verbatims, according to the subline derived.

5.3.9 *Scoring and Categorization of Data*

The categorizations of independent and dependent variables of the study were done as follows:

5.3.9.1 Scoring and Categorization of variables

Table: 2 Categorization of the Independent Variable of the Study

Variables	Basis	Category
Age	Below mean	Young
	Mean and above	Old
Status of Job	Permanent	Permanent
	Temporary	Temporary
Area of Specialization	Faculty of Science,	Science & technology
	Faculty of Medicine,	
	Faculty of Pharmacy	
	Faculty of Technology & Engineering	
	Faculty of Arts,	Humanities
	Faculty of Fine Arts,	
	Faculty of Performing Arts,	
	Faculty of Commerce,	
	Faculty of Management Studies	
	faculty of family and community sciences	Social Sciences
	Faculty of Social Work,	
	Faculty of Education & Psychology,	
	Faculty of Journalism and Communication,	
	Faculty of Law	
Teaching Experience	Below mean	Less teaching
	Mean and above mean	More teaching
Computer & Internet Usage	Below mean	Low usage
	Mean and above mean	High usage
Computer & Internet related Technical Competency	Below mean	Low competency
	Mean and above mean	High competency
Perceptions towards Technology	Below mean	Unfavourable Perceptions
	Mean and above mean	Favourable Perceptions
Knowledge regarding e-content	Below mean	Low knowledge
	Mean and above mean	High knowledge
Interest in e-content for Teaching	Below mean	Less interested
	Mean and above mean	More interested

Table: 3 Categorization of other Background Information of the Respondents

Variables	Basis	Category
Designation	Professor / Associate professor	Professor / Associate professor
	Assistant professor	Assistant professor
	Temporary Assistant Professor /Temporary Teaching Assistant	Temporary Assistant Professor /Temporary Teaching Assistant
Gender	-	Female
	-	Male
Educational qualification	Post-Graduation	Post-Graduation
	M.Phil.	M.Phil.
	Ph.D.	Ph. D.
ICT Use	-	Computer
		Printer
		LCD projector
		Internet/ Wi-Fi connections
		Mobile
		Video-audio sharing through applications
		Video conferencing

5.3.9.2 Scoring and Categorization of the Dependent Variables

Table: 4 Aspect wise minimum and maximum total obtainable score:

Aspects		Number of statements	Maximum obtainable scores	Minimum obtainable scores
Environment Aspect	Related to Self	44	220	44
	Related to Department	15	75	15
Financial Aspect	-	9	45	9
Technological Aspect	Related to Self	7	35	7
	Related to Department	16	80	16
Course Content Aspect	-	8	40	8
Overall readiness level		99	495	99

Table: 5 Categorization of Overall Readiness level of Teachers regarding Usage of e-content for teaching

	Basis	Categories
overall readiness level of teachers regarding usage of e-content for teaching	below mean	Less readiness
	Mean and above mean	High readiness

Table: 6 Categorization of Aspect wise Readiness level of Teachers regarding Usage of e-content for their Teaching

Aspects		Basis	Categories
Environment Aspect	Related to self	Below mean	Less readiness
		Mean and above mean	High readiness
	Related to department	Below mean	Less readiness
		Mean and above mean	High readiness
Financial Aspect	-	Below mean	Less readiness
		Mean and above mean	High readiness
Technological Aspect	Related to self	Below mean	Less readiness
		Mean and above mean	High readiness
	Related to department	Below mean	Less readiness
		Mean and above mean	High readiness
Course content Aspect	-	Below mean	Less readiness
		Mean and above mean	High readiness

5.3.9.3 Scoring and Categorization of the Independent Variable

5.3.9.3.1. Computer & Internet Usage

The computer & internet usage was calculated by Frequency of using computer & internet, Different Gadgets used, and gadgets used for accessing the internet, Sources of accessing the internet, Purposes of using computer and internet, Type of internet connection and internet speed use.

Table: 7 The Possible Scores for Statements on Computer & Internet Usages

Sr.	No. of items	Minimum score	Maximum score
1	How frequently do you use the computer	1	5
2	Which of the following gadgets do you own	1	5
3	From where you access the computer	1	10
4	For what purposes do you use computer	1	5
5	Through which device do you use the internet	1	5
6	From where you access the internet	1	4
7	How frequently do you use the internet	1	5
8	Which type of primary internet connection do you	1	3
9	Which type of internet speed do you use	1	5
Total		9	47

Table: 8 Categorization of the Score for Computer & Internet Usage

Variable	Basis	Categories
Computer & Internet Usage	Below mean	Low usage
	Mean and above mean	High usage

5.3.9.3.2 Computer & Internet related Technical Competency

Table: 9 Scoring Pattern according to the scale measuring for Computer & Internet related Technical Competency

Description of variable	Number of statements	Fully competent	Partially competent	Less competent
Prerequisite's skills	9	3	2	1
Advance skills	7	3	2	1
Online skills	12	3	2	1

Table: 10 The possible scores for statements on Computer & Internet related Technical Competency

Computer & Internet Related Technical Competency	Number of statements	Minimum obtainable scores	Maximum obtainable scores
Prerequisite's skills	9	9	27
Advance skills	7	7	21
Online skills	12	12	36
Total	28	28	84

Table: 11 Categorization of the score for Computer & Internet related Technical Competency

Variable	Basis	Categories
computer & internet related technical competency	Below mean	Low competency
	Mean and above mean	high competency

5.3.9.3.3 Perceptions towards Technology

The statement on perception towards technology was scored as given below:

Table: 12 Scoring Pattern according to the scale measuring for Perceptions towards Technology

Response	The Score for Positive Item	The Score for Negative Item
Great extent	3	1
Some extent	2	2
Less extent	1	3

Based on scoring, the minimum and maximum values of the score were calculated as follows:

Table: 13 The possible scores for statements on Perceptions towards Technology

Nature of statement	Number of statements	Minimum obtainable scores	Maximum obtainable scores
Positive	9	9	27
Negative	7	7	21
Overall perception towards technology	16	16	48

Table: 14 Categorization of the score for Perceptions towards Technology

After this, two categories of perception towards technology were formed based on the minimum and maximum scores.

