CHAPTER-5

SUMMARY

5.1 Introduction

Etymologically, the word instruction is gotten from the Latin word 'educare' signifying 'to raise' and 'to raise'. The word 'education'' has started from another Latin expression 'Educere' which signifies 'to lead forward' or 'to come out'. Education tries to build up the inborn or the internal possibilities of human. Some different educationists accept that the word 'instruction' has been gotten from the Latin expression 'Educatum', which implies the teaching or Training. The implications of these root words persuade that instruction intends to give a supporting situation that would encourage or bring out and build up the possibilities in an individual.

A child is born with the inborn capabilities to find out from the environment one is born. A child is influenced by the Non-formal and formal institution of education. With the assistance of those agencies, the child develops the physical, mental, social, and emotional self. The education is ready to develop within the child a way of maturity, responsibility, and important thinking that helps one to develop the personality. Thus, education develops the individual to grow flower and distributes its fragrance everywhere in the environment. With development, it becomes a responsible, active, resourceful, and enterprising citizen of strong good moral character who develops own self, society, and nation by contributing best to society

5.1.1 Historical Period of Education in India

Vedic Period: The most important contribution of Ancient India not just for India but also for the globe is within the field of education. The traditional Indian education was developed by the Vedas and also the Upanishads. Ancient Indians have concluded that “Vidya” is that the real power within the world. The illumination of Vidya shatters the illusion, removes darkness, and enables us to comprehend the actuality value of life. It increases intellect, efficacy, and power.

Buddhist Period: The rigidities of Vedic rituals and sacrifices the dominance of the Brahmins over the lower caste became responsible for the disillusionment of the crowds with the system. Gautam Buddha, the great religious person yet as a social reformer preached non-violence and social equality. As a result the social discrimination within the field of education that was prevalent within the Vedic period was challenged during this era. It was the primary attempt towards providing education to the masses.

Medieval Period: The first centuries preceding it saw the flourishing of higher education at Nalanda, Takshila, Ujjain, & Vikramshila Universities. Art, Architecture, Painting, Grammar, Philosophy, Astronomy, Literature, Buddhism, Hinduism, Arthashastra (economics and politics), Law, and Medicine. Takshila specialized in the study of drugs, while Ujjain emphasized astrophysics. Nalanda institute, started with the main center, handled all branches of knowledge, up to 10,000 students at its highest.

Education in modern India: The British introduced modern system of education in India. The main reason for introducing modern education was to create a group of workforce for themselves, fit to work according to their standards and needs.

Another motive was to create a market for English goods. The belief was to update Indian education system to create Indians who remain in their colour while Interests, Thoughts, Morals, and Intelligence would remain British.

Education in the Post-Independence era: After freedom, education became the responsibility of the own states.

- Education is in concurrent list, meaning that the Central and the State Government both have the responsibility.
- The Central Government's only responsibility was to co-ordinate in technical and higher education.
- India has made development as far as expanding essential instruction participation rates and developing education to around 66% of the population. A great part of the advancement particularly in higher training, scientific research has been authorized to different open establishments.
- Though, India faced many problems in imparting education despite growing investment in education, 25% of its population is still uneducated; only 15% of

Indian students reach high school, and just 7%, of the 15% who make it to high school, graduate.(Patel et.al 2016).

- As of 2011 there is a 1522 certificate allowing by Universities in India with yearly students who took admission of 582,000, in addition to 1,244 Polytechnics with a yearly admission of 265,000. (Patel et.al 2016)
- Yet, institutions face the trouble of teachers, and concerns have been raised over the quality of education.
- However, these organizations face a deficiency of workforce and concerns have been raised over the nature of instruction.
- Thus, the concept of Web-based learning travelled from Distance education to present stage Web-based learning.

5.1.2 The growth of Digital learning

Following are the main reasons for the growth of online education in India: • With nearly 1 billion people on cell phones and more than 200 million web-connected cell phones, there has been a substantial increase in digital learning (Lone, 2017).The best thing in Online learning real-time learning and feedback methods, and personalised directions has motivation under online learning.

- These Online courses are affordable and simply accessible.
- Digital learning aims to interrupt the many obstacles that are avoiding people from receiving quality education within the physically bound classrooms.

5.1.3 The use of Web based learning in education

The use of web-based learning in education has numerous benefits, especially for higher education and institutions, and despite its various advantages and benefits, web-based learning is considered one of the best methods of education Some of the advantages that the adoption of Web based learning in education:

- Each students has the advantage of picking the perfect spot and time as indicated by Smedley(2010), the reception of e-learning establishments just as their understudies or gain proficiency with the much adaptability time and place of transmission or receipt of the learning data
- Web-based learning increases the effectiveness of knowledge and skills by easily accessing an information.

- Web-based learning motivates students to connect with others and share opinions. Web-based communication helps maintain the relationship and ensures that learning is continuous.
- Wagner et al (2008) stated that e-learning offers further possibilities of intelligence between the student and the teacher during the transmission of the content.
- When learning is profitable, there is no need to rush to classes as it offers learning opportunities to many students without the need for a lot of infrastructure.
  Therefore, students can learn at their own pace.
- Students can learn the material and the content can be verified later or as needed.
- Distance learning courses are flexible and are a key benefit of web-based learning.
- Web-based learning allows students, such as adult housewives and people with disabilities, as well as older people, who can have the opportunity to learn from a distance.

5.1.4 Disadvantages of Web-based learning

Just as glass might be half full it might be half empty as well. That ensures that Web-based learning has drawbacks too.

- Some participants may not be technically skilled and may still hesitate to participate fully during Web based learning
- One of the common types of problems for Web-based learning is some students particularly those for whom English is not their native language may have difficulties in communicating and learning from Web-based learning system.
- Sometimes computer hardware and software parts are difficult to handle. So, it causes hindrance & impact on their learning and grades of the students can be hindrance
- Most of the digital assessments are closed-ended and the objective in nature only.
- The authenticity of a particular work by a student is a problem, someone else can do rather than the actual student himself.
- Assignment may be of copy and paste which also creates piracy and plagiarism issues.

- All field or discipline cannot be taught by Web learning. Especially purely Scientific field as well as some of the Social Science fields (work with human beings) courses having practical cannot be studied by Web-based learning.
- The cost of Internet in India is still on the higher side. Hence some students find it a challenge to afford internet.

5.1.5 E-learning initiatives in India

India earlier was a source country for International students and has now become a competitive market for Students, Teachers & Faculty. India is the fastest-developing countries with the large population in the world. The number of international students coming to India, is growing & the proportion of the population falling in the University age is also increasing. 75% of India's higher education institutions are now private, 90% are private in engineering, Management and IT. Over the past 10 years, the supply of the private sector has increased tremendously & any private sector provides to use Online/ Web-based learning to maximize scarce resources & achieve economies of scale. Thus, the drastic changes that got in the higher education. Government Provided full policy & Public funds to create the world's largest system in higher education. The UGC also took steps in this direction by providing personal computers, implementing Computer Science Diploma, Degree courses, Providing research and higher studies in this field. Thus, increased Gross Enrollment Rate (GER) in higher education of 5% during the 11^{th} five-year plan period. A large group of e-learning destinations keeps on entering the market with center contributions connecting up students and teachers consistently. It becomes a strength of educating – learning. The entire world is engaged through "Web" On the other side, the Department of Information Technology (DIT) is involved in the development and promotion of Information Technology & e-learning is one of the thrust areas identified by the department. A point to note here is, growing youngsters as students are using Web-based learning, to support their knowledge and learning Teachers, are also using it and work to the students related to the subject. Web-based learning is more interesting because of audio, video, visuals and sound effects, YouTube, (which is most subscribed Channel) as is the most used channel amongst youth for learning.

5.1.6 The Current state of E-learning in India

The education sector in India isn't any longer guaranteed in just classrooms. Due to new start-ups and better internet and smart phonee-learning make place in the market in India is assessed to be more than $3 billion. (Babu 2015) The central government's efforts to make digital learning available to students in every corner of the country are additionally aiding the world. Currently, online learning focuses equally on school and college courses. For example, Bengaluru-based Entrance India provides practice papers for all engineering and medical entrance tests in India. The corporate aims to assist students to concentrate on the correct subjects and also, learner access to subjects anytime and anywhere. Consistent with studies, India and China will lead the expansion in project management roles, generating about 4 million and eight. Hence, the business looks to grow. Many of start-ups are already setting their foot with blended classes, integrating both online and offline experience, together with self-take courses. Bengaluru-based Simple learn offers quite 200 certification courses in project management, information technology service management, Microsoft certification, quality management, and financial management. The corporate has completed three hundred courses across one hundred fifty countries, with over six hundred employees and has trained over 200,000 professionals across the world. Intellipaat, began in 2011, gives Web-based preparing there to experts including corporate preparing, and self-guided courses and offers more than 80 mechanical courses across various areas. Hyderabad-based Learn social could be a six-month-old company and works on an aggregator model. “We want to become the Amazon of Online learning. Learn social has near 200,000 users and has trained quite 1,100 learners. (Babu 2015)

5.1.7 Initiative by Government of India

1. NPTEL: National Program on Technology Enhanced Learning (NPTEL) provides online Web and Video courses in the area of Engineering, Science, and Humanities through e-learning mode. NPTEL's main goal is to boost the standard o engineering within the country by providing a free online courses.
2. Virtual Labs: Virtual Labs aims at providing remote-access to Science and Engineering Labs in various disciplines. These Virtual Labs objective offer all students.

3. CEC: Consortium for Educational Communication (CEC). Annually CEC organizes Video Competition. It is a film festival on the environment, human rights & development. Video Competition is a yearly competition meant to nurture within mass media centers and other educational institutes in the country.
4. E-Yantra: E-Yantra for engineering education to engage students as well as teachers through thrilling hands-on learning application of Mathematics, Computer Science, and Engineering principles.
5. Digital Library Inflibnet: Former Honourable Dr.A. P. J. Abdul Kalam, has launched UGC-Infonet Digital Library in 2003
6. OSCAR++: Project OSCAR (Open Source Courseware Animations Repository) provides a source of Web-based interactive animations and simulations.
7. E-Kalpa: 'e-Kalpa' is sponsored by the Ministry of Human Resources, Government of India Information Communication and Technology through education is a part of National Mission the main aims 'Creating Digital-learning Environment for Design'.
8. FOSSEE: Free/Libre and Open Source Software for Education (FOSSEE) project is part of the National Mission on Education based at the Indian Institute of Technology Bombay (IITB).ICT with the thrust area of "Adaptation and placement of open-source simulation packages equivalent to proprietary software" funded by Ministry of Human Resource Development.

5.1.8 Gujarat and Its ICT Readiness initiatives

Gujarat state situated within the western a part of India. Rajasthan, Madhya Pradesh and Maharashtra are the neighboring states of Gujarat. Gandhinagar is the capital city of the state and Ahmedabad is its largest city and also the main commercial hub of the region. Gujarat houses a large scale of industries and is taken into account one amongst the most effective industrialized states of the state. The state has the fastest growing economy in India and it's also, one in all the foremost industrialized states within the state. Thus, making it the richest state with a GDP per capita income twice that of the country as an entire. Gujarat was a hopeful head with e-preparation Initiatives inside the IT Policy 2006-2011.All departments within the state have prepared their IT Action Plan, which contained a one-year focus and a five-year perspective.

A Part of the budget is committed to IT related activities. Chief Information Officer (CIO) who reports directly to Secretary in Department. The IT Policy aimed at enhancing man power skills, collaborations and Business promotions. The policy also encourages mega projects, IT Parks, SEZ and spaces for IT/ITES promotions. Distance Learning Education is yet another Initiative that takes a serious uplift. Usage of existing educational set-up, including distance learning through satellite communication facilities is obtainable at Bhaskaracharaya Institute for Space Application and Geo-informatics (BISAG). Awarded for Best e-Governance, Gujarat may be a frontline State within the implementation of e-governance policies & projects and fixing of key infrastructure for E-governance. Gujarat education structure of 10+2 followed within the schools all schools. Coming to teaching, there are several State, Central, Private, Deemed Universities functioning in Gujarat which provide programmes starting from undergraduate, postgraduate to doctoral programs in various disciplines. Institutions like Indian Institute of Management Ahmedabad(IIM-A),The Centre for Environmental Planning and Technology (CEPT), National Institute of Design (NID), Indian Institute of Technology Guwahati(IIT-G),Institute of Rural Management Anand (IRMA), The Physical Research Laboratory(PRL), and The National Institutes of Technology(NIT) have a nationwide recognition. Even within the private category there are many universities which are apprised for the good performance like NIRMA, Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT), Pandit Deendayal Petroleum University (PDPU), Mudra Institute of Communications, Ahmedabad, (MICA), Teacher Education University, etc. There are especially dedicated universities like agriculture universities, Forensic University, Children's University, Sanskrit University etc. Further, the authorities of Gujarat are seriously inclined in using the potentials of ICT within the education system. During a circular released by the State Government of Gujarat on 11/04/11 (No. CBC-262011-918-KH) with relevancy implementation of Choice Based system, it had been clearly mentioned that ICT should be used effectively within the classroom processes. Following are a number of the points mentioned within the circular:

a) Digital Education and Learning Laboratory (DEL) has been founded in 216 colleges and proposal to line up such laboratories in 170 more colleges is in pipeline. These laboratories shall work as learning centers for all the themes. Today digital literacy is integral part of

education and to catch up with the trend, Gujarat is also using the “Education on Wheels” model of digital learning to cover the digital divide and make digital literacy available to the poor populations (COW Gujarat, 2012).

b) Sandhan facilitates students to possess an access to an interactive presentation by eminent academicians from across the state. Additionally it also covers aspects such as personality development, proficiency in English, research methodology and preparation for various competitive examinations. It’s also visiting function as a valuable repository of data within the sort of CDs and DVDs.

c) There's a proposal to line up an Audio-visual room within the colleges across the State. This would facilitate learning through programmes that would telecast live.

d) There's attempt to prepare E-content of varied courses to be introduced as an element of Choice Based Credit System (CBCS). The motivation and support to develop E-content under The National Mission on Education through Information and Communication Technology (NME-ICT) has been provided to the teachers across the state and therefore the response still as result has been quite good. E-content will facilitate learning at any time and for as over and over because the student wishes.

e) The Education Department plans to line up 180 computer laboratories each having 100 computers and internet connectivity. Other than getting used as centers for on Demand on Line examination (ODOLE), these laboratories will function learning centers. Government of Gujarat has recently started a replacement program called “ eMpower -Electronic Manpower” for all students who wants to urge quality education still as knowledge on various computer programs, softwares and technologies including Internet and Social Media like Facebook, Twitter, Linked In, Google+ (Google Plus),Email, Account, Blogging, Surfing etc.

