CHAPTER 4

RESULT AND DISCUSSION

The present study was undertaken study on Usage, Opinions and Problems of Web-based learning by Undergraduate Students of The Maharaja Sayajirao University of Baroda. This chapter consist finding on using quantitative methods of data collection. This findings are stated under the sections:

4.1. Profile of the Undergraduate Students

4.2. Usage of Web-based learning resources amongst Undergraduate Students

4.2.1 Usage of Web-based learning resources amongst Undergraduate Students

4.2.2 Overall Usage of Web-based learning resources amongst Undergraduate Students

4.2.3 Differences in the Usage of Web-based learning resources related to Curriculum Aspects amongst Undergraduate Students

4.2.4 Differences in the Usage of Web-based learning resources related to Soft skills Aspects amongst Undergraduate Students

4.3. Opinions of Web-based learning resources amongst Undergraduate Students

4.3.1 Item wise findings for Opinions of Web-based learning resources amongst Undergraduate Students

4.3.2. Overall Opinions of Web-based learning resources amongst Undergraduate Students

4.3.4 Differences in the Opinions of Web-based learning resources related to Curriculum Aspects amongst Undergraduate students

4.3.5 Differences in the Opinions of Web-based learning resources related to Soft skills Aspects amongst Undergraduate students

4.4. Problems faced by Undergraduate Students while using Web-based learning Resources

4.4.1 Problems faced by Undergraduate Students while using Web-based learning resources

4.4.2 Item wise findings for problems faced by Undergraduate students while using Web-based learning resources

4.4.3 Differences in problems faced by Undergraduate Students while using Web-based

learning resources to the selected variables

4.5 Suggestions of Students for using the Web-based learning resources

4.1 Profile of the Undergraduate Students

Table21 Frequency and Percentage Distribution of Undergraduate Students according to their Background Information.

(N=600)

Independent Variables	Categories	F	(%)
Age	Young Youth	186	31
	Youth	414	69
Gender	Male	300	50
	Female	300	50
Discipline	Arts and commerce	120	20
	Science	120	20
	Technology	120	20
	Medicine	120	20
	Community and Social Sciences	120	20
Year of Study	First year	200	33.3
	Second year	200	33.3
	Final year	200	33.3
Monthly Family Income	Middle Income (Rs. 25000 – Rs. 80000)	448	74.7
	High Income (Rs. 80001 & above)	152	25.3

Table 21 shows the profile of Undergraduate Students. The data revealed that the majority of the Undergraduate Students (69%) belonged to the Youth category i.e. above 19 years and the remaining thirty-one percentage of them belonged to the young youth category

i.e. 16-18 years. Gender wise the percentage distribution was equal in both the categories viz. male (50%) and female (50%). Table 21 also revealed that equal percentages of students belonged to the selected disciplines, Arts and Commerce (20%), Science (20%), Technology (20%), Medicine (20%), Community and Social Sciences (20%). Further, it also highlighted that year of study wise the respondents were distributed in three equal parts i.e. first year (33.33%), second-year (33.33%), and final year (33.33%). The data presented in Table 21 further revealed that a majority of the Undergraduate students (74.70%) belonged to the middle-income group category whereas the remaining one-fourth of the undergraduate students (25.30%) belonged to higher-income groups.

Figure 3 Percentage Distribution of Undergraduate students according to their Age (N=600)

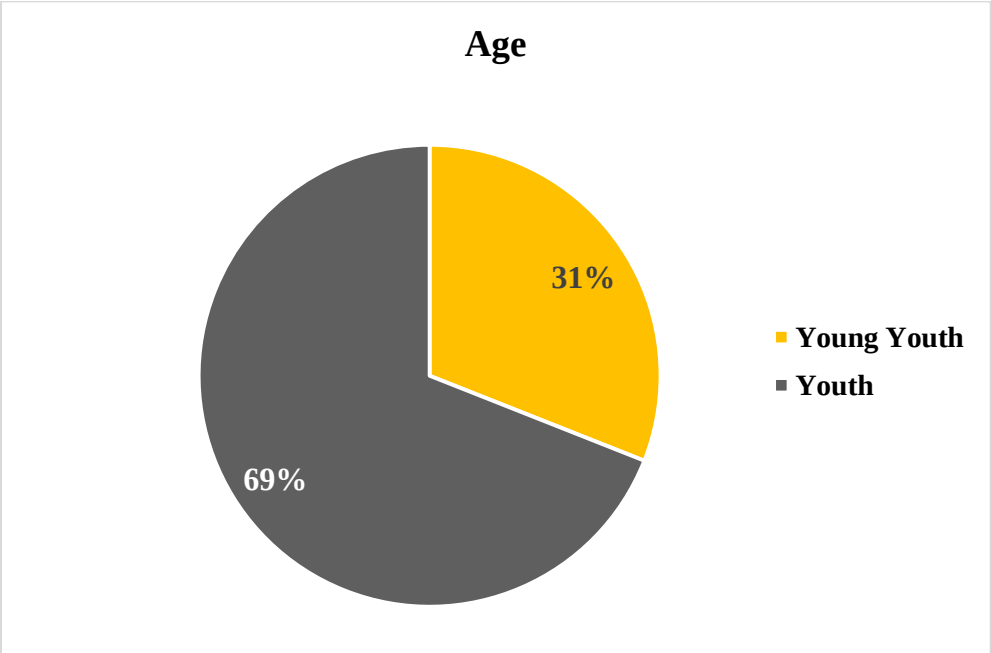


Figure 4 Percentage Distribution of Undergraduate students according to their Gender (N=600)