Variable	Basis	Categories
Perceptions towards Technology	Below mean	Unfavourable Perception
	Mean and above mean	Favourable Perception

5.3.9.3.4 Knowledge regarding e-content

Table: 15 Scoring Pattern according to the scale measuring for Knowledge regarding e-content

Response	Score
Correct answer	1
No answer/ incorrect answer	0

	Number of statements	Minimum obtainable scores	Maximum obtainable scores
Knowledge regarding e-content	20	0	20

Table: 16 The possible scores for statements on Knowledge regarding e-content

Table: 17 Categorization of the score for Knowledge regarding e-content

Variable	Basis	Categories
Knowledge regarding e-content	Mean & above mean	High knowledge
	Below mean	Low knowledge

5.3.9.3.5 Interest in e-content for Teaching

Table: 18 Scoring Pattern according to the scale measuring for Interest in e-content for Teaching

Variable	Fully interested	Partially interested	Less interested
Interest in e-content for Teaching	3	2	1

Table: 19 The possible scores for statements on of Interests in e-content for Teaching

	Number of statements	Minimum obtainable scores	Maximum obtainable scores
Interest in e-content for Teaching	15	15	45

Table: 20 Categorization of the score for Interest in e-content for Teaching

Variable	Basis	Categories
Interest in e-content for Teaching	Below mean	Less Interested
	Mean and above mean	More Interested

5.3.9.4 Scoring and categorization of Expected Challenges related to Usage of e-content for Teaching

To measure the extent of challenges related to the usage of e-content for teaching faced by teachers, a four-point rating scale was prepared which included twenty statements. The maximum obtainable score was eighty and the minimum obtainable score was twenty. The scoring of the statements in the scale was done as follows:

Table: 21 The possible scores for statements on Expected Challenges related to the Usage of e-content for Teaching

Expected challenges related to the usage of e-content for teaching	**Number of statements**	**Minimum obtainable scores**	**Maximum obtainable scores**
	20	20	80

Table: 22 The range of intensity indices for Expected Challenges related to the Usage of e-content for Teaching

The extent of Expected Challenges	**Score**	**Range of Intensity Indices**
Great extent	4	3.25 – 4.00
Some extent	3	2.50 – 3.25
Less extent	2	1.75 – 2.50
Not at all	1	0.75- 1.75

5.3.9.5 Scoring and Categorization of Suggestions related to Usage of e-content for Teaching

To measure the suggestions related to the usage of e-content for teaching given by teachers a five-point rating scale was prepared which includes twenty-three statements. The maximum obtainable score was one hundred and fifteen and the minimum obtainable score was twenty-three. The scoring of the statements in the scale was done as follows:

Table: 23 The possible scores for statements on Suggestions related to Usage of e-content for Teaching

Suggestions related to the usage of e-content for teaching	**Number of statements**	**Minimum obtainable scores**	**Maximum obtainable scores**
	23	23	115

Table: 24 The range of intensity indices for the Suggestions related to Usage of e-content for Teaching

Extent of Suggestions	Score	Range of Intensity Indices
Strongly agree	5	4.2 – 5.0
Agree	4	3.4 – 4.2
Neutral	3	2.6 – 3.4
Disagree	2	1.8 – 2.6
Strongly disagree	1	0.8 – 1.8

5.3.10 *Plan for Statistical Analysis*

The statistical measures were used for the analysis of collected data. The data were coded in Microsoft Excel worksheets and analysed in SPSS package software. The statistical measures used were as follows:

Table 25: Plan for statistical analysis

Content	Statistical Measures
Background information of the respondent	Percentages
Computer & Internet Usage	Percentages
Computer & Internet related Technical competency	Percentages
Perception towards Technology	Percentages
Knowledge regarding e-content	Percentages
Interest in e-content for Teaching	Percentages
Readiness of the teachers for Usage of e-content for Teaching	Mean score, T-Test, ANOVA (f-test), Tukey's HSD
Expected Challenges related to the usage of e-Content for Teaching	Intensity indices
Suggestions	Intensity indices

MAJOR FINDINGS OF THE STUDY

4.1 Background Information of the Teachers

4.1.1 Profile of the teachers

- Little more than fifty percent (55%) of the teachers were young in age whereas a little less than fifty percent of the teachers (45%) were old in age.
- A little more than forty percent (41.3%) of the teachers had a permanent job whereas a little less than sixty percent (58.7%) of the teachers had a temporary job.
- A little less than (36.0%) of the teachers were from the discipline of Humanities whereas (33.7%) of the teachers were from the discipline of science and technology and (30.3%) were from the discipline of Social Science.
- A little less than sixty percent (59%) of the teachers were having less teaching experience whereas a little more than forty percent (41%) were having more experience in teaching.

4.1.2 Computer and Internet usage of the Teachers: A majority of the respondents (60%) had low computer and internet usage whereas forty percent of the respondents had a high computer and internet usage.

4.1.3 Computer and internet related Technical Competencies of the teachers: Little less than sixty percent of the selected teachers (57.7%) had high technical competency in relation to Computer and Internet whereas a little more than forty percent (42.3%) of the selected teachers had low technical competency in relation with Computer and Internet.

4.1.4 Perceptions of the Teachers towards technology: More than fifty (55.3%) of the selected teachers had unfavourable perceptions towards technology whereas little more than forty percent (44.7%) of the teachers had favourable perceptions towards technology.

4.1.5 Knowledge of the Teachers regarding e-content: The majority of the selected teachers (65.7%) had high knowledge regarding e-content whereas a little more than thirty percent (34.3%) of the selected teachers had low knowledge regarding e-content.