Course Expansion and Digitalization by Gujarat University

- Since mid-2017, the University has been ushering in newer courses across a variety of faculties and streams. It is planned to continually introduce such new courses over the coming years at an accelerated pace, based on student demand, and individual course performance. Through Hub net, it is also envisioned to have resources for all individual courses available online for course students and designated faculty.

Scalable Learning

- It is also expected to implement the usage of MOOCs and other scalable online models to impart digital skill-based, topic-based learning to students and non-students through Gujarat University. Scalable learning will be done through existing devices, and augmentations of the Hub net. From 2018 onwards, several MOOCs and skill-based courses shall be introduced by the University online, with full integration with the Hub net by mid-2019.

Gujarat University Hub net

- The Gujarat University Hub net (codename) is envisioned to be a common web, mobile and app-based platform bringing together all the resources for all stakeholders at one common point, counting the parts of the Paperless Gujarat University activity, file management systems, complaint redressal cells, alongside news from over the University environment through an online gateway. Parts of Hub net were live on Gujarat University website from end of 2018, with complete launch in late 2019.The Maharaja Sayajirao University of Baroda is the outcome of critical reviews and reflections on Academic, Research, Extension, Curricular, Co-Curricular as well as Social Outreach, and various other activities of the university. It highlights the important developments & significant achievements of the 14 Faculties along with 03 Constituent Colleges, 07 Centers, 02 Institutes,14 Constituent Libraries, 16 Hostels, Health Centre, Sports Pavilion, 05 Multipurpose Auditoria, Sadhana Printing Press and Stationery Unit, Green Guest House of our University and various other academic and administrative units, spread across the 07 Campuses of our university. This year, to foster the concept of "Digital India", the entire data for the Annual Report has been collected and compiled online under indigenously developed software called as Annual Report Management System (ARMS).The University has made substantial progress over the past one year. It is our constant endeavor in terms of improving the quality of education to place the University among the top ranked leading universities across country. The University also restarted the Science Stream at M. K. Amin Arts and Science College and College of Commerce, Padra and it received an overwhelming response across the district. The Maharaja Sayajirao University of Baroda is renowned for its academic

excellence both at home and abroad. Considering the academic stature of the University, the University Grants Commission, New Delhi has allotted a grant of 24 Crores for the XII plan period. In addition, other funding agencies like DST, DBT, AICTE, DAE etc too have continued to provide financial assistance to several Departments of the University for Research Support. 46 Research Projects in Science and Technology as well as in Social Sciences and Humanities amounting to Rs. 48.22 Crores have been funded by various National & International Funding Agencies during the year. The Maharaja Sayajirao University of Baroda had also received total grant of Rs. 12 Crores for infrastructure and under Rashtriya Uchchatar Shiksha Abhiyaan (RUSA).We have made our Smt. Hansa Mehta Library Centrally Air Conditioned for students and users in the year 2015.The University Grants Commission (UGC), New Delhi has also sanctioned grant of Rs 1 Crore under the Development of Sports Infrastructure and Equipment Scheme to build Gymnasium for promoting sports activities for our students and staff of the university. This year, the University managed to launch an e-portal for recruitment and all the recruitments henceforth will be undertaken through this portal. Moreover, entire student life cycle has been brought under the digitalization process. All admissions are also done online and all Annual Report related documents were also linked with the Annual Report Management System (ARMS). The University has also launched a Human Resource Management System (HRMS) for recording the data of the staff of the University. The University also successfully undertook the massive project of NAMO e-Tablet Distribution to distribute tablets among the newly enrolled students of the first year of graduation and polytechnic. The Maharaja Sayajirao University - Computer Center as a central facility started in 1980 with the assistance from the University Grant Commission (UGC), New Delhi and installation of IBM/360 system. Initially research students and teachers were using the University Computer Center for research data processing work. During the past 25 years, with the development in technology, the Computer Center had upgraded hardware and software from the grants received from the UGC and different Five Year Plan grants from the state government and other government funding agencies. Later, The Computer Center had widened its activities and started to computerized university

applications like Examination Result Processing System, Payroll System, and Provident Fund Accounting System etc. In 1999, the activities of the Computer Center underwent a major reorganization with the establishment of a branch in the University Office premises for the purpose of administrative convenience, which was meant to take care of the automation of various university operations of Exams, Accounts and Administration. The original premises at the D. N. Hall embarked upon a major developmental agenda involving the establishment of network facilities, providing internet connectivity, deployment of web-based services and training of manpower and as facilitator for international academic interactions. In September 1999, a central facility for internet surfing SURFLAND was started at Computer Center, with the financial support from alumni of the university under the banner of Technology Promotion Trust(TPT). Later on with the financial and technical support from the alumni the university had connected more than 2500 computers to the network that has fiber optic backbone of approximate 27 KMS across various campuses of the university.

5.1.9 Web-based learning: Connecting Students to learning in times of Covid-19 Pandemic .

COVID 19: Technology Adaption

People resist change without understanding the need and importance of it and when a situation arises all should adapt to change willingly and unwillingly. Indian higher education institution has used various instruction for innovation, development, and engagement of students. Many faculties have resisted the change when they were asked to take online classes for students. To facilitate this, couple of trainings were provided by the management of the institutions so that the faculty does not face any difficulties on the same. As resistance is in one's mindset, the faculty needs to change their mindset towards the online classroom and adopt technology for the betterment of students. Technology adaption is a bliss and we never thought it was going to be so smooth in functioning for institutions. After the adaption of technology; faculties use virtual modes for meetings, guest sessions, faculty development programs, students mentoring, club activities online and various competitions for faculty and students. Technology has created the revolution in

the Indian the higher education system and it is widely accepted by all due to the COVID 19 crisis.

COVID 19: Teaching and learning

Teaching and learning is always in demand and when, COVID 19 pandemic hit, it was a challenge for faculty to take this as an opportunity to go for virtual classrooms, virtual learning, and teaching. With the crisis, there is a wide adoption of technology in teaching;-learning process also various higher educational institutions have opted for online classes differently. The tools used by faculty during lockdown for teaching and learning through online modes widely include Zoom, Google Hangouts, Skype meet up, Google classrooms, Learning Management System, (LMS) Information and Communications Technology (ICT), YouTube, etc. Various organizations conducted Faculty development programs to spread positivity during the corona crisis online. Faculty members feel there is no much difference between online and offline sessions as they can share PPT, play videos and use board and marker as in regular classrooms. Faculties have also done online role-play, group presentations, and guest sessions by experts from different field. It has a new revolution for higher education institutions and through this system, education get online as well as offline mode.

COVID 19: Students Engagement

Student engagement is a big problem, whether it is Offline or Online. Teaching & learning Initially, institutions and faculties had lots of conflict towards student's engagement during the lockdown. When faculty started taking sessions Online, they were shocked to see students' attendance is 20 times higher than regular class sessions and it was almost 100 percent attendance while engaging them virtually.

There are various initiatives from the Ministry of Human Resources Management (MHRD), one of which includes free Swayam courses. During the lockdown period, many institutions started Online free courses for students. E-Library sources and E-Books' have been shared so that, students can discuss with other students. There are various initiatives taken for students' engagement. Students can engage into social interaction with each other, as humans are social animals they need to collaborate, exchange their views, and experience

with each other whether they are Offline or Online. Thus, through online class initiatives, students can learn also and interact with each other as well.

COVID-19 Pandemic: Influence and strategies for the education sector in India

In the second week of March, April and May (2020) State Governments across the country began shutting down schools and colleges to maintain social distancing during pandemic COVID 19. This was an important time for the education sector as this is the period when examinations, school admissions, entrance tests of various universities, and competitive examinations, which are usually held during this period. . As there was no other way to stop the pandemic rom upgrading, Schools & Colleges had to be shut down affecting millions of students studying in higher education institutions. The lockdown, through helped in adoption of online teaching and learning had its own monetary & cultural outcomes. While the private institutions would afford online teaching and learning. The students from mediocre schools suffered the most due to insufficient infrastructure. However, with android and smart phones being accessed by almost everyone, access to education through technology became easier. The pandemic transformed from chalk & talk to technology. This trouble in the delivery of education is pushing policymakers to figure out how to drive engagement to ensure inclusive of e-learning solutions and tackling the digital divide.

One, immediate measures are essential to make sure the continuity of learning in government Schools and Universities. Open-source computerized learning arrangements and Learning Management Software ought to be received so educators can direct instruction on the web. In this way, Information communication & Technology (ICT) activities of Ministry of Human Resource Development (MHRD) and University Grant Commission (UGC). Study Webs of Active - Learning for Young Aspiring Minds (SWAYAM) Online course gives access to best showing learning assets that were prior conveyed on the SWAYAM stage might be presently seen by any student liberated from cost with no enrollment. UG//PG MOOCs has learning material of the SWAYAM UG and PG(Non-innovation) filed courses. e-PG Pathshala has a top-quality educational plan – based, intuitive e-content containing 23,000 modules including e-content and video, in 70 post Graduate controls of sociologies, expressions, expressive arts, and humanities,

characteristic and Mathematical Sciences. e-content courseware in UG Subjects with 87 college classes with around 24,110 e-content modules is additionally accessible.

SWAYAMPRABHA is a gathering of 32 DTH Channels giving excellent instructive educational plan based substance covering diverse discipline such as Arts, Science, Commerce, Social Science, Humanities subjects Language and so on to all teachers, students and citizens across the country curious are about lifelong learning. These channels are free to air and can be accessed through cable also. CEC-UGC YouTube Channel gives access to a boundless instructive educational program based talks completely free. Vidwan is a, helping to provide fund and making policy of research Scholar in any country. In the country Faculty has also requested to register on the vidwan portal to assist expand the database of experts. The Digital Infrastructure for Knowledge Sharing (DIKSHA) platform, with reach across all states in India, is often further strengthened to make sure accessibility of learning to the scholars. This can change the system of institutions to increase the effectiveness of learning and teaching, giving students and teachers multiple options to choose. Across the Globe—during COVID 19 many research project seminars, international seminars, viva-voce were held through Web-based portals.

It is also important to maintain the quality of teaching and learning with sustainable technologies. In times of crisis, it helped in developing skills that will drive their employability, productivity, health, well-being in the decades to come, and ensure the overall growth of India.

5.1.10 “Lockdown”-A Golden Opportunity for online Education

"Sa Vidya ya Vimuktaye" Education through which we can dispose of infection, mourning, malignance, sin, humiliation, bondage, neediness, joblessness, hardship, numbness, insidiousness, awful habits, and so on. One lets us gain astuteness, qualities, and abilities. It makes us mindful of humbleness, wellness, resilience, carefulness, courteousness, worship, boldness, administration, and helping other people. In the earlier times, this education was acquired based on direct evidence, experience, action, and learning. Essential, helpful, and dexterous training was given to each kid to lead a real existence. Researchers of Philosophy, Science, Mathematics, Medicine, Astronomy, Geology, Life Science, Chemistry, Craft, Vastu, Artha, Niti, Dharma, and so forth used to be wherever who bestowed experiential instruction in these subjects in a unction way.

Today's education is imparting knowledge but is not able to develop skills. Fully It is trying to build character but is not able to inculcate values. The gap between institutional education and practical life is constantly increasing. This situation hinders the development of both society and the nation. The reality is about the methods of teaching and learning. It is about the teaching-learning process. It is about the Curriculum. It is about pedagogy. We insist on teaching, they insist on learning things. We emphasize on content and knowledge.

The real game changer and hero is "Teacher". A qualified, trained, passionate, affectionate and a teacher who loves his/her profession can shift the paradigm of the entire Indian education system. Everyone has an important role in society, government, schools, and teachers. This time of "lockdown" has carried golden opportunity for learners and teachers. Everyone has a good time, to use resources that are readily available on the Internet. The entire house can be a learning center for Learners. Different activities, games, e-classes can enable students to get rid of learning. This is a golden opportunity for tutors to upgrading themselves. They can specialize in the field of on-line teaching, e-content, self-creation of videos, lesson plans, and assignments. Parents can use this time and spend much time with their children, make friendship, provide them emotional care, develop habits and creative skills, give time and spend quality time with the family.

During the month March to May 2020 the "Corona" pandemic, the whole country was in "lock down" phase. Closed in the walls of the house, Learners had taken the help of Web-based learning. The whole world remembers the 21st century as the digital revolution. To succeed in this world and stay on top, you have to keep yourself updated with changing technology every moment. Most of the Universities have started online classes. There are many such platforms like Google Classroom, Khan Academy, and students who have started their studies. On these platforms. The students develops their skills during lockdown through learning online classes.

Even the HRD Ministry government of India has provided digital learning material and opportunities through the Swayam Portal and Swayam Prabha Channel. All these changes and developments happening in the area of higher education in general and changes happening in higher education particularly in university aroused many questions in the mind of researcher which is presented in the following section in the form of research questions.

5.1.11 Research Questions

1. Why youth are using the internet?
2. What devices do young people use to access the Internet?
3. How much Undergraduate students face problem during using of
4. Web-based learning?
5. To what extent internet help them in performing their Soft skill aspects?
6. How using internet is helpful for curriculum aspects?
7. Are the students using internet for Studies?

5.1.12 Statement of the Problem

It was titled as" Usage, Opinions, and Problems of Web-Based learning by Undergraduate Students of The Maharaja Sayajirao University of Baroda".

5.1.13 Justification of the study

The world is considered nowadays as a small village. The Internet has succeeded to connect the whole world. The wide scope of Web-based learning in India, especially for Indian youths. Web-based learning has opened new paths to education in India and has changed the educational content. Online learning has exceeded problems of reaching out to an audience in rural India. & making rich content available to and an audience that was unreachable earlier.

"Education is number one fastest-growing financial and social sectors, and the use of new techno friendly is part of that development". Technology has changed our lives in various aspects and has contributed in an unforeseen way to changing the patterns of our lives. Some factors affect traditional education, such as traditional lectures about learning, involve books or print outs that are mostly very expensive and sometimes unavailable.

The field of learning is one of the fields most impacted by this alternation. Web-based learning has become a worldwide appearance in different learning and training aspects.

The Maharaja Sayajirao University of Baroda, is a well know University of the western India. It consists of 14 faculties, more than 100 department more than 300 academic programs at various level –Certificate, Diploma, Under-graduate, post graduate, post graduate diploma, MPhil, Ph.D. etc. It is covering 275 acres of land with giant infrastructure. With the more than 35000students having education from The Maharaja Sayajirao University of Baroda

Vadodara. University have facility of Hansa Mehta Library, Computer center, student's Facilitation center etc. Hansa Mehta Library ranked under top 20 Library in India. Library have more than 8, 68,304 books and 280 print journal available. Also library has e-resources of online journals is 40,000 and above. (Source: www.HMlibrary.ac.in) The MSU – Internet has growth to be a LAN of about more than 4000 nodes in last 15 years and is still growing with the implementation of campus wifi-2014. It has suddenly grown to become a LAN of more than 10,000 concurrent user connections. ICT will help to overcome the obstacles that are likely;

The difficulties in individual's attention in higher education due to many people in one classroom.

- Inability if teachers to sometimes give a global perspective to learning.
- No training provided to students, thus relying on self-trained methods.
- The Socio-economic divide due to which many students do not have
- access to study through e-learning mediums and the need to study the
- magnitude of the problem.
- To identify the need to towards the readiness of youth to take up
- e- learning.
- To impede the growth and advancement of e-learning in institutions of
- higher education.
- To understand whether our higher education institutions are ready to
- take up e-learning & teaching methodologies.

e-learning can also be seen as a positive way to improve the quality of higher education and learning effectiveness. It can give increased flexibility of learning experience to students enhances access to information resources for more students. The Web-based learning system does not only provides learning objectives but also evaluates the progress of the student. Many of the universities and colleges are conducting their e-learning courses and also certificates is provided online. The e-learning in India is still working and growing stage and we can say it is an experimental stage. It new learning environment for learners thus requiring a different skill set to be successful. Learning has become popular because of its work 24/7 and very flexible.

e-learning is not only low-cost but also convenient. Yet there are need to be the bridge on an urgent basis. It enhance the knowledge and performance of the students.

Hrastinski (2008) defined E-learning as learning and teaching online through network technologies, which is a one of the greatest responses to the growing need for education.

According to Opinion Research Corporation (2000)revealed that 54 percent higher education courses offered via online it is a future of India. The study also found that 32 percent of respondents agreed to take the course through the Internet rather than go to a traditional classroom. Another 53 percent of respondents said that the greatest advantage of taking courses online was ability to work from home, while 19 percent referred to that time spared from not having the opportunity to communicate and enhanced knowledge and skills.

5.1.14 Justification of the study in the Department of Extension and Communication

Department have specialty to collaboration with various sectors of society, communication, to carried out various academic works and its use from them. This study on the usage, opinions and problems of Web-based learning by Undergraduate students is important in Department, because it involve both young and online learning that is web-based learning. The Department's curriculum also focuses on the analysis of different media and research, their impact on people to learn about their benefits and threats to society. It is always a cause for concern in this Department to publicize the positive impact of the media and try to reduce its negative impact on society with wide-ranging action projects and investigations. In Department, many studies have already conducted in different media such as : Electronic print and new media with completely different sectors of society in especially children, women, seniors, young people and students, etc.

Studies that included new media were limited to the use of Social Media Some research in Communication for Development carried out in the department includes the study on the development and verification of the effectiveness of the different communication aids for teaching. But no studies have been conducted on the usage, opinions and problems of web-based learning by the Department's students. Moreover, the study research findings will provide guidance for online learning among Gujarat students.

It will also be useful in producing several online courses and online learning applications to assist students in their learning activities.

It will also highlight the use of web-based learning by young people, which can be useful for different agencies and even for the website of government organizations, such as Study Webs of Active - Learning for Young Aspiring Minds (SWAYA NPTEL, etcetera.

On the above discussion, it is important to study this topic at the Department of Extension and Communication, Faculty of Family and Community Sciences, Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.

5.1.15 Justification of Sample

India is a nation of lots of young minds, looking for knowledge to move ahead in contrary to their limit. Education is central to development and to the advance of the lives of youngsters globally, and intrinsically has been known as a priority space in internationally in agreement development goals, as well as the Millennium Development Goals and the World Program of Action for Youth. Around 1.6 billion young people learn online ie.is 91 percent.

Youth, now a days getting degree through use of different technology. The Maharaja Sayajirao University of Baroda have more than 35000 students in various educational field. The Maharaja Sayajirao University has different background students from different locations. An underprivileged youth grown-up would now be able to land required position abilities for practically any kind of vocation skill effortlessly or no cost, on account of the accessibility of on request preparing on the Web. In case you're a mentor in a young engagement program, you can use this information to steer at-risk youths towards rewarding career opportunities. Online instruction expels physical boundaries and travel restrictions for understudies. This can enable youngsters who live in remote or rustic zones. These students now have ability to take classes in subjects that are not offered in their areas. They can pick up bits of knowledge from educators everywhere throughout the world. In young people strengthening instruction activity, Start by introducing them with free resources that will teach them reading, writing skills different language, and other important information that will increase the probability of their success.

Online catch attention of learner, develop interest as well as recent trends acceptance of Web based learning. Maximum youth used e-learning is -power of learning. Learning through improve promoting sustained, inclusive and equitable economic process and sustainable development. Increased efforts towards education. We do have a lot of colleges, enough teachers and facilities for students and teachers though. Yet due to some factors like the social background of students, parents, different standards of teacher training programs, all teachers can't deliver the same message to all learners, the great difference in the quality of education is noticed. This brings Web-based learning to a close. Web-Based Learning likewise facilitates the joined weight on the teacher and students. On account of e-learning, an understudy would now be able to clear their questions and achieve a clear comprehension of the center ideas just by signing into an e-learning stage and associating with the most brilliant minds on earth who act as mentors. Youth who hesitate to talk or bring up issues and questions in a class hall discover the certainty to communicate on web based learning stages where one can retain their personality. Hence youth an improved learning experience paying little mind to their age, location, level of education, economic and social wellbeing. Youth develop analytical abilities, e-learning additionally assists with boosting interest creative development, who become mindful of various things, normally grow new interests because of their uplifted creative mind and perception. Hence, while classroom learning may just equip students with the basics, e-learning enables them with an inside and out functional understanding that is essentially the culmination of academic learning, personal growth, and social development.

Web-Based Learning has the potential to meet the perceived need for flexible space, place, and face. The Web allows education to go to the learner's place. Web-Based learning can be done at the office, at home, on the road, 24 hours a day, and seven days a week. e-learning promotes education, businesses, and all types of learners. It's affordable, timesaving, and yields measurable results. e-learning is less expensive than traditional learning because less time and money is spent traveling.

e-learning also has measurable assessments that can be generated so that both teachers and students know what the students have learned and how they have completed their courses. Learners can fit e-learning into their busy schedules. If they hold a job, they can still be

working at night. Distance learning is far more widely used in postsecondary educational settings. In the “2013 Survey of Online Learning,”

Conducted by Babson Survey Research Group, revealed that the number of higher education students enrolled in at least one online course was above 7.1 million, approximately 33 percent of higher education students (Babson , 2014). The number of online course enrollments increased by roughly 411,000 students from the fall 2012 term to the fall 2013 term (Babson, 2014). Responses from 2,800 academic leaders where recorded and ninety percent of the participants “believe that it is likely or very likely that a majority of all higher education students will be taking at least one online course in five years” (Babson, 2014). The demand for online courses is derived from a drive 'to provide all students with quality education, irrespective of location and time'. Online courses are conducive to students who favor self-regulated learning (You & Kang, 2014). That’s way students is effective sample during the research which is related to online education and with the university. Majority of the students use Laptop, Personal Computer, i-pad, or cellphone for online learning. Online education plays an important role for young people in all economically even poverty to affluent. This can enable youngsters who live in remote or rustic zones. These students now have the ability to take classes in subjects that are not offered in their areas. They can pick up bits of knowledge from educators everywhere throughout the world.

In young people strengthening instruction activity, Start by introducing them with free resources that will teach them reading, writing skills different language, and other important information that will increase the probability of their success.

5.1.16 Justification of Variables

The present study had been undertaken to study usage, opinions, and problems in Web-based learning faced by Undergraduate Students of The Maharaja Sayajirao University of Baroda. The following are the selected variables that had been studied under the present research:

Age

Age is a significant factor that may affect the adoption of technology. Age are considered very significant factors that impact the integration of technology within the field of higher education and ages differences regarding the use of computers for educational purposes have been well documented (Abu-Samak, 2006; Albirini, 2004). Age differences among students in computer use, competence, attitudes, self-efficacy, and anxiety. Age differences in computer integration is needed to enhance the incorporation of computer for educational purposes. It is always between age and the adoption of technology that is affected by psychological features and different skills, self-efficacy and anxiety. Aging is affected psychological features that can inhibit the adoption of latest technologies.

Age-related cognitive decline has significant implications for access to technology. it is hurdle for established people to learn new skills. (Czaja and Chin, 2007)with the help of internet and user needs of adolescents expected to use it more than other categories. It would be interesting to learn about the use of the Internet by different age groups. In addition to your internet usage, it may also differ depending on your age. The middle age of India's population was around 27 years in 2015, echoing the range of the country's majority internet user base. However, increased efforts of digitalization India have been moving older adults to adapt to new media technologies in their daily different activities like Net banking and e-commerce. The Web-based learning is more used by Young generation, About 2,642,158 students – 12.5 percent of all college students – took online courses exclusively, and the other 13.3 percent of students combined online studies with traditional courses show statistics of popularity of online learning Older people have relatively slower perceptual learning than younger ones this input could be factored in the designing materials for audiences of differing ages. E-learning users reported that middle-aged people accounted for a significant proportion of the educational approach's audience, with 80% of the respondent's surveyed belonging to the 45-year-old. In the literature, there is a controversy among studies on attitudes towards ICT concerning students' age. Though it is reported that young learners have more positive attitudes compare to older (Laguna & Babcock 1997). From the Web-based learning and their usage, is diferent by age of students. Recently Join University as fresher may have more usage and expert of using technology. Those who are second and final year have less usage, opinions and different Problems.

Hence, it would be interesting to know whether the variations of age may affect or not among students.