4.1.6 Interest of the Teachers in e-content for teaching: Little less than a majority of the selected teachers (49.7%) had more interest in e-content for teaching whereas less percentage of the teachers had (50.3%) of the teachers had less interest in e-content for teaching.

4.2 Other Background Information of the Teachers:

- The table reveals that half of the selected teachers were either Temporary Teaching Assistants or Temporary Assistant Professors whereas less than half of the teachers i.e. (44.7%) were assistant professors and a very less percent of the teachers was either Professors or Associate Professors.
- A little more than half of the teachers i.e., (53.7%) were females whereas a little less than fifty percent i.e. (46.3%) of the selected teachers were males.
- A majority of the selected teachers i.e., (58%) were Postgraduates whereas a little less than forty percent i.e., (38%) of the selected teachers were having a Ph.D.
- The teachers when inquired about their usage of ICT use, it was revealed that a very high majority of the teachers were using Computers (87.2%), Printer (81.4%), LCD Projector (89.9%), Internet/ Wi-Fi connection (85.1%) and Mobile (81.8%) whereas a very less percent of the teachers was using Video Conferencing (8.4%) and Interactive boards (10.5%).

4.*3 Readiness of the teachers regarding the usage of e-content for teaching*

4.3.1 Overall Readiness of the teachers regarding the usage of e-content for teaching

- More than half of the teachers (52%) had less readiness regarding usage of e-content whereas a little less than fifty percent (48%) of the teachers had more readiness regarding usage of e-content for teaching.

4.3.1.1 Variable wise Overall Readiness of the teachers regarding the usage of e-content for teaching

- Almost half percent (50.3%) of the young teachers had more readiness for using e-content whereas little more than half of the old teachers (54.1%) had less readiness for using e-content.
- A little more than fifty percent (51.6%) of the selected permanent teachers had more readiness for using e-content whereas almost fifty-five percent of the selected temporary teachers (54.5%) had less readiness for using e-content.
- A little more than sixty percent (63.9%) of the selected teachers from the discipline of Humanities had less readiness regarding usage of e-content whereas a majority

percent (69.2%) of the teachers from the discipline of social sciences had more readiness regarding usage of e-content. A little more than forty percent (41.6%) of the selected teachers from the discipline of Sciences and Technology had more readiness regarding the usage of e-content.

- The teachers with less and more teaching experience showed an almost similar trend in their readiness in using e-content whereas overall, the teachers with more teaching experience showed comparatively less readiness in the usage of e-content.
- The teachers who used less of computers & internet showed less readiness for using e-content in teaching whereas a little more than fifty percent (53.3%) of the selected teachers who used more of computers and internet showed more readiness towards usage of e-content in teaching.
- The selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content i.e., (67.7%) whereas little less than a majority (59.5%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in teaching.
- Little less than fifty (48.8%) of the selected teachers who had unfavourable perceptions towards technology showed more readiness towards usage of e-content for teaching whereas more than half (53%) of the selected teachers who had favourable perceptions towards technology had less readiness towards usage of e-content for teaching.
- Almost (50.3%) of the teachers who had high knowledge regarding e-content had more readiness towards usage of e-content for their teaching whereas (56.3%) of the teachers with low knowledge regarding e-content had less readiness towards usage of e-content for their teaching.
- A majority of teachers (64.9%) who had less interest in e-content for teaching had less readiness towards usage of e-content for teaching whereas a high percentage of teachers with more interest in e-content for teaching i.e. (61.1%) had more readiness towards usage of e-content for teaching.

4.3.1.2 Variable wise differences in the Overall Readiness of the teachers regarding the usage of e-content for teaching

- The Overall Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly according to the selected following variables: Age, Status of Job, Teaching Experience, Perception towards technology.

- The Overall Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly according to the selected following variables: Computer and Internet usage, Computer and internet related technical competencies, Knowledge regarding e-content, Interest in e-content for teaching

- Significant Differences were found in the overall readiness of the teachers regarding the use of e-content for their teaching according to their areas of specializations.
- The teachers belonging to the Social Sciences category (383) had highly significant mean differences than their counterparts from Science & Technology (359, p=.119) and Humanities (352, p=.000). It means that the teachers from the Social Sciences background had overall readiness towards the use of e-content for their teaching.
- However, no overall significant differences were found amongst teachers from Science & Technology and Humanities, regarding the use of the e-content for their teaching.

4.3.2 *Aspect wise Readiness of the teachers regarding the usage of e-content for teaching*

- Almost equal percentage of the selected teachers had less and more readiness for the usage of e-content for their teaching with respect to environment aspect.
- Almost majority i.e. (57.7%) of the selected teachers had more readiness for the usage of e-content for their teaching with respect to the financial aspect.
- However little more than fifty percent of the selected teachers (53.7%) had less readiness for the usage of e-content for their teaching, with respect to technology aspect.
- Almost equal percentage of the teachers had more & less readiness for the usage of e-content for their teaching with respect to course content aspect.
- Under Environment Aspect, in relation to self, half of the teachers i.e., (50.3%) had high readiness regarding usage of e-content for teaching whereas, in relation with the

Department, a little less than half i.e. (47.3%) of the teachers had less readiness regarding usage of e-content.

- Under Technology Aspect, in relation to self it was observed that more than half of the teachers i.e. (56.0%) had more readiness regarding usage of e-content for teaching whereas, in relation with the Department, it was observed that a little more than half i.e. (55.7%) of the teachers had less readiness regarding usage of e-content.