Gender

The usage of Information Technology has extended intensely in today's like Business, Learning, Government department and homes etc. Card, S. K. et al. (1983) stated that the communication among humans and computer had strongly increased for the purpose of completing any task. Irrespective, university efforts to reduce gender inequalities, women in many countries in comparison to their male counterparts, encounter a significant disadvantage in areas such as education, politics and workplace dis-crimination. Many researcher found that the variances between the male and female have been studied in various areas such as Electronic mail, Information retrieval, Web-based learning, communication technologies and online. The studies revealed purchasing habits more positively towards men as compared to women. (Adamus et al., 2009). In this sense, it has been brought up that males and females don't utilize innovation in similar manners or at similar degrees of aptitude or experience (Dorman, 1998), being men almost certain than ladies to utilize online media, while ladies are more probable than men to communicate a lower in general capability with Personal Computers (Kayany and Yelsma, 2000). Since e-learning is portrayed both by human-human association (between understudies, individual understudies, and educators) and by human-machine connection (among understudies and e-learning programming) to help the learning procedure, we aim at testing the existence of significant difference in the assessment and use of Web–based learning activities by male and female. Considering the population of students taking part in a Web-based learning collaboration project between the University of Valencia (Spain) and the London School of Economics (United Kingdom) through Moodle, get inspiration and self-regulation additionally vie a task in productive on-line learning. Yoo and Huang (2013), "Female students have a stronger intrinsic inspiration to require Web-based Learning courses than their male counterparts." Studies by McSporran and Young (2001) found that girls and older student's most well-liked on-line courses, had a strong motivation to participate in on-line

learning and were smart an act on-line. They additionally noted that girls did higher on assignments and exams, were additional productive at finding uninterrupted study time and at self-acting.

Ladies were additionally additional doubtless to progress through a collection task in a very linear fashion, whereas men would jump ahead and run into issues. Price (2006) recommended that ladies were "confident freelance learners who could shell their male counterparts." Price's analysis suggested that ladies were additional assured on-line than in face-to-face environments, were additional willing to find out from different students, seek support, were additional autonomous than men and had a powerful want to be academically engaged. Price's analysis additionally found girls placed greater price on the pastoral facet of tutoring which their interaction styles were totally different to men's. Thus, the literature recommended the differences between however men and girls learn on-line was for the most part due to variations in however men and girls perceived their learning, with women tending to be additional receptive to, and reflective of their on-line learning. Levels of motivation, self-regulation and interaction additionally differed between men and girls who studied on-line. Many research shows that ICT has indicated have low ability to use ICT the support of females in ICT proficient professions and pathways is low and sadly keeps on deteriorating. At last, more research studies showed that email and male both are different in terms of preference in using computer and Internet. Thus, males were also significantly more inclined to replace traditional teaching activities with ICT resources. (Palaigeorgiou et al. 2005) confirmed that the two people had comparable commitment with computers both gender have same usage but female are more anxious of hardware part of computer in personal and social Life. Moreover, it can be observed that there are mixed results with respect to the influence of gender on technology adoption. That is the reasons author wants to find technology and there usage with the gender and acceptance of new technologies.

Year of Study

Online learning and classes is a growing faster in higher education institutions. It is necessary to continue to improve the online platforms for various year of students. Every

year has different experience of students. i.e. is first year, second year and third year. First year are the fresher's and lack of online learning experience while more techno friendly. Even more fascinating to know the education system of higher education. Whereas, second year is a middle year they are not fresher's but some experience compared to second year students. But second year are more efficiency to work online. Third year is a senior of all the other groups. More learning capability and have positive attitudes towards usage of online learning system and more knowledge on it. More Influence on their friends and society, and positive attitude compare to earlier year. However undergraduate seem to have young age so different year have different attitude and respondents around bachelor students who around 22 year of age. So, it will find out that usage, opinions and problems of web based learning resources by Undergraduate students had increase with the year of study or not.

Discipline

Computer and internet usage is a place for everyone. Whether your interests are in the Humanities, Social sciences, Fine arts, Commerce, or Science discipline or else Computer science. Different disciplines have various use of Computer technology.

Undergraduate students from the class First year, Second year, and Final year have been undertaken for the study. When student enrolls in the first year, he or she is a fresh out of school and when different disciplines have a different scope of learning through the Web-based and attitude perception and their usage is also different. Computerized equipment everywhere but the use of different. Internet and Computer usage is an effective way of Communication, and have most significant tool of education. Internet transfer information in a quick way. Academician, Businessperson, Scientist, Artist, Social Scientist who use computer and internet to prefer using the technology because it is easiest and fastest even cheapest way of Communication and passing necessary information. Parveen Kumar (2012) the study in the computer literacy level of medical students, has average or advanced knowledge in the use of computer software like Microsoft-word, excel, internet, email, etc. The study initiate that Information Communication & Technology can be a useful tool to solve problems in medical education, but the lack of technology and resources is still a serious limitation. Education includes two fields of study: humanities and technical. Higher

education prepares people differently, holistically, it may be reasonable to expect that people will be drawn to various academic disciplines, in part, due to their own personal beliefs and psychological characteristics.

Every discipline have different Syllabus to learn during academic program thus field wise discipline is also change.

Moreover, it will be interesting to get know about different discipline have different usage opinions and problems of Web-based learning and how it is affective in their Curriculum.

Monthly Family Income

The biggest impact of access to e-learning on various members of society could be significant. Apart from the improved skills, Monthly Family Income plays an important role.

Monthly family income describes the family's spending dynamics. The family that belonged to the high-income group can spend more money on reloading the Internet to use the high-speed Internet.

High Speed Internet provides an indication of the high usage of the Internet. Kalmus, Realo and Siibak (2011) claimed that those who have higher monthly family income belonged to more usage of the Internet, thus spending a greater portion of their income on their daily Internet.

People with different socio economic status incline to depict a differencing outlook towards the usage of technology. People at a higher socioeconomic status tend to use the internet more rather than lower socioeconomic status. People at a higher socioeconomic status are more effective in using the internet productively and also for increasing their economic wealth. However socio economic status may be a multifaceted concept measured through several variables like educational level, employment status, and income levels. Here the education level attained and income is strongly correlated. However, income has also been found to have an independent effect on internet usage. It is found out that people with high incomes tend to be involved in using the internet for news, for searching jobs, product information and also for work. On the opposite hand, people with middle income are found to be more inclined towards using the internet for entertainment and downloading. Kalmus,

Realo, and Siibak (2011) support the conclusion that people from a higher income bracket are more involved in the Internet, thus spending more of income on your daily Internet. Some researchers also found that Positive and important connection income and towards utilization on the Internet. Individual have different perspective who have higher income they spend more for internet purpose.

Thus, it is assumed for the under graduate students that higher income has more usage and face less problems for the web-based learning.

ICT Competencies

The efficient use of technology can prompt students, make our classes more effective and enjoyable, and renew teacher enthusiasm as they learn new skills and techniques. Technology is helping the students to understand concepts clearly. ICT has become an essential part of now's teaching-learning process. The use of information communication and technology can make important changes in both teaching and learning. ICT can provide strong support for educational change. In the last few decades, we have seen an expanding number of young youth gaining access to higher education. This reflect a pattern at a worldwide level ,which is to a great extent because of the democratization and advancement of social orders, the improvement of day to day environments and structures ,the interest for an all the more profoundly qualified presentation both in professions and citizenships we have, thusly saw a change both as far as quality just as quality in the understudy populace ,reflected in the continuous loss of the elitist and formal character of advanced education through the confirmation of people from every single social class (Soares and Almeida,2002). "The emancipatory and transformative potentials of the ICT in advanced education in India has helped increment the nation's prerequisite of advanced education through low maintenance and separation learning plans. It tends to be utilized as an instrument to beat the issues of cost, less number of instructors and low quality of training just as defeat time and separation hindrances."(MC Gorry, 2002)

The development of Information and Communication Technology influences many cultures and lifestyles. The application of technology in teaching and learning gives a new paradigm. In India Major governing body is the university grant commission (UGC), which implements new policies, standards, and rules for promoting Higher education in state

government and private universities. According to The computerized or mechanical proficiency is introduced today as an important component for the training of college understudies which, when communicated corresponding to the ICTs, includes the need of being learned in the utilization of new and old codes, representative frameworks and methods of association. Actual use of technology can motivate students, make our classes more dynamic and interesting and improve skills and techniques. ICT has become an essential part of today's learning process**.** And also provide powerful support for educational innovation. From last few years back, we have seen an increasing number of youngsters accessing to higher education.

Information and Communication Technology (ICT) playing an important role in the market promote a knowledge-based society in India. As indicated by Fuentes (2007), we could state that competency is: A lot of information, aptitudes, mentalities, and qualities that are expected to viably play out an occupation or a productive role. Similarly Yanez-Galecio (2005) asserts that competency could be viewed as a property of an individual: explicitly competency can be identified with his/her achievement in the presentation of an assignment. In this way, disappointment is viewed as the nonappearance or low degree of improvement of one or a few capabilities related to a particular action. Tobon (2013) characterizes competency as the incorporated activities performed by an individual to complete exercises and take care of issues, given certain qualification measures, constant improvement, and morals. ICT competencies that are necessary for them to be fully involved in the educational process (Rosman, 2013). The common assumption is that the competencies they acquired at the previous levels of education. ICT has strong agent for change among many faculties like conducting examination, pay fees, availability of online reading Materials. Thus ICT in Higher education serve to know in order to live effectively in a digital world. ICT play vital role as a strong agent for change among many educational practices i,e conducting online exam, pay online fees, accessing online books and journals. Thus ICT in Higher education improves teaching learning process, provides the facility of online learning to thousands to thousands of learners who cannot avail the benefits of higher education due to several checks, such a time, cost, geographical location etc. Once again ICT serve to provide the means for much of this activity to realize the potential it holds ICT play vital role as a strong agent for change among many educational practices i,e conducting

online exam, pay online fees, accessing online books and journals. Thus ICT in Higher education improves teaching learning process, provides the facility of online learning to thousands to thousands of learners who cannot avail the benefits of higher education due to several checks, such a time, cost, geographical location etc. Once again ICT serve to provide the means for much of this activity to realize the potential it holds Finally, it is important to continue working with comparative analysis in order to detect what is happening in the university in education based in the best practices in teaching and learning and get a better understanding that who participate in this educational process. ICT Competencies in the current study is defined as the ability of the youth to be able to use basic internet facilities and usage of websites. It is may differ from discipline wise Usage of Computer and Internet. Thus, curiosity to know how different from other ICT competencies among students of Undergraduate.

Attitude towards ICT

The utilization of Information and Communication Technology (ICT) is these days expected to be an everyday practice in teachers and students regular work rather than a haphazard event. However, there is a gap between the goals and everyday college life. Therefore need to use ICT on regular basis. New technologies are the instruments for change and innovation. The use of electronic (i.e. computers) media empower the student to seek their instruction without going to classes on a college. They are unable to communicate and study through various technologies that allow them to interact in real time and through many different ways using the internet.

In numerous instructive institutes, innovation has been viewed as one of the key drivers for the improvement of educating and learning. The use of ICT helps facilitate teaching and learn for both teachers and students in the classroom. Accomplishing significant utilization of ICT in the field of instruction can be affected by numerous components, which incorporate innovation accessibility, of ICT equipment, and specialized help. (Al-Ruz & Khasawneh, 2011)Among these factors, users' attitudes towards the use of technology could impact teaching and learn in the classroom (Abedalaziz et al., 2013).

Brosnan (1998) confirmed the impact of personal computers at home on knowledge and students are highly rated using various software like animation, and visual design. Studies

by Brosnan (1998), Williams (2003), Neo (2003), Ogilvia (1999), Fancovicova and Prokop (2008), Sarfo, Amartei, Adentwi and Brefo (2011) showed that the students have high positive attitude towards Information and Communication Technology (ICT). Siragusa and Dixon (2008) examined the mentalities of a gathering of college understudies towards their utilization of and commitment with ICT communications. Despite the fact that the gathered quantitative information uncovered that understudies thought collaborating with ICT was lovely, useful and simple, the subjective discoveries indicated that a few understudies experienced sentiments of uneasiness and terrorizing when working with ICT. Yang and Kwok (2017) and Meerza and Beauchamp (2017) have discovered that appositive attitude toward ICT is a vital condition for the utilization of ICT in instructing understudies to be effective learners online. These results have led to increased interest in the study of variables that might impact attitudes toward the use of ICT. Kubiatko (2010) studied differences in attitudes toward ICT according to sex, age, year of study, and type of residence in a sample of 316 Czech students. In general, the students reflected positive attitudes toward ICT, even though men, second-year students, and students living in rural areas showed a more positive attitude in comparison to women and urban students. Casillas, Cabezas, Ibarra, and Rodriguez (2017) evaluated the digital competence of 580 education students at the University of Salamanca (Spain). Digital competence was measured through attitudes toward ICT. It was found a more favorable attitude in female students than in male students even though males showed higher levels of knowledge and use of technology. Attitudes to ICT had a significant impact on the academic performance of the student because students with higher scores in attitude get better grades. The successful use of ICT in teaching and learning will depend largely on the attitudes of the students towards the use of ICT. Attitude has been one of the most significant ideas in social science. It is entrenched that attitude play an important role in individuals' decisions, assessments, and practices. ICT acceptance and use is a social phenomenon where attitude should also assume a significant role. Similarly, in the present study, the investigator tries to study the attitude of students towards use of ICT in higher education. Attitude can be positive or negative. Thus need to find Attitude of Undergraduate Students it may be differ from one another.

5.1.17 Objectives of the Study

1. To study the Profile of the Undergraduate Students of The Maharaja Sayajirao University of Baroda.
2. To study the Overall Usage of Web-based learning resources amongst Undergraduate Students of The Maharaja Sayajirao University of Baroda.
3. To study the differences in Overall Usage of Web-based learning resources amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to their
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT
4. To study the Usage of Web-based learning resources amongst Undergraduate students of The Maharaja Sayajirao University of Baroda with respect to their
   - Curriculum Aspects
   - Soft Skills Aspects
5. To study the differences in the usage of Web-based learning resources related to Curriculum Aspects amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to their
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT

6. To study the differences in the usage of Web-based learning resources related to Soft skills Aspects amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to their
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT
7. To study the Overall Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning resources.
8. To study the difference in the Overall opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning resources in relation to their
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT
9. To study the Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning resources with respect to their
    - Curriculum Aspects
    - Soft Skills Aspects
10. To study the differences in the Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning resources for Curriculum Aspects in relation to their
    - Age
    - Gender

- Year of Study
- Discipline
- Monthly Family Income
- ICT Competencies
- Attitude towards ICT

11. To study the differences in the Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning Resources for Soft skill Aspects in relation to their
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT
12. To study the Problems faced by the Undergraduate students of The Maharaja Sayajirao University of Baroda while using Web based learning resources.
13. To study the differences in the problems faced by the Undergraduate students of The Maharaja Sayajirao University of Baroda while using Web based learning resources in relation to their
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT
14. To obtain the Suggestions from the Undergraduate students of The Maharaja Sayajirao University of Baroda for improving the usage of Web-based learning resources amongst the students.

5.1.18 Null Hypothesis

1. There will be no significant differences in the Overall usage of Web-based learning resources amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to the following variables.
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT

2. There will be no significant differences in the usage of Web-based learning resources related to Curriculum Aspects amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to the following variables.
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT

3. There will be no significant differences in the usage of Web-based learning resources related to Soft skills Aspects amongst Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to following variables.

-Age

-Gender

-Year of Study

-Discipline

-Monthly Family Income

-ICT Competencies

-Attitude towards ICT

4. There will be no significant differences in the Overall Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning resources in relation to their following variables.
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT
5. There will be no significant differences in the Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning Resources for Curriculum Aspects in relation to their following variables
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT
6. There will be no significant differences in the Opinions of Undergraduate students of The Maharaja Sayajirao University of Baroda regarding Web-based learning Resources for Soft skill Aspects in relation to their following variables
   - Age
   - Gender
   - Year of Study
   - Discipline
   - Monthly Family Income
   - ICT Competencies
   - Attitude towards ICT

7. There will be no significant differences in the problems faced by the Undergraduate students of The Maharaja Sayajirao University of Baroda while using Web based learning resources in relation to their following variables
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT

5.1.19 Assumptions of the Study

1. Students of The Maharaja Sayajirao University use Web-based learning for various purposes.
2. The students selected for the study in relation to:
    - Age
    - Gender
    - Year of Study
    - Discipline
    - Monthly Family Income
    - ICT Competencies
    - Attitude towards ICT
3. Web- based learning usage, opinion and problems of students differ from one another.

5.1.20 Delimitations

Study is delimited to the following variables :

- Age
- Gender
- Year of Study
- Discipline
- Monthly Family Income

- ICT Competencies
- Attitude towards ICT

5.1.21 Operational Definition

Web-based learning

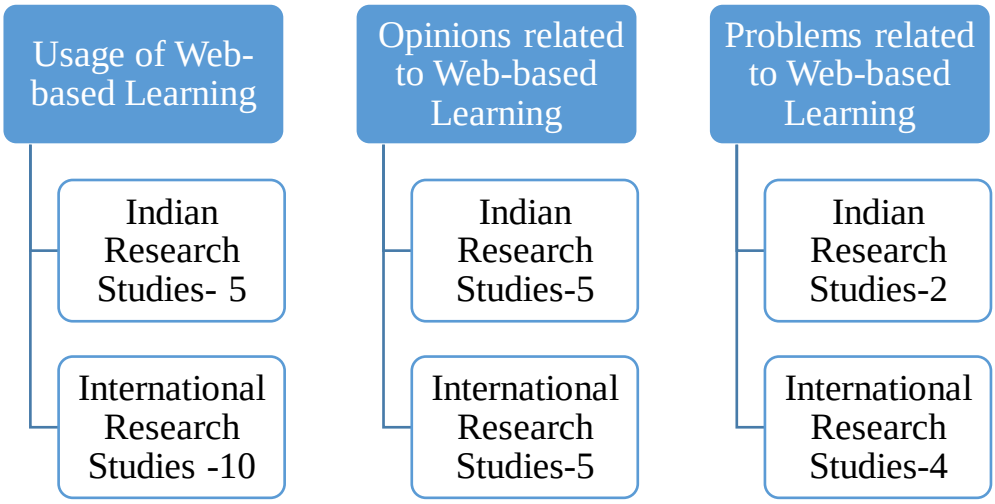
According to the present study, web-based learning was online learning, e-learning, video conferencing, email discussion, live conference, online content reading, PowerPoint presentation, PDF users, all reading material available in electronic format.

5.2 Review of Literature

Web-based learning provides great opportunities for teachers to improve their teaching and learning, including their multimedia, multimode communication and presentation, easy access to growing information and increasing presentation capacity. Its proper application allows a holistic approach for skills and knowledge that is not limited to a specific course, technology or infrastructure. Other than that, the advancement of computers and communication technologies has opened unprecedented opportunities to address many educational needs and provide a variety of educational applications for a wide range of potential users. The most important change in the world has witnessed in recent years is the rapid development and expansion of information technology in education, economy, health, agriculture, social life and in all fields. The development of Web-based learning has provided students with a variety of teaching / learning options that go beyond the traditional classroom. In addition to face-to-face education, students are now learning through telecommunications, Web-based instruction, e-learning and other current advances in telecommunications technology. "Web-based learning strategies" refers to the decentralized approach where material is provided through the Internet. Instead of attending classes in a centralized facility or location, students try to sit, observe, listen, and interact with the content of the course designed for that purpose. Various elements are combined with classroom elements to mimic and enhance the classroom experience.

A review of related literature helps the researcher better understand the research problem. One can better understand the problem of research only when he/she examine the field of

related literature from different angles. Furthermore, it also allows the investigator to select the appropriate techniques, tools and methods used in similar studies. Reviewing related literature allows any researcher to become familiar with the recent information and difficulties arise. during which he/she interested in research. It provides the theoretical and empirical framework from that research difficulties arise. This research is based on Usage, Opinions and problems of Web-based learning by Students. Hence, the investigator referred numerous review of related to Usage, Opinions and Problems related with Web-based learning. The reviews were collected from various source like Universities and public libraries, e-libraries, e-source like Jstore, Research gate, Academia, and Elsevier.



The research trends in the literature reviewed during the period from 2004 to 2019 have been considered. Studies on the factors that could affect online education, the Usage, Opinions Perception Attitude and Problems of these students were studied in India like (Pune, Maharashtra, Gujarat Jammu and Kashmir, Chandigarh, UP, MP Indore, Tamilnadu, and International studied like USA, Bangladesh, Jordan Nigeria, Pakistan, Malaysia, Spain, Hong Kong, Bahrain, Turkey, and Kenya. The Minimum study sample size was 15 and the maximum size was 10636. The majority survey design was used and largest sample size study conducted in UP . The trend of the sampling technique suggests that most studies have used random sampling and the convenience sampling technique. The tools used for

data collection was Structured Questionnaire with Five-point Liker scale. Statistical Analysis was done through the Frequency Percentage and Correlation coefficient.

It was found that age, gender, prior knowledge, technical skills, computer and internet connection, academic achievement, infrastructure, cultural background, and personal values are the main determinants of the perception of students in the usage of Web-based learning. In this way, apart from one research reported gender to be non-significant for web-based learning. The mixed experience study emphasizes on reviewing the importance and the level of the significance between the students and faculty. On the other hand, it has been observed that no research has been done on the Social Sciences. Then again, the trend has revealed that there is a significant correlation between the accessibility of computers in the sample under study and their attitude and satisfaction with mixed learning methods. The results generally showed that mixed learning was an effective method for in-dept. knowledge of academic subjects.

5.3 Methodology

The present research was conducted to investigate "Usage, Opinions and Problems of web-based learning by undergraduates of The Maharaja Sayajirao University of Baroda". This chapter describes the steps followed to conduct the study. They are as follows:

- Pilot Study
- Population of the Study
- Sample Selection of the Study
- Research tool for Data collection
- Description of the Research Tool
- Validity of Research Tool
- Reliability of the Research Tool
- Pretesting of the Research Tool
- Data Collection
- Scoring and Categorization of Variable
- Statistical Analysis of the Data

5.3.1 Pilot Study

"Usage, Opinions and Problems of Web-based learning by Undergraduate students of The Maharaja Sayajirao University of Baroda" a pilot study was carried out between January 2018- May 2018.

5.3.1.1 Objectives of the pilot study

- To study the profile of the Undergraduate students of The Maharaja Sayajirao University of Baroda.
- To study the usage of Web-based learning amongst Undergraduate students of The Maharaja Sayajirao University of Baroda with respect to their -
  - Age
  - Gender
  - Discipline
  - Year of study
  - Monthly Family Income

5. 3.1.2 Sample of the Pilot Study

A Pilot study was conducted in the year 2018 in The Maharaja Sayajirao University of Baroda, Vadodara. The sample for the pilot study was selected from the following faculties:

- Arts
- Commerce
- Science

By using convenient sampling method thirty students were selected from above mentioned 3 faculties as the sample of the Pilot Study. Both boys and girls student were selected from the first year, second year and third year purposively. 10 students were selected from each group. The distribution of sample can be seen in the table below:

Distribution of Sample **N= 30**

Faculty	**Male**	**Female**	**Total**
Arts	5	5	10
Commerce	5	5	10
Science	5	5	10
Total	**15**	**15**	**30**

5.3.1.3 Description of the Tool used for Pilot Study

A structured questionnaire was constructed. The pilot study questionnaire consisted of the following sections:

Section I: Profile of the respondents

This section includes elements related to the profile of Undergraduate students, such as theirs Age, Faculty, Year of study, Gender, Discipline and Monthly family income.

This section includes elements related to the profile of Undergraduate students, such as age, year of study, year of study, gender, discipline and monthly family income.

Section II: Usage of web-based learning by Undergraduate students of the Maharaja Sayajirao University of Baroda.

This section included twenty multiple choice questions related to usage of Web-based learning related to:

- Daily use of computer
- Daily use of Internet
- Time spent for using Computer
- Time spent on Internet
- Devices used to access Internet
- Type of Internet connection
- Reason for using Web-based learning

5.3.1.4 Procedure of data collection

A survey method was used to collect the data. The prepared questionnaires were distributed to undergraduate students studying at the Maharaja Sayajirao University of Baroda, Vadodara. The collected data were analyzed by calculating mean scores and percentages.

A tracking method was used to collect the data. The prepared questionnaires were distributed to undergraduate students studying at the Maharaja Sayajirao University of Baroda, Vadodara. The collected data were analyzed by calculating the average scores and percentages.

5.3.1.5 Major Findings of the Pilot Study

5.3.1.5.1 Background information of the respondents

There was the same number of respondents (10) for each group of faculty, for a total of 30 respondents.

- Most of the respondents were from 19 years old that is (74%)
- Equal number of participants were male and female.
- Equal number of respondents were from same Discipline that is Arts, Commerce and science
- Most of the respondents belonged from Third year i.e. is (63.30%).
- (53.3%) belonged to higher family income group.

5. 3.1.5.2 Usage of Computer and Internet

- Daily use of the Computer by respondents (98%)
- Daily use of the Internet (88%)
- Respondents were spending 7-8 hours to use Internet and Computer facilities

5.3.5.1.3 Devices that the students were using to access internet

- Personal Computer (20%)
- Laptop (55%)
- Smart Phone (75%)

5.3.5.1.4 Type of Internet connection used by the students

- Free Wi-Fi zone of University (22%)
- Paid Wi-Fi (23%)
- Mobile network with 4G Mobile (55%)

5.3.5.1.5 Reasons for using Web-based learning reported by the students

- Use website to pay fees (88%)
- Use video as learning materials (78%)
- Download materials from University website (69%)
- Use internet to make plagiarism free document (55%)
- Use software to check spelling and grammar (49%)

- Use plagiarism checker (25%)
- From the results of the pilot study, it emerged that college students used computers and the Internet for their educational purposes. The study results revealed that the primary reason for using the internet was educational. A wide variety of computer and internet use has been found among college students, from paying fees, collecting study materials, using plagiarism check to reduce, etc.

This era of pervasive technology has significant implications for the use of web-based learning for higher education, not only to make education interesting, but also to provide access to education for students from any part of the country to any moment. Web-based learning can improve the learning process, increase productivity, and achieve this more effectively than the traditional approach.

The study revealed areas where a basic e-learning system can be introduced, as well as areas for improvement that need to be addressed when implementing e-learning.