4.3.2.1 *Readiness of the teachers regarding the usage of e-content for teaching in relation to Environmental Aspect*

4.3.2.1.1 Variable wise Readiness of the teachers regarding the usage of e-content for teaching in relation to "self" with reference to the Environmental aspect

- More than fifty percent (55.2%) of the young teachers had high readiness for using e-content whereas more than half of the old teachers (55.6%) had less readiness for using e-content in relation to self with reference to Environment aspect.
- A little more than fifty percent (50.8%) of the selected permanent teachers had high readiness for using e-content whereas half of the selected temporary teachers (50%) had less readiness for using e-content in relation with Self under the environment aspect.
- Almost a similar percentage of the teachers both from Science and Technology (59.4%) and Humanities (58.3%) had a less readiness for the usage of e-content in teaching whereas seventy-one percent (71.4%) of the teachers from the area of Social Science had more readiness for the usage of e-content for teaching.
- The teachers with less teaching experience showed more readiness (52%) in their readiness in using the e-content in relation with "Self" under the environment aspect whereas it was observed that the teachers with more teaching experience had less readiness (52%) in their readiness in using the e-content in relation with "Self" under the Environment aspect.
- The teachers who used less of computers & internet showed more readiness (51.7%) for using e-content in teaching in relation with "Self" under the environment aspect whereas a little more i.e. (51.7%) of the selected teachers who used more of computers and internet showed less readiness towards usage of e-content in teaching in relation with "Self" under the Environment aspect.

- The selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content i.e., (63.8%) whereas a little majority (60.7%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in teaching in relation with "Self" under the environment aspect.
- Little more than fifty percent (51.2%) of the selected teachers who had unfavourable perceptions towards technology showed more readiness towards usage of e-content for teaching whereas a little more than half (50.7%) of the selected teachers who had favourable perceptions towards technology had less readiness towards usage of e-content for teaching in relation with "Self" under the environment aspect
- The teachers with low knowledge regarding e-content had less readiness (60.2%) in relation to "Self" under the environment aspect regarding their readiness in the usage of e-content for teaching whereas more than fifty percent of the teachers with high knowledge regarding e-content (55.8%) had more readiness.
- A majority of teachers (62.4%) who had more interest in e-content for teaching had more readiness towards usage of e-content for teaching in relation with "Self" under the environment aspect, similarly, majority percentage i.e.(61.6%) of teachers with low interest in e-content for teaching had less readiness towards usage of e-content for teaching.

4.3.2.1.2 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching in relation to "self" with reference to the Environmental aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to "Self" under the Environment Aspect according to the selected following variables: Age, Status of Job, Teaching Experience, Computer, and Internet usage, Perception towards technology.
- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to "Self" under the Environment Aspect according to the selected following variables: Computer and internet related technical competencies, Knowledge regarding e-content, Interest in e-content for teaching.

- There were significant differences in the readiness of the teachers regarding the use of e-content for their teaching in relation to the self with reference to the Environment with respect to their Area of Specialization.
- The teachers belonging to the social sciences category had (172.41) significant mean differences than their counterparts from science and technology (160.31, p=0.001) and Humanities (158.01, p=0.00). It means that the self-environment aspect of the teachers belonging to the social sciences area does have an influence on their readiness to use the content for the teaching. However, no significant differences were found among the readiness of teachers from science and technology and humanities backgrounds regarding the use of e-content for the teaching with respect to the self-environment.

4.3.2.1.3 Variable wise Readiness of the teachers regarding the usage of e-content for teaching in relation to the "department" with reference to the Environmental aspect

- Little less than sixty percent (57%) of the young teachers had high readiness for using e-content whereas little more than half of the older teachers (52.6%) had less readiness for using e-content in relation to "Department" with reference to Environment aspect.
- A little more than fifty percent (54%) of the selected permanent teachers had more readiness for using e-content whereas (51.7%) of the selected temporary teachers had more readiness for using e-content in relation with the Department under the environment aspect.
- A half percentage of the teachers from Science and Technology (50.5%) had a more level of readiness for the usage of e-content in teaching and Humanities (56.5%) had a less readiness for the usage of e-content in teaching whereas little more than thirty percent of the teachers (34.1%) of the teachers from the area of Social Science had Less level of readiness for the usage of e-content for teaching in relation with "Department" with reference to the Environment Aspect.
- The teachers with less teaching experience showed more readiness (54.4%) in their readiness in using the e-content in relation with "Department" under the environment aspect whereas it was observed that the teachers with more teaching experience had

less readiness (51.2%) in their readiness in using the e-content in relation with "Department" under the Environment aspect.

- More than half of the teachers (55%) with less usage of computers and internet had less readiness towards using e-content for teaching whereas teachers with high computer and internet usage had more readiness (64.2%) for using e-content for teaching.
- Majority of the selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content (66.9%) whereas little less than seventy (67.1%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in teaching in relation with "Department" with reference to the environment aspect.
- Little less than a majority (55.4%) of the selected teachers who had unfavourable perceptions towards technology showed more readiness towards usage of e-content for teaching whereas half (50.7%) of the selected teachers who had favourable perceptions towards technology had less readiness towards usage of e-content for teaching in relation with "Department" under the environment aspect.
- Teachers with Low knowledge regarding e-content had more readiness (54.4%) in relation with "Department" with reference to the environment aspect regarding their readiness in the usage of e-content for teaching whereas the majority of the teachers with high knowledge regarding e-content (48.2%) had less readiness.
- A majority of teachers (67.1%) who had more interest in e-content for teaching had more readiness towards usage of e-content for teaching in relation to "Department" under the environment aspect whereas the majority of percentage i.e., (61.6%) of teachers with less interest in e-content for teaching had less readiness towards usage of e-content for teaching.

4.3.2.1.4 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching in relation to "Department" with reference to the Environmental aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to "Department" under the Environment Aspect

according to the selected following variables: Age, Status of Job, Teaching Experience, Perception towards technology, Knowledge regarding e-content.

- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to "Department" under the Environment Aspect according to the selected following variables: Computer and Internet usage, Computer and internet-related technical competencies, Interest in e-content for teaching.