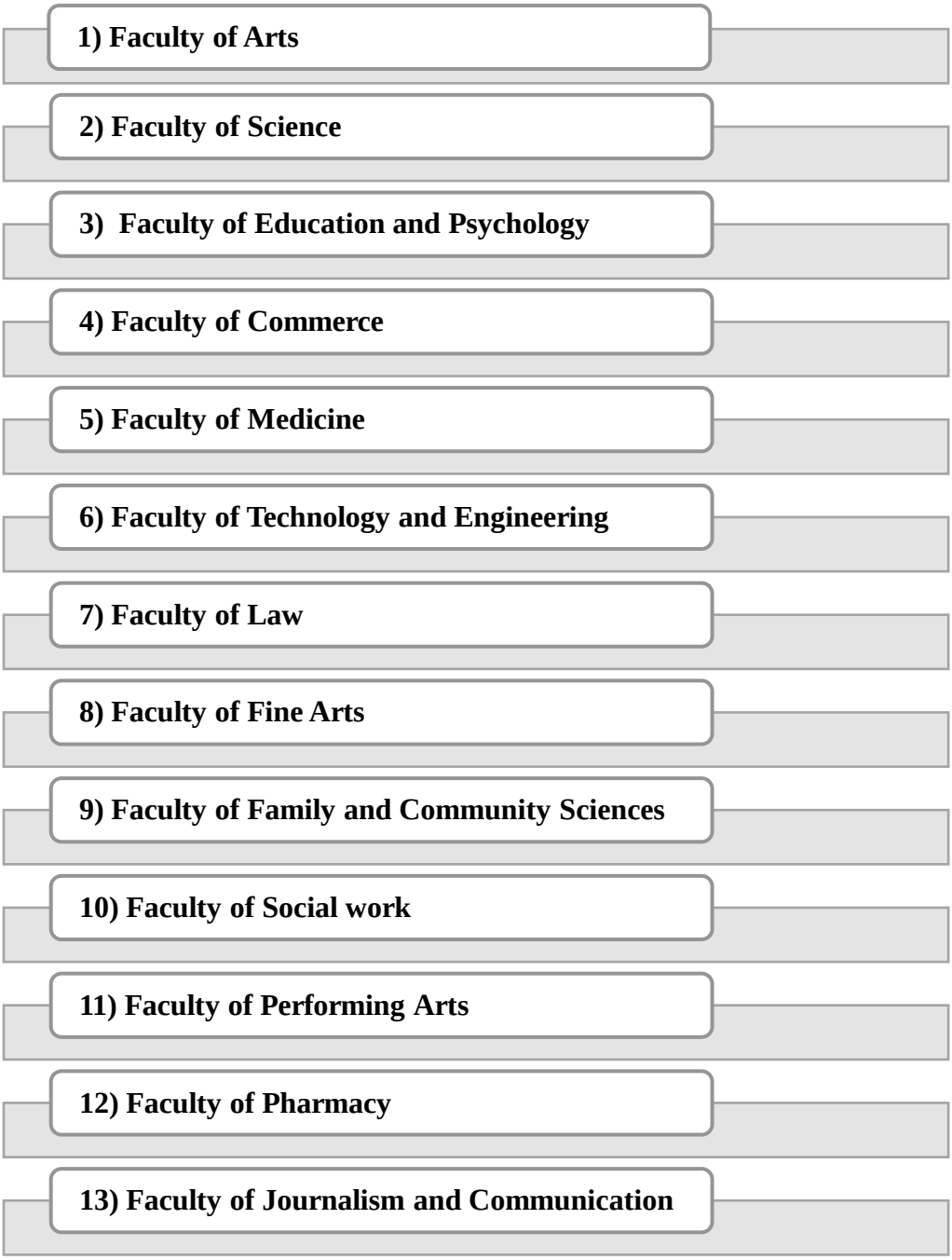
This pilot study laid the foundation for conducting research on "Usage, Opinions and Problems of Web-based learning by Undergraduate Students of The Maharaja Sayajirao University of Baroda, Vadodara

5.3.2 Population of the study

The population of the study comprised of the Undergraduate Students of the Maharaja Sayajirao University of Baroda, Vadodara Gujarat

5.3.3 Sample Selection for the Study

- After deciding the population for the study, the next step was the selection of the sample. For this, purposive and convenient sampling methods were used.
- The sample of the study were selected from below mention faculties of The Maharaja Sayajirao University of Baroda. They were



Sample Selection of the study

Those faculties that offers similar Undergraduate courses were merged together. Then the faculties were further categorized as mentioned below.

Categorization of Faculties

Group No.	Name of Faculty Group	Faculties Merged
1.	**Arts and Commerce**	• **Faculty of Arts**, • **Faculty of Fine Arts,** • **Faculty of Performing Arts,** • **Faculty of Commerce,** • **Faculty of Education,** • **Faculty of Law**
2	**Science**	• **Faculty of Science**
3	**Technology**	• **Faculty of Technology and Engineering**
4	**Medicine**	• **Faculty of Medicine ,** • **Faculty of Pharmacy**
5	**Community and Social Sciences**	• **Faculty of Family and Community Sciences,** • **Faculty of Social work,** • **Faculty of Journalism and Communication**

- After forming these five groups of faculties, it was decided to take equal number of students from each group of faculty.
- From each faculty group, it was decided to take equal number of students from First year, Second year and Final year.

5.3.3.1 Selected Sample

The sample selected refers to the number of respondents selected for the study. It was decided to take seven hundred and fifty Undergraduate students from the selected faculties of The Maharaja Sayajirao University of Baroda, Vadodara. One hundred and fifty students were taken from each group of faculties.

Number of Selected Sample

Faculty	Number of Respondents selected	Number of respondents filled incomplete questionnaire	Number of respondents filled complete questionnaire
Arts and Commerce	150	03	147
Science	150	20	130
Technology	150	26	124
Medicine	150	13	137
Community and Social Sciences	150	10	140
Total	750	72	678

After separating the completely completed questionnaire, it was decided to take a sample of 120 from each category of faculty. For this, 120 students was selected form each group.

Out of the Seven Hundred and Fifty Undergraduate students, only Six Hundred students had reply entirely in the questionnaire.

Year wise distribution of sampling

Year of study →	**First Year**		**Second Year**		**Third Year**		**Total**
Faculty ↓	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
Arts and Commerce	20	20	20	20	20	20	**120**
Science	20	20	20	20	20	20	**120**
Technology	20	20	20	20	20	20	**120**
Medicine	20	20	20	20	20	20	**120**
Community and Social Sciences	20	20	20	20	20	20	**120**
	100	**100**	**100**	**100**	**100**	**100**	**600**

Thus, the final research sample comprised of 600 Undergraduate students from The Maharaja Sayajirao University of Baroda, Vadodara.

5.3.4 Research Tools for Data Collection

The present study was exploratory research. Therefore, the survey method was applied for studying the Usage, Opinions, and Problems of Web-based learning by Undergraduate students. A structured questionnaire used as research tool. The questionnaire was constructed in English. The relevant content for studying Usage, Opinions, and Problems was drawn by mentioning the related literature in books, journals, and also internet through the following libraries were visited the refer the available literature for the same.

Inflibnet center, Gandhinagar

- Smt. Hansa Mehta Library, The Maharaja Sayajirao University of Baroda.
- Library of Centre of Advanced Study in Education (CASE), The Maharaja Sayajirao University of Baroda.
- Library of Department of Extension and Communication Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda. (Appendix –II)

5.3.5 Description of the Research Tool

A structured questionnaire used for data collection. The questionnaire contained of following seven sections:

SECTION I: Background Information

SECTION II: Usage of Web-based Learning Resources

SECTION III: ICT Competency

SECTION IV: Attitude towards ICT

SECTION V: Opinions towards Web-based learning

SECTION VI: Problems

SECTION VII: Suggestions

Section I Background Information

Section I of the research tool was designed to obtain data related to the profile of the under graduate students. It included questions related to their-

- Faculty,
- Year of Study,
- Age,
- Gender,
- Monthly family Income,
- Web-based learning Facilities,
- Web-based learning training

Section II Information regarding Usage of Web-based Learning Resources

This section deals with obtaining information regarding the usage of Web-based Learning resources. It includes questions related to

- Frequent use of computer
- Access of Computer and Internet,
- Devices to access Internet
- Type of Internet Connection,
- Use of the Web-based resources provided in computer lab by University
- Usage of Web-based resources learning of Curriculum Aspects,
- Usage of Web-based resources learning of Soft skills Purpose of using the internet:

The checklist and three-point scale were designed to take advantage of the respondents' responses. Thirty items were for the use of web-based learning resources of the curriculum aspects and the learning aspects of soft skills were listed to obtain the data. Respondents had to tick mark against the usage of Web-based learning resources according to their frequency of using the internet and computer for the same.

Section III ICT Competency

Section III was designed to collect information regarding one of the dependent variable of the present study i.e. ICT Competency. Total Twenty three point scale was designed to avail the response of the respondents from ICT Competency. A checklist was prepared wherein

the students had to according to ICT Competency. The options provided - Great extent, Some Extent, and Less Extent.

Number of Statement on ICT Competency

ICT Competency	**No. of Statement**
ICT Competency	20
Total number of statements =	20

Section IV Attitude towards ICT

Section IV It was dependent variable in study and to collect information regarding Attitude towards ICT. Both positive and negative statements related to Attitude towards ICT. Total seventeen point scale was designed to avail the response of the respondents from Attitude towards ICT. A checklist was prepared wherein the respondents had to tick mark about the Attitude towards ICT. The options provided under the same were- Great extent, Some Extent, and Less Extent.

Number of Statement on Attitude towards ICT

Attitude towards ICT	**No. of Statement**
ICT Competency	17
Total number of statements =	17

Section V Opinion towards Web-based leaning

This section was created to collect responses related to the opinion on web-based learning. The response sheet use to collect three-point rating scale. Give response according to the statement. Twenty seven statements were prepared for the response. **Section VI Problems Faced While Usage of Web-based learning**

Section VI which is a three-point rating scale prepared to obtain answer. problem faced by respondents while using web-based learning resources. Seventeen problems were stated to collect the answers. Respondents agreement for the statement provided .

Section VII Suggestions of Undergraduate students for improving the usage of Web-based Learning

Section VII contained a three-point rating scale prepared to obtain data on suggestions provided by undergraduates for using web-based learning resources. The statements made were related to suggestions. Thirteen suggestions were given for compiling the responses. Respondents were asked to provide their answers in terms of the level of agreement for the statement provided.

Description of the Research Tool

The Description of the Research Tool which was used for data collection.

Sections	Content	Response system
I	Background Information (Faculty, Year of Study, Age, Gender, Monthly family Income, Web-based learning Facilities, Web-based learning training)	Checklist
II	Information regarding Usage of Web-based Learning Resources (Frequently use of computer, access of computer an Internet, Devices to access Internet, Types of Internet connection, Type of Internet Connection, use of the Web-based resources provided in computer lab by University, Usage of Web-based resources learning of Curriculum Aspects, Usage of Web-based resources learning of Soft skills)	• Checklist • Three Point Rating Scale
III	ICT Competency	Three Point Rating Scale
IV	Attitude towards ICT	Three Point Rating Scale
V	Opinion towards Web-based Learning (opinion on learning of Curriculum Aspects and Soft Skills)	Three Point Rating Scale
VI	Problems Faced While Using Web-based learning	Five Point Rating Scale
V	Suggestions of Undergraduate students for improving the usage of Web-based Learning	Five Point Rating Scale

5.3.6 Validity of the Research Tool

The developed questionnaire was delivered to experts from different fields. The content validity was checked for the developed research tool. The experts were asked to provide their valuable suggestions in terms of:

- Content,
- Appropriateness of response system and
- Language clarity

The experts approached were from the following institutions-

- Professor and Head, Department of Extension and Communication, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
- Professor, Department of Extension and Communication, Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda, Vadodara.
- Assistant Professor, Department of Statistics, Faculty of Sciences The Maharaja Sayajirao University of Baroda, Vadodara.
- Professor, Department of Education (CASE), Faculty of Education and Psychology, The Maharaja Sayajirao University of Baroda, Vadodara.
- Professor, Department of Electronics *Saurashtra University* Rajkot, Gujarat
- Head, Department of English, Maharaja Krishna Kumarsinhji Bhavnagar University, Bhavnagar, Gujarat

The suggestions given by the experts were incorporated into the research tools. These suggestions were related to the terminology used in the research tool. Difficult terminology were simplified as suggested by the different experts.

5.3.7 Reliability of the Tool

To verify the reliableness of the research tool, the test-retest technique was used. The tool was administered to twenty respondents. Respondents completed the tool doubly within the 15-day interval. The parameters statistic between the 2 sets of scores was calculated to find out the reliability. The reliability was 0.98, it's proved that it was extremely reliable. It was calculated through the following formula:

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

Where r = Coefficient of correlation

X= Score of the First test

Y= Score of the Second test

5.3.8 Pretesting of the Research Tool

After reliability next is, pretesting of the research tool. The tool was pre tested on twenty undergraduate students of The Maharaja Sayajirao University of Baroda, Vadodara. The students selected for pre- testing of the tool took half-hour to reply to that. The aim of the pre testing was to understand the issue faced by the students in filling the questionnaire, time required for filling up the questionnaire and to test the clarity of the language. The students didn't report any difficulty in responding to the questionnaire. After this research tool was finalized.