- There were significant differences in the readiness of the teachers regarding the use of e-content for their teaching in relation to the Department with reference to the Environment with respect to their Area of Specialization.
- The teachers who belonged to the social science category (58.01) had highly significant mean differences than their counterparts from humanities backgrounds (50.99, p=.000).
- It means that Department with reference to the Environmental aspect does have an influence on the readiness of teachers for the use of e-content for teaching who belonged to the social science category. No significant differences were observed among the readiness of the teachers who belonged to science and technology and humanities background and between science and technology and social sciences regarding the usage of e-content for the teaching with respect to the department with reference to Environmental aspect.

4.3.2.2 *Readiness of the teachers regarding the usage of e-content for teaching in relation to Financial Aspect*

4.3.2.2.1 Variable wise Readiness of the teachers regarding the usage of e-content for teaching with reference to the Financial aspect

- Little less than a majority (59.4%) of the young teachers had more readiness for using e-content whereas little less than half of the older teachers i.e. (44. 4%) had less readiness for using e-content in relation to the financial aspect.
- A little less than a majority (58.1%) of the selected permanent teachers had more readiness for using e-content whereas little more than forty percent of the selected temporary teachers i.e. (42.6%) had less readiness for using e-content in relation to the Financial aspect.

- Almost a similar percentage of the teachers both from Science and Technology (56.4%) and Humanities (56.5%) had a contrasting level of readiness Science and Technology teacher's readiness had more and humanities teachers had less level of readiness for the usage of e-content in teaching whereas very less percentage of teachers i.e. (24.2%) from the area of Social Science had less readiness for the usage of e-content for teaching under the Financial Aspect.
- The teachers with less teaching experience showed more readiness (58.2%) for using the e-content under the financial aspect whereas it was observed that the teachers with more teaching experience had less readiness (43.1%) in their readiness in using the e-content under the Financial aspect.
- Little less than the majority of the teachers who used less of computers & internet showed more readiness (59.4%) for using e-content in the teaching under the financial aspect whereas a more than forty i.e. (45%) of the selected teachers who used more of computers and internet showed less readiness towards usage of e-content in the teaching under the Financial aspect.
- Little more than half of the selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content (52.8%) whereas a majority (65.3%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in the teaching under the Financial aspect.
- Little less than a majority (57.8%) of the selected teachers who had unfavourable perceptions towards technology showed more readiness towards usage of e-content for teaching whereas a little more than forty (42.5%) of the selected teachers who had favourable perceptions towards technology had less readiness towards usage of e-content for teaching under the Financial aspect.
- The teachers with low knowledge regarding e-content had less readiness (53.4%) under the Financial aspect regarding their readiness in the usage of e-content for teaching whereas the majority of the teachers with high knowledge regarding e-content (63.5%) had more readiness.
- A majority of teachers (69.8%) who had more interest in e-content for teaching had more readiness towards usage of e-content for teaching under the Financial aspect whereas little more than the half-percentage (54.3%) of teachers with less interest in e-content for teaching had less readiness towards usage of e-content for teaching.

4.3.2.2.2 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching with reference to the Financial aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to the Financial Aspect according to the selected following variables: Age, Status of Job, Teaching Experience, Computer, and Internet usage, Perception towards technology

- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to the Financial Aspect according to the selected following variables: Computer and internet related technical competencies, Knowledge regarding e-content, interest in e-content for teaching
- The teachers belonging to the social science background (35.51) had highly significant mean differences than their counterparts from science and technology (32.25, p=.000) and teachers from humanities (31.59, p=.000).
- It means that the financial aspect does have an influence on the readiness of the teachers in the usage of e-content for the teaching who belonged to social science background.
- However, no significant differences were found amongst the readiness of the teachers with respect to their financial aspect for the usage of e-content for teaching for the teachers who were from science and technology and humanities background.

4.3.2.3 ***Readiness of the teachers regarding the usage of e-content for teaching in relation to Technology Aspect***

4.3.2.3.1 Variable wise Readiness of the teachers regarding the usage of e-content for teaching in relation to "self" with reference to the Technology aspect

- Little less than a majority (56.4%) of the young teachers had more readiness for using e-content whereas (44.4%) of the older teachers had less readiness for using e-content in relation to self in Technology aspect.
- More than fifty percent (57.3%) of the selected permanent teachers had more readiness for using e-content whereas little more than forty percent of the selected temporary teachers (44.9%) had less readiness for using e-content in relation with Self under the Technology aspect.

- Almost a similar percentage of the teachers both from Science and Technology (42.6%) and Humanities (50.9%) had less readiness for the usage of e-content in teaching whereas as high as sixty percent (62.6%) of the teachers from the area of Social Science had more readiness for the usage of e-content for teaching in relation with self under technology aspect.
- The teachers with less teaching experience showed more readiness (57.1%) in their readiness in using the e-content in relation with "Self" under the Technology aspect whereas it was observed that the teachers with more teaching experience had less readiness (45.5%) in their readiness in using the e-content in relation with "Self" under the Technology aspect.
- The teachers who used less of computers & internet showed more readiness (52.2%) for using e-content in teaching in relation with "Self" under the Technology aspect whereas a little less than forty percent (38.3%) of the selected teachers who used more of computers and internet showed less readiness towards usage of e-content in teaching in relation with "Self" under the Technology aspect.
- The selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content (59.8%) whereas a majority (67.4%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in teaching in relation with "Self" under the Technology aspect.
- Little more than half (50.6%) of the selected teachers who had unfavourable perceptions towards technology showed less readiness towards usage of e-content for teaching whereas a little more than sixty (64.2%) of the selected teachers who had favourable perceptions towards technology had more readiness towards usage of e-content for teaching in relation with "Self" under the Technological aspect
- The teachers with low knowledge regarding e-content had less readiness (50.5%) in relation with "Self" under the Technology aspect regarding their readiness in the usage of e-content for teaching whereas little less than the majority of the teachers with high knowledge regarding e-content (59.4%) had more readiness.
- A little less than the majority of teachers (58.9%) who had less interest in e-content for teaching had less readiness towards usage of e-content for teaching in relation with "Self" under the Technology aspect as well as very less i.e., (28.9%)of teachers with more interest in e-content for teaching had less readiness towards usage of e-content for teaching.

4.3.2.3.2 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching in relation to "self" with reference to the Technology aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to "Self" under the Technology Aspect according to the selected following variables: Age, Status of Job, Teaching Experience, Knowledge regarding e-content.
- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to "Self" under the Technology Aspect according to the selected following variables: Computer and Internet usage, Computer and internet related technical competencies, Perception towards technology, interest in e-content for teaching
- The teachers who belong to science and technology (27.98) had highly significant mean differences than their counterparts from humanities. (26.50, p=.015). It means that the self-aspect of technology does have an influence on the readiness of teachers for the use of e-content for teaching who belonged to the science and technology category.
- However, no significant differences were observed among the readiness of the teachers who belonged to science and technology and social sciences and also amongst the teachers from science and humanities regarding the use of e-content for the teaching with respect to the self-technology aspect and social sciences and amongst the teachers from science and humanities regarding the use of e-content for the teaching with respect to the self-technology aspect.

4.3.2.3.3 Variable wise Readiness of the teachers regarding the usage of e-content for teaching in relation to the "department" with reference to the Technology aspect

- Little less than fifty-five percent (53.9%) of the young teachers had less readiness for using e-content whereas less than half of the old teachers (42.2%) had more readiness for using e-content in relation to "Department" in Technological aspect.
- More than forty percent (46.8%) of the selected permanent teachers had more readiness for using e-content whereas almost majority of the selected temporary teachers (57.4%) had less readiness for using e-content in relation with Department under the Technology aspect.

- Almost a similar percentage of the teachers both from Science and Technology (40.6%) and Humanities (31.5%) had more level of readiness for the usage of e-content in teaching whereas little less than forty percent of the teachers (36.3%) of the teachers from the area of Social Science had Less level of readiness for the usage of e-content for teaching in relation with "Department" under the Technology Aspect.
- The teachers with less teaching experience showed less readiness (56.5%) in their readiness in using the e-content in relation with "Department" under the Technology aspect whereas it was observed that the teachers with more teaching experience had more readiness (45.5%) in their readiness in using the e-content in relation with "Department" under the Technology aspect.
- Little less than the majority of the teachers who used less of computers & internet showed less readiness (57.8%) for using e-content in teaching in relation with "Department" under the Technology aspect whereas (47.5%) of the selected teachers who used more of computer & internet showed more readiness towards usage of e-content in teaching in relation with "Department" under the Technology aspect.
- More than majority i.e., (66.9%) of the selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content whereas little more than half (52.6%) of the selected teachers with high technical competency in relation with computers and internet had more readiness regarding usage of e-content in teaching in relation with "Department" under the Technology aspect.
- Little more than half (53%) of the selected teachers who had unfavourable perceptions towards technology showed less readiness towards usage of e-content for teaching whereas a little more than forty percent (41%) of the selected teachers who had favourable perceptions towards technology had more readiness towards usage of e-content for teaching in relation with "Department" under the Technology aspect.
- Majority of the teachers with low knowledge regarding e-content had less readiness (60.2%) in relation with "Department" under the Technology aspect regarding their readiness in the usage of e-content for teaching whereas little less than half of the teachers with high knowledge regarding e-content i.e. (46.7%) had more readiness.
- Most teachers (63.6%) who had less interest in e-content for teaching had less readiness towards usage of e-content for teaching in relation with "Department" under the Technology aspect whereas little than fifty percent (52.3%) of teachers with more

interest in e-content for teaching had more readiness towards usage of e-content for teaching.

4.3.2.3.4 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching in relation to "Department" with reference to the Technology aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to "Department" under the Technology Aspect according to the selected following variables: Age, Status of Job, Teaching Experience, Perception towards technology, knowledge regarding e-content.

- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to "Department" under the Technology Aspect according to the selected following variables: Computer and Internet usage, Computer and internet related technical competencies, Interest in e-content for teaching
- There were significant differences among the readiness of the teachers regarding the use of e-content for the teaching with reference to the aspect namely Department technology. The teachers who belonged to science and technology (56.10) had highly significant mean differences than their counterparts from humanities (52.23, p=.039) and social sciences (60.03, p=.046).
- It means that Department technology does have an influence on the readiness of all the teachers for the use of e-content for teaching who belonged to science and technology, category of the area of specialization.

4.3.2.4 ***Readiness of the teachers regarding the usage of e-content for teaching in relation to Course Content Aspect***

4.3.2.4.1 Variable wise Readiness of the teachers regarding the usage of e-content for teaching with reference to Course Content aspect

- Little more than half (52.1%) of the young teachers had a less level of readiness for using e-content whereas less than half of the older teachers (48.9%) had more readiness for using e-content in relation to the Course Content aspect.

- A little more than a half percent (50.8%) of the selected permanent teachers had more readiness for using e-content whereas more than half of the selected temporary teachers (53.9%) had less readiness for using e-content in relation under the Course Content aspect.
- Almost a similar percentage of the teachers both from Science and Technology (61.4%) and Humanities (60.2%) had less readiness for the usage of e-content in teaching whereas the majority (69.2%) of the teachers from the area of Social Science had more readiness for the usage of e-content for teaching under the Course Content Aspect.
- The teachers with less teaching experience showed less readiness (52.5%) in their readiness in using the e-content under the course content aspect whereas it was observed that the teachers with more teaching experience had more readiness (49.6%) in their readiness in using the e-content under the course content aspect.
- Little less than the majority of the teachers who used less of computer & internet showed less readiness (55.6%) for using e-content in the teaching under the course content aspect whereas a little more than fifty (54.2%) of the selected teachers who used more of computer & internet showed more readiness towards usage of e-content in the teaching under the Course Content aspect.
- Little more than the majority of the selected teachers with low technical competency related to computer and internet showed less readiness towards usage of e-content (66.9%) whereas a little less than sixty percent (59.5%) of the selected teachers with more technical competency in relation with computers and internet had more readiness regarding usage of e-content in the teaching under the Course content aspect.
- Little more than half i.e. (51.2%) of the selected teachers who had unfavourable perceptions towards technology showed less readiness towards usage of e-content for teaching whereas (52.2%) of the selected teachers who had favourable perceptions towards technology had less readiness towards usage of e-content for teaching under the Course Content aspect.
- Majority of the teachers with low knowledge regarding e-content had less readiness (60.2%) under the Course content aspect regarding their readiness in the usage of e-content for teaching whereas more than half of the teachers with high knowledge regarding e-content i.e. (52.8%) had more readiness.