5.3.9 Data Collection

- To study the Usage, Opinions and Problems of Web-based learning by Undergraduate students, the data were collected from Undergraduate students of The Maharaja Sayajirao University of Baroda, Vadodara, from March 2019 to August 2019.
- To collect data from the selected faculties, The Deans of the respective faculty were contacted. Permission was sought for the data collection from their respective faculties, by submitting the necessary permission letter.
- Deans advised to contact the teachers nominated by them to help and guided the researcher in data collection. The schedule for the data collection was decided with the help of these teachers.
- The questionnaires were distributed in the classrooms as per the schedule to the students of various levels that is year wise according to the time slot given by the faculty in charge teachers.

- Students were also contacted at the Hostel, Canteens and Common rooms ensuring their year of study, Faculty etc. The permission of the Chief Warden and respective Hostel Wardens was also taken for the same. Contact numbers of the students contacted at the places other than classrooms were collected so as to remind about the collection of filled questionnaires.
- More than 1000 forms were distributed to the undergraduate students, out of which 678 students filled the questionnaire completely. Few of the forms were incomplete and however, they were eliminated. In order to make equal distribution of the sample it was decided to select 120 questionnaire form each faculty group. Therefore, total 600 forms were selected for final data processing.

5.3.9.1 Difficulties faced while data collection

The researcher faced following difficulties in data collection:

- Fixing up the schedule for data collection in the classrooms in various faculties.
- Respondents who were contacted other than classrooms needed repeated reminders to fill up the and to return questionnaires.

5.3.9.2 Tabulation of data

- Data were coded on the basis of pre decided scores to the responses.
- Excel sheets were prepared for the same purpose by the researcher.

5.3.9.3 Scoring and Categorization of the Data

The research data on Usage, Opinions and Problems of Web-based learning by Undergraduate students, were scored and categorized as follows:

5.3.10 Categorization and Scoring of Variables

The categorization of independent and dependent variables of the study are as follows-

Categorization of independent variables of the study

Independent Variables	Basis	Categories
Age	16 – 18 years	Young Youth
	19-21 + Years	Youth
Gender	-	Male
		Female
Year of Study	First year	First year
	Second year	Second year
	Final Year	Final year
Monthly Family Income	Rs.25000-Rs.80000	Middle Income
	Rs. 80001-Above	High Income
Training in Web-based Learning	Attended	Trained
	Did Not attend	Untrained
ICT Competency	1.00-1.50	Low Competency
	1.60-2.59	Moderate Competency
	2.60-3.00	High Competency
Attitude towards ICT	1.00-1.50	Positive Attitude
	1.60-2.59	Neutral Attitude
	2.60-3.00	Negative Attitude

5.3.11 Scoring and categorization of the data

Minimum and Maximum obtainable scores of ICT Competency

No. of Items	Maximum obtainable Score	Minimum obtainable Score
20	60	20

Scoring and Categorization of Attitude towards ICT

No. of Items	Maximum Obtainable Score	Minimum obtainable Score
17	51	17

Scoring a Categorization of usage of web-based learning for Overall, Soft skills and Curriculum aspects.

Response	Scores	Range of Soft skills and Curriculum Aspects of Usage of web-based Learning	Categories
Great Extent	3	2.60-3.00	High
Some Extent	2	1.60- 2.50	Moderate
Less Extent	1	1.00 – 1.50	Low

Maximum & Minimum obtainable Scores of usage of Web based Learning

Aspects	No. of Items	Maximum Obtained Score	Minimum Obtained Score
Overall	30	90	30
Curriculum	16	48	16
Soft Skills	14	42	14

Scoring and Categorization of opinion of Undergraduate students regarding their

Overall, Soft skills and Curriculum aspects related Web-based Learning experiences

Response	Scores		Range	Categories
	Positive	Negative		
Great Extent	3	1	2.60-3.00	More Favorable
Some Extent	2	2	1.60- 2.50	Favorable
Less Extent	1	3	1.00 – 1.50	Least favorable

Maximum & Minimum obtainable Scores of usage of Web based Learning

Aspects	No. of Items	Maximum Obtained Score	Minimum Obtained Score
Overall	27	81	27
Curriculum	14	42	14
Soft Skills	13	39	13

Scoring for Opinions towards Web-based learning

Response	Scores for Positive Items	Scores for Negative Items	Range of Intensity Indices	Categories
Great Extent	3	1	3.5 - 5.00	Most favourable
Some Extent	2	2	2.1-3.49	Favourable
Less Extent	1	3	1.00-2.00	Lest favourable

Scoring and Categorization for problems faced by Undergraduate students while using Web-based learning resources

Response	Scores	Range	Categories
Strongly Agree	5	3.5 - 5.00	More Problems
Agree	4		
Neutral	3	2.51-3.49	Moderate Problems
Disagree	2	1.00-2.50	Did not had any Problem
Strongly Disagree	1		

Maximum and Minimum obtainable scores for problems faced by Undergraduate students while using Web-based learning resources

Aspect	No. of Items	Maximum obtainable Score	Minimum obtainable Score
Problems faced while using the Web-based learning resources	17	85	17

Scoring and Categorization for Suggestions given by Undergraduate Students for using Web-based learning resources

Response	Scores	Range	Categories
Strongly Agree	5	3.5 - 5.00	Strongly Suggested
Agree	4		
Neutral	3	2.51-3.49	Moderately Suggested
Disagree	2	1.00-2.50	Least Suggested
Strongly Disagree	1		

Maximum and Minimum obtainable scores for Suggestions given by Undergraduate students for using Web-based learning resources

Aspect	No. of Items	Maximum obtainable Score	Minimum obtainable Score
Suggestions for using Web-based learning resources	12	60	12

5.3.12 Statistical analysis of the data

Table20 Statistical Measures Used to analyze the data

Content	Statistical measures
Background Information of Students	Frequency and Percentage
Usage of Web-based Learning amongst Undergraduate Students	Frequency and Percentage, Intensity Indices, t-test, ANOVA and Posthoc test (Tukey's HSD comparison).
Opinions of Under Graduate Students regarding Web-based Learning	Frequency and Percentage, t-test, ANOVA and Posthoc test.
Problems faced by Under Graduate Students in using Web-based Learning	Frequency and Percentage, Intensity Indices, t-test, ANOVA and Posthoc test (Tukey's HSD comparison)
Suggestions of Undergraduate students for improving the usage of Web-based Learning	Intensity Indices (I.I)

Formulas Used for different Statistical Measures

Formula used for t-test was-

$$t = \frac{(x_1 - x_2)}{\sqrt{\frac{(s_1)^2}{n_1} + \frac{(s_2)^2}{n_2}}}$$

Formula used for ANOVA

$$\frac{\text{Between Group Variance}}{\text{Within Group Variance}}$$

Between group variance = Variance in the mean of each group from the total mean of all variance groups

Within group variance = Average variance of scores within groups

Formula was used for calculating Intensity Indices:

$$\frac{\text{Total Score for an Item}}{\text{Total Number of Respondents}}$$

5.4 Major Findings of the Study

5.4.1 Profile of the respondents

- Majority of the students (69%) belonged to Youth age group.
- Male and Female both gender were equally distributed that is (50% each),
- Discipline wise also the percentage distribution was equal that is (20%) from Arts and Commerce, Science, Technology, Medicine and Community and Social Sciences respectively. The percentage distribution of Undergraduate students was also equal according to their year of study; that is (33.3%) from First Year, Second Year and Final Year respectively.

- Majority of the students belonged from Middle income group that is (74.7%).
- Majority of students had high level of ICT competency (77.7%)
- More than half of the respondents had neutral attitude (58.3%) towards ICT.
- Higher percentage of the students had personal internet connections that is (92.30%)
- One third of the students were using Department computer (40%).
- High majority of the students that is (84.8%) did not attend any formal computer training programme.

5.4.2 Usage of Web-based learning Resources amongst Undergraduate Students

- Half of the students (48%) were using computer daily.
- Majority of them were using 3G Mobile Network that is (67.70%) and (27.60%) were using 4G Mobile Network. One fourth of them (25.70%) were using free Wi-Fi of University.
- High majority of the Undergraduate students were accessing computer and Internet from their home that is (77.30%) and (81%) respectively. However, little less than half of them were accessing it at their department's computer lab that is (46.30%).
- High majority of the respondents using smart phones to reach internet that is (79.50%) and laptop that is (59.70%).
- Half of the Undergraduate students were using University Wi-Fi to access internet.
- Half of the respondents rarely used Hansa Mehta library portal (49.70%), e-books (48.50%), e-journals (52.30%), e-dictionaries (49.50%).
- High percentages of students had high ICT competency (77.70%) whereas a little more than one fifth of them that is (21.30%) had moderate ICT competency.
- Higher percentage of the undergraduate had neutral attitude towards usage of ICT (58.3%) and a little less than forty percentages (38.2%) of them had positive attitude towards the same.
- Very high majority of students showed overall high usage for their Web based learning (96.30%). Similarly, higher percentage of the undergraduate students had high usage of Web based learning related to the curriculum aspects that is (72.50%) and soft skill aspects (77.20%) respectively.

- Intensity indices for attitude towards ICT for undergraduate students ranged between 2.6– 1.7. It showed Positive attitude for enjoy using ICT (2.6) Neutral Attitude in helps to develop skills related to the subject (2.5), to do academic activities better way (2.4), does not allow to exchange ideas with classmates (2.1), diverts the attention from the subject matter (2.1), It never generates a pleasant atmosphere in the classroom (1.9), makes me uncomfortable while learning (1.8), does not help in resolving doubts (1.8).
- Intensity indices for ICT competencies of undergraduate students ranged between 2.28 - 2.61 and showed high to moderate level of ICT competency. Students had high ICT competency for communication (2.80), using different websites for learning (2.67), accessing Internet with ease (2.63) organizing and managing computer files, folders, and directories with ease (2.61) and saving files (2.60). Moderate competency was observed for moving computer files from one place to another with ease (2.42), using Google drive and iCloud to share documents (2.34), use printer (2.34), work simultaneously on different applications (2.32), removing computer virus (2.28).
- Intensity indices for use of Web based learning resources by undergraduate students for their curriculum aspects ranged from 2.60-2.00 and indicated high to moderate usage. The highest intensity index (2.5) that showed moderate usage was for watching online videos for learning, payment of fees and searching information, Web based learning resources for filling up online subject selection form (2.4), downloading materials from the university/ department's Website (2.3), using software for grammar and spelling checker (2.2), editing my profile on university's Website (2.2), using different designing softwares e.g. Adobe Photoshop/flash (2.1), using ICT to know more about a topic (2.1), using educational software to learn some lessons (2.0).
- Intensity indices for use of Web based learning resources by Undergraduate students for Soft Skills aspects ranged from 2.60-2.30, that indicated high to moderate usage. The items that showed higher intensity index was verbal communication is good to connect with friends (2.60). Moderate usage was observed for Managing multi-tasking skills sufficiently (2.5), Web based learning resources for express thinking

differently and in a positive way (2.4), Feel confident while discussing content learnt (2.4), use of problem solving approach through soft Skills learning (2.3), use motivating instructional technology to develop skills (2.3), Skill to pay online different Bills (2.3), Web based learning develop affective skills (2.3).

- There was no significant difference in the overall use of Web based leaning resources amongst Undergraduate students in relation to their gender. However, significant differences were found in the overall use of Web based leaning resources amongst them in relation with their age, monthly family income, discipline of their study, year of study, ICT competency and also with their attitude towards ICT. Younger youths and those who belonged to middle monthly family income group had high usage in comparison to the other categories respectively. The first year students, had overall high usage of web based learning resources in comparison to third year and final year students. Those who had low ICT competency and neutral as well as negative attitude showed low usage in comparison to their counter parts.
- The significant differences were found in the usage use of Web based learning resources amongst Undergraduate students for their curriculum aspects in relation with their monthly family income, discipline of their study, year of study, ICT competency and also with their attitude towards ICT. Those who had middle monthly family income, studying in final year, science stream, had high and moderate ICT competency and positive attitude towards ICT had significantly high usage of web based learning resources for their curriculum aspects. Whereas, there were no significant differences found in the same in relation to gender and age.
- There was no significant difference in use of Web-based learning for soft skill aspects amongst Undergraduate students in relation to their gender. Therefore, significant differences were found in the usage of web-based learning resources for soft skills amongst undergraduate students of the Maharaja Sayajirao University of Baroda in relation to their age, monthly family income, discipline of their study, year of study, ICT competency and also with their attitude towards ICT.
- It was found that the younger youth, those belonged to Middle monthly family income group, studying in first year, science stream, had high and moderate ICT

competency and positive attitude towards ICT showed significantly high usage of web based learning resources for their soft skills.

5.4.3 Opinions of Web-based learning

- High majority of undergraduate students (77.7 %) had most favorable opinions regarding their experiences of Web based learning. Very few of the students reported their opinions to be favorable (21.5%) and least favorable (8%).
- Intensity indices for opinions of students regarding web-based learning experiences in reference to curriculum Aspects ranged between 2.2 – 2.6, that showed overall favourable opinions of the undergraduate students for the use of web based learning resources related to their curriculum aspects. The items which were showed high intensity indices were; Web-based learning material was relevant and useful for their curriculum (2.6), The opinion related to curriculum aspects Browsing material to collect information to prepare notes (2.5), Preparation of class notes using different web sites to collect information is easier (2.5) and Helps to create and maintain a social network for learning were rated moderate on intensity indices (2.2).
- The opinions of undergraduate students regarding their web-based learning experiences for soft skills aspects ranged between 2.5-2.2 and showed favourable opinions for the same. The items that showed highest intensity index were; Web-based learning develops strategic thinking (2.5), helps students in decision making at the time of crisis (2.5), Web based learning, equips the students with presentation Skills (2.5). The least intensity index was observed for; WBL is credential to enhance CV/resume and also useful to handle stress for learning and to stay globally competitive (2.2).
- There were no significant differences in the overall opinions of undergraduate students of the Maharaja Sayajirao University of Baroda regarding web-based learning experiences in relation with their gender, age and monthly income. However, significant differences were found in the same relation with their year of study, discipline of study, ICT competences and attitude towards ICT. It was found that the those were studying in first year, science and technology stream, had high and moderate ICT competency and positive attitude towards ICT showed

significantly more favourable opinions for their overall experience of web based learning resources in comparison to the other categories.

- There were no significant differences in the opinions of students about web-based learning experience regarding curriculum aspect in relation with their gender and age. Whereas, the significant differences were found in the same in relation with their monthly family income, year of study, discipline of study, ICT competencies, and attitude towards ICT. It was found that those who belonged to Middle monthly family income group, studying in first year, science and technology stream, had high and moderate ICT competency and positive attitude towards ICT showed significantly more favourable opinions for experience of web based learning resources for their curriculum aspects in comparison to the other categories.
- There were no significant differences found in the opinions of students about web-based learning experiences regarding the soft skill aspects in relation with their gender and age. However, there were significant differences found in the same in relation with their monthly family income, discipline of the study, ICT competencies and their attitude towards ICT. It was found that those who belonged to Middle monthly family income group, studying in first year, science, technology and medicine stream, had high as well as moderate ICT competency and positive attitude towards ICT showed significantly more favourable opinions for experience of web based learning resources for their soft skills aspects in comparison to their counter parts.

5.4.4 Problems of Undergraduate Students while using Web based learning Resources

- Higher percentage of students (67.8%) faced moderate problems while using the Web based Resources for their learning purposes whereas more than one fifth of them (21.0%) did not faced any problems for the same.
- Intensity indices for problems that undergraduate students faced while using web-based learning resources ranged between 2.51-3.49 and showed that overall, the students faced moderate problems while using the web-based learning resources The item that showed the highest intensity index was "difficulty in downloading reading materials, difficulty in choosing trustworthy website, as well as integration of web-

based learning into curriculum" (3.4) whereas, item related to installation of software and handle hardware part showed the least intensity index (2.4). They faced moderate problems in downloading materials (3.4), popup of many unwanted elements (3.3)

- Slow connectivity (3.2),Internet recharge is expensive (3.1), less data (MB/GB) available for use (3.0), Virus attacks on device (2.9), Content was in English (2.6).
- There were no significant differences found in the problems of undergraduate students while using web based learning resources in relation with their gender and their attitude towards ICT. Whereas, the significant differences were found in the same in relation with their age, monthly family income, Discipline of study, Year of Study and ICT Competency. Those who belonged to 19-21years age group i.e. Youth, had high monthly family income, studying in final year and second year, Arts and Commerce as well as in Community and Social Sciences, and moderate ICT competency faced significantly more problems while using WBL in comparison to those who belonged to young youth category, Middle family income group, studying in first year, science, technology and medicine and had high ICT competency respectively.

5.4.5 Suggestions for using the Web-based learning by Undergraduate Students

- Majority of the students strongly suggested that the usage of Web based learning in higher education (60.3%).
- Intensity indices for suggestions of students for using web-based learning ranged between 4.3 – 3.8. The item that showed the high intensity index were "university should provide facility to use Web-based learning" (4.3), there should be an increase in support system available for Web-based learning resources in every faculty (4.2), and university should provide different study materials on its websites for learning. (4.0),Introduce new program policy regarding Web –based learning with UGC (4.1)

  Provide training to students to use different software for learning. (4.0) have good infrastructure facility for Web-based Learning in university (4.0) have free Wi-Fi zone to work in the campus (4.0) and Guest Wi-Fi facility to access internet in the university(3.9), University should provide Offer a compulsory subject through Web based Learning at

First year Level.(3.9) University should allow access to restricted websites in Canteen/ Parking (3.8).

5.5 Conclusion

Education is a doorway to the right direction towards knowledgeable and meaningful life. It shows people a purpose, poise and a way to live life the right way. The purpose of education is not just to educate students but also to enhance rational thinking, well-informed, and self-sufficient life. Education in many forms has taught us a million ways to sustain and grow in various fields. However, change has to be a constant to live an efficacious life. Students of all ages have persistent willingness to change, proving that there is hope for progress in the new way in all different fields. We live in a world where technology begins the moment we verbally command to play our favorite song or to be the witness the giant leaps we take each day in our quest to find life in the universe. Technology isn't limited here, it has successfully invaded the education system across nations, to only enhance our scope to acknowledge specific arenas. The use of technology to facilitate learning is accepted by different institutions to ease teaching-learning process.

Web-based learning is relevant to Indian youth, and we are fortunate enough that we are living in a time where the maximum population in India is a youth. To remain constantly updated with the worldwide technological revolutions, there is a need for change for our education technology. E-Learning includes all the forms of electronically supported learning and teaching including Edutech, the information, and communication systems. Web-based teaching and learning have experienced rapid change from the last twenty years with online learning. Internet role has not only changed the surfing habits but has also witnessed the in-demand online learning. Thus, Technology connected tools are introduced in class education by the victimization of the World Wide net as an education delivery medium. Web-based learning plays a vital role in student's life. E-learning refers to the use of information and communication technologies to enable access to online learning/teaching resources. The government has already started new free online courses for students to provide vast learning options. According to Tao et al (2006), this new condition for discovering that is focused on electronic systems has permitted students in colleges to get individualized help and furthermore to have learning plans that are more appropriate to them just as independent from different students. This facilitates a high

interaction and collaboration level between instructors or teachers and peers than the traditional environment for learning. Web-based learning in scholastics which is portrayed by the utilization of interactive media builds made the way toward learning more dynamic, interesting , and pleasant (Liaw et al, 2003).

The present research study was aimed to study the Usage, Opinions and Problems of Web-based learning by Undergraduate students of the Maharaja Sayajirao University of Baroda. The majority of the undergraduate students were aged between 19-21 years and belonged to the Middle-income group. Perrin (2015) found that the students of the age group 18-29 years have accounts on Facebook and they use it daily. A high majority of students were using a personal internet connection with 3G and 4G networks. A high majority of the students were using smartphones and laptops to access the internet from home, and department computer lab. The present findings showed that the undergraduate students were using computer daily for various purposes. The data regarding the mobile network revealed that they were using high speed mobile internet connections. This suggests the need of internet in daily life of undergraduate students. However, the low usage of wifi (required to connect computer and laptop with internet) and department/university's computer lab indicates the low usage of internet for their academic purposes. The present data regarding the rare use of Smt. Hansa Mehta Library (University's library), e-books, e-journals and e-dictionary also support this finding. However, the findings also showed that students had high ICT competencies for communication, using different websites for learning, accessing Internet with ease, organizing and managing computer files, folders, and directories with ease and saving files on computer and internet. This indicates the comfortableness of undergraduate students in using web based learning resources. It can be inferred that students might not had awareness regarding the available web based learning resources and hence they were not using them.

The results regarding the usage of web based learning resources among the undergraduate students showed the overall high usage. Similarly high usage was found for their curriculum aspects and soft skills aspects. Students were using internet moderately to watching online videos for learning, payment of fees and searching information, downloading materials from the university/ department's Website, using software for grammar and spelling checker. For soft skills aspects, undergraduate students were using it to connect with their

friends and learn new vocabulary. Overall, it was found that there was a similarity in the usage pattern of male and female for web based learning resources. The results indicated the significantly high usage of web based learning resources for their overall and aspects wise usage among those students who belonged to Middle monthly family income group, studying in first year and final year, science stream, had high and moderate ICT competency and positive attitude towards ICT.

The Undergraduate students had most favorable opinions regarding their experiences of Web based learning. The results showed the favourable opinions of them for the use of web based learning resources related to their curriculum aspects and soft skill aspects. Undergraduate students considered Web-based learning material as relevant and useful for their curriculum and they browsing materials to collect information to prepare notes.

They agreed that Web-based learning develops strategic thinking and helps students in decision making at the time of crisis aids in improving presentation Skills. Those students who were studying in first year, science and technology stream, had high and moderate ICT competency and positive attitude towards ICT showed significantly more favourable opinions for their overall experience of web based learning resources in comparison to the other categories. Similar findings were observed for opinions for curriculum aspects and soft skills aspects. The teaching pattern in the Maharaja Sayajirao University of Baroda is traditional and the assignment submissions are taken in hard copies. Thus, the teaching pattern does not involve much exposure to ICT and hence, the undergraduate students did not had much exposure to web-based learning experiences. Akkoyunlu & Kurbanoglu, (2011) mentioned the positive views of undergraduate students regarding the use of blended learning and its implementation for easy use of web environment, online environment, content, face to face sessions, assessment concerning the content. Findings indicate that technology is playing as a helping hand for undergraduate students in their learning process.

The higher percentage of students had moderate problems like insufficient time, insufficient access to technological resources, insufficient effective training, and problem in its technical operation and lack of confidence for using WBL resources. The study revealed that the younger youth and Middle-income groups facing fewer problems. Students who were studying in the final year of college were facing less problems in comparison to those

who were fresher. The possible reason could be their experiences of using ICT and Web-based learning resources for their educational purposes. Discipline wise, it was found that those who were studying in Science, and Technology were facing more problems, comparatively. This finding indicated that the more exposure to web based learning resources increases the chances of facing more problems related to the same.

It can be concluded from the present findings that undergraduate students were using high speed internet and computer for various purposes. The students from science and related stream were using web based learning resources more and hence facing more problems compared to those who were using them less. The favourable opinions regarding the Web based Learning resources suggest the inclination of undergraduate students towards technologically aided teaching and learning methods. However, the results showed that very few of them were using the web based learning resources available at university e.g. computer labs, university's wifi, central library, open access to various journals and publications at Smt. Hansa Mehta library's e-portal. Therefore, the findings suggest to create awareness regarding the available web based learning resources to the undergraduate students of the Maharaja Sayajirao University of Baroda.

The present study also collected suggestions of the students regarding web based learning resources. The majority of the students strongly suggested the Usage of web-based learning in higher education. The students who had more involvement with technology, suggested to focus more for electronic learning in a positive way. The technological experience amongst young students enabled them to be independent learners and therefore they strongly suggested the use of Web-based Learning for future students. Students have to be motivated, proactive, and enthusiastic to succeed in the web-based learning environment.

Students understand that online courses facilitate them in developing time management skills and therefore, in up their self-regulatory skills. The educational institution, government, as well as the non-government organization, may take initiative to develop implement successful online learning course. Even during lockdown conditions, students can utilize their time productively engaging in online learning. In the future, the e-learning will contain many forms of electronically supported learning and teaching with the help of information and communication systems as a median. The e-learning is entering into

the world of exciting visuals; it is practical and cost-effective for both learners and for educational institutes to deliver and manages the administrative aspect of education at the same time. With the emergence of more integrated, adapted and adaptable technological solutions, new skills come at the front. As a consequence of changed communication and interaction patterns, interpersonal skills – communication, collaboration, negotiation, and networking skills – will become more important. At the same time, the ubiquity and abundance of information will require individuals to improve their metacognitive skills – reflection, critical thinking, and problem-solving, managing and organizing. For people to actively manage their personal and professional lives and find their way around in an interconnected maze of interactions, determination, resilience, experimentation, risk-taking, creativity, and entrepreneurship will become key competences. Besides, if research work based on student perception and technology is done it will be very useful efforts and should be taken to engage the students while undergoing e-learning to improve the effectiveness of the teaching and learning process and to retain a student from new technological learning. Self-evaluation should be done by the learners' whether they will give full attention, self-regulation, and self-discipline to undergo e-learning. The institution also can keep this test to pick the candidate to scale back the dropout rates. There are a few ICT activities of the MHRD, UGC and its Inter-University Centers (IUCs) information and library network (INFLIBNET), Learning management systems (LMSs) and consortium for Educational Communication (CEC), have evolved in response to the demand for innovative educational products that leverage advances in information technology and tele communications. as advanced stages which can be accessed by the educators, students and researchers in colleges for expanding their perspective of learning.

5.6 Recommendations for Further Studies

- A comparative research study can be carried out to study the online learning and traditional method through learning for undergraduate students.
- Comparative research could be carried out with undergraduate and postgraduate students in web-based learning.
- Digital literacy and attitudes of undergraduates towards utilization of the Internet in University can be researched in detail.
- E-learning trends Issues and Challenges amongst students and faculty members could be studied.
- Perceptions of the students regarding Web-based learning.