- A majority of teachers (60.3%) who had less interest in e-content for teaching had less readiness towards usage of e-content for teaching under the Financial aspect whereas little less than the majority (57%) of teachers with more interest in e-content for teaching had more readiness towards usage of e-content for teaching.

4.3.2.4.2 Variable wise Differences in the Readiness of the teachers regarding the usage of e-content for teaching with reference to Course Content aspect

- The Readiness of the selected teachers regarding the usage of e-content for teaching did not differ significantly in relation to the Course Content Aspect according to the selected following variables: Age, Status of Job, Teaching Experience, Perception towards technology, Knowledge regarding e-content.

- The Readiness of the selected teachers regarding the usage of e-content for teaching differed significantly in relation to the Course Content Aspect according to the selected following variables: Computer and internet related usage, Computer and internet related technical competencies, interest in e-content for teaching

- There were significant differences in the readiness of the teachers with reference to the Course content aspect with respect to their areas of specialization.
- The teachers belonging to social science background (30.34) had highly significant differences than their counterparts from humanities (27.83, p=.007)
- It means that the aspect namely course content does have an influence on the readiness of teachers for the usage of an e-content for the teaching who belonged to social science background. However, no significant differences were found amongst the readiness of the teachers for the usage of an e-content for their teaching with respect to course content aspect who belonged to science and technology and humanities and as well as science and technology and social sciences.

4.4 *Expected challenges related to the usage of e-content for teaching*

- The item-wise intensity indices of the expected challenges for the usage of e-content for teaching, ranged from 3.24 to 2.45. It shows that the teachers agreed to the statements enlisted under the category of expected challenges for the usage of e-content for teaching, from some extent to less extent. This indicates that the expected

challenges may be resolved by taking easy steps, as teachers have not considered them as expected challenges to a great extent.

- The finding related to the expected challenges related to the usage of e-content for teaching revealed that lack of interest of teachers in e-content usage, Insufficient computers in the department, Slow internet speed, integrating e-content usage into the classroom, Pressure to prepare students for exams, Lack of adequate skills of teachers for using e-content, Interrupted electric supply, Negative attitude of teachers towards e-content, can come in the way of effective usage of e-content for classroom teaching.
- Further, the other category under which the expected challenges were agreed upon from some extent to less extent was related to facilities like computers, laptops, internet connectivity, electric supply in the department. It shows that these facilities are expected as challenges but from the same extent to less extent only, so it is easy to rectify these issues by providing workable solutions.

4.5 *Suggestions regarding usage of e-content for teaching*

- The item-wise intensity indices related to the suggestions regarding the usage of e-content for teaching ranged from 4.27 to 3.36. This means that the respondents' responses varied from being agreed with certain suggestions to being neutral for others.
- The items related to suggestions for which teachers agreed were related to the organization of free workshops, seminars & training Programme, the establishment of training cells, allocating special budget in the department for using and developing e-content for teaching, creating technical facilities in the classrooms like interactive boards to facilitate e-content usage for teaching, giving appreciations to the teaches who use e-content for their teaching.
- However, teachers expressed neutral responses towards all such suggestions where the act of enforcement and compulsion was mentioned. Like compulsory orientation of e-content usage, mandatory teaching hours to be dedicated for e-content usage, teachers' promotion criteria based on the e-content usage in teaching, etc.

4.6 *Readiness of the selected Teachers regarding the development of e-content for teaching*

Fifteen teachers were selected for conducting interviews concerning their readiness towards the development of e-content for classroom teaching. All the teachers were permanent teaching faculties and some of the teachers were head of the departments of various faculties of The Maharaja Sayajirao University of Baroda, Vadodara. The selected fifteen teachers were from Faculty of Sciences, Medicine, Pharmacy, Technology & Engineering, Arts, Fine Arts, Performing Arts, Commerce, Management Studies, Family & Community Sciences, Social Work, Education & Psychology, Journalism and Communication, and Law.

4.6.1 Percentage distribution of selected Heads/Teachers from different faculties according to their Status of Usage and Development of e-content.

- A majority i.e. (80 %) of the selected teachers responded that they had very high computer usage for daily classroom teaching whereas only twenty percent of the teachers had low computer usage for daily classroom teaching. Further, some of the teachers also mentioned the reasons for using the computer, like typing content for lectures, making subject notes for students, gathering information about the subject matter from the internet and then sharing with students through emails for their references, making presentations for lectures, etc.
- A Very high i.e. (73.33 %) teachers said "No" when asked if they teach students through any kind of digital material whereas only (26.67 %) of teachers were teaching students through any kind of digital material.
- A Very high i.e. (73.33 %) teachers said "No" when asked if they subscribe online or digital journals for their subject references whereas only (26.67 %) of teachers subscribe online or digital journals for their subject references. Some teachers informed that subscribing to the digital journal is costly for the specific department as well for individual teachers. But in Hansa Mehta Library, the main university library, they use available online digital journals that subscribe to the university library. But again, sometimes inaccessibility, sometimes due to technical error or poor network is faced by the teachers.

- When selected teachers were asked that their department have e-content (digital content) in the library, (66.66 %) teachers said “yes” that they have suitable e-content in their department/ faculty library, only (33.33 %) teachers disagreed that their department didn’t have related e-content in their library. All the teachers from different faculties as well as from different specializations were ready to develop e-content for classroom teaching.
- **Responses of selected Teachers according to their Planning & Implementation Strategies for development of e-content highlighted that** the head of the departments and senior teachers were interested in the development of e-content. For that, they had initiated preliminary efforts. However, various challenges like, time, training in e-content development have to be sorted.
- **Responses of selected heads/teachers related to their Expected Barriers for usage and development of e-content highlighted that,** it’s a difficult process and costly too. Insufficient, human and non-human resources in the department, plans, and policies related to e-content in the department, were some highlighted issues.
- **Response of the selected teachers related to the Steps for motivating teachers for developing e-content highlighted that** more training programmes are needed regularly, and teachers should be sent to relevant training programmes and should be given time to explore the ICT for teaching and research.
- **Response of the selected teachers related to the “Efforts made by the Department for preparing teachers for content digitalization” highlighted that** extensive and continuous efforts have been made in the various department to encourage and motivate teachers to gain confidence in preparing teachers for content digitalization and the development of e-content for their classroom teaching.

4.7 CONCLUSION

e-content is an extremely effective teaching method. It is beneficial to both students and teachers in all types of personalized instruction systems. It is the most recent style of instruction that has sparked more interest amongst the teaching community worldwide. The benefits of e-learning are mainly the cost-efficiency, accessibility, and flexibility in terms of time and place. E-learning allows learning to take place when the lecturer and the learner are separated both in time and space (Uys, 2003). It offers convenience for both tutor and the learner (learning anytime or anywhere).

India’s higher education is primarily focused upon changing the educational system to include a student-friendly approach as well as a psychological approach to learning that is progressive, harmonious, and creative. Students are India's best future economic growth resource. As a result, educational modernization works in tandem with the rest of the world. Apart from the teacher, students must obtain their information through e-content distribution. e-content can bring forth students' clear-cut concepts in their subject matter, allowing for smooth learning.

Based on the findings of the present research, (48%) of the teachers were having more readiness for using e-content for their classroom teaching. This finding was supported by Shu-Sheng Liaw., et al. (2007) the researcher observed that the trend of using e-learning as a learning and/or teaching tool is now rapidly expanding into the education sector. Teachers were using and developing e-content for their classroom teaching as well as creating resource material for their subjects through e-content but still need to motivate teachers for higher usage and development of e-content. Berhanu (2010) warned that introduction of e-learning without acknowledging the paradigm shift and setting up the required ICT infrastructure and efficient support mechanism threatens e-learning developments.

Teachers also had positive perceptions towards educational technology like e-content, which enhances and improves their teaching practices but because of less availability of resources, they are unable to utilize their time for learning this educational technology. Broadley (2007) observed that teachers’ perceptions and attitudes towards e-learning also play a critical role in e-learning implementation.

Senior professors and More experienced teachers of the departments should encourage department teachers to utilize the e-content in their daily teaching practices. The University should improve the Internet speed, connectivity, and computer facilities. The university and individual departments are also recommended to provide more training for teachers to improve their skills in using e-content for classroom teaching as well as for developing their subject-related e-content. However, the major challenges expected by teachers to utilize the e-content in their teaching practices are technical support. The University’s different faculties have made a separate budget for technical support for e-content usage and development. Every faculty can appoint one specialist for the development of e-content who can handle all technical problems which arise during the usage of e-content.

Every year each faculty and department can evaluate themselves by measuring their own department on different indicators for making their department and faculty, technology-friendly for better usage and development of e-content for teaching. Internet time should be allotted more for e-content utilization and infrastructure facilities should be strengthened by Institutions.

The university's different faculties can collaborate with other university institutes for university or can take up a project to enhance the usage and development of e-content in teaching by faculty teachers. However, teachers can get motivation through policies Like compulsory orientation of e-content usage and development, mandatory teaching hours to be dedicated for e-content usage, teacher's promotion criteria based on the e-content usage in teaching, etc. Computer technology training should be open to all teachers regardless of their level of education and computer training experiences. Organizing a free workshop, seminars & training Programmes related to usage and development of e-content, the establishment of training cells, allocating special budget in the department for using and developing e-content for teaching, creating technical facilities in the classrooms like interactive boards to facilitate e-content usage for teaching, giving appreciations to the teaches who use e-content for their teaching may improve the status of e-content usage. University teachers must develop advanced skills related to the usage of different software for the development of e-content, through in-service programmes. Funds should be through collaborations for the purchase of software and hardware tools and other accessories. Research on university and different faculty teachers' readiness for teaching through e-content in the classroom is important because it can support the development of academic practices for a university teacher. Akaslan and Law (2011) investigated the extent to which Higher Education Institutes in Turkey were prepared to include e-learning as part of their learning business. They identified various factors that affect the readiness for e-learning in a developing country where education is given significance and, due to changing living patterns, the educational institutions are moving from traditional learning modes to e-learning modes. These e-learning factors are based on two beliefs: that e-learning will reduce the efforts required from teachers and at the same time increase the educational level, and that some training is needed for students as well as for teachers to move from traditional learning to the e-learning mode.

At present, teaching through e-content has become an accepted way of teaching across universities worldwide also because of the covid-19 pandemic However, implementation of any teaching through e-content Programmes should become first by measurement of e-learning readiness as it enables the university and college to design a suitable and appropriate system to fit their requirement.

4.8 RECOMMENDATIONS FOR FURTHER RESEARCH

- A study of e-content usage and development practices followed by teachers at faculties and college levels can be studied.
- An experimental research on the effectiveness of teaching through an e-content course developed by teachers and teaching through traditional methods" can be carried out.
- A study of e-content usage and development practices by teachers can also be carried in individual faculties of University to find out the status of educational technology used by teachers and acceptance level of students".
- In-depth research study can be undertaken on adopting the usage of e-content for classroom teaching by teachers of various areas of specialization.
- An analytical study can be planned to identify the various factors responsible for the enhanced use of e-content for teaching.

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