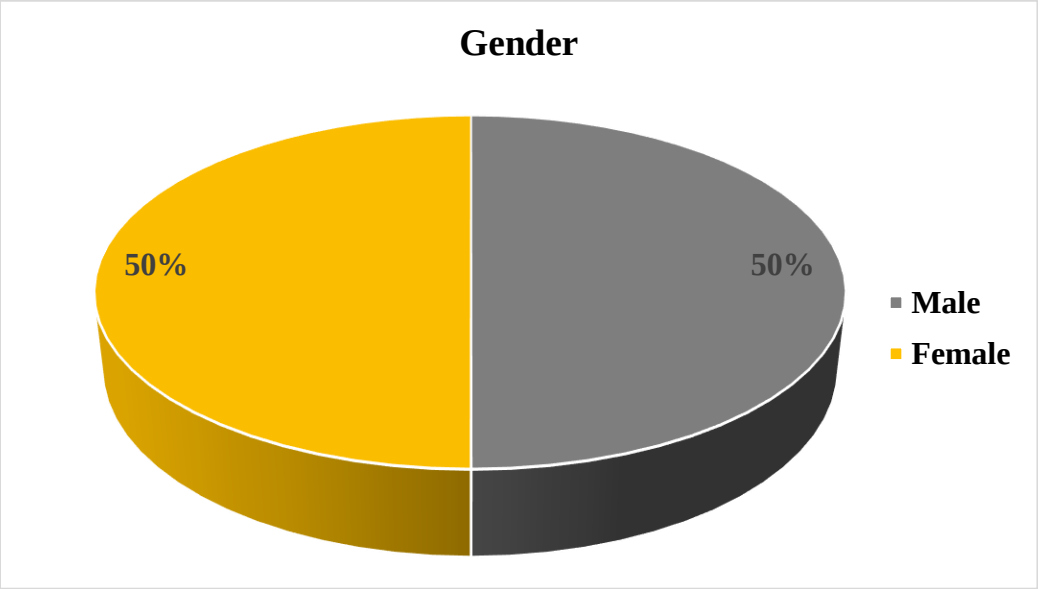


Figure 5 Percentage Distribution of Undergraduate students according to their Discipline (N=600)

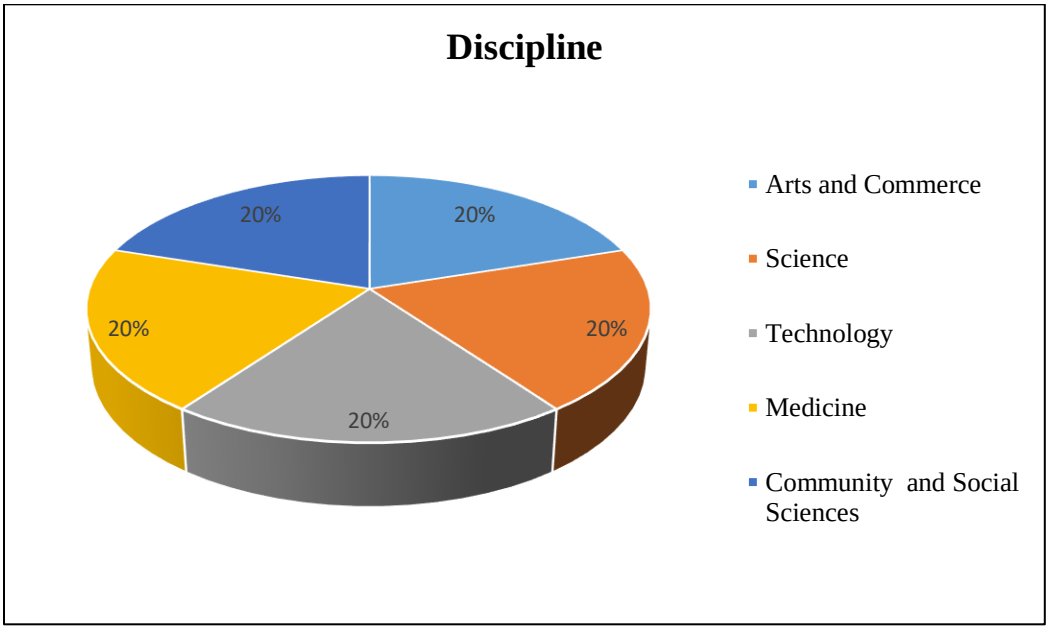


Figure 6 Percentage Distribution of Undergraduate students according to their Year of Study (N=600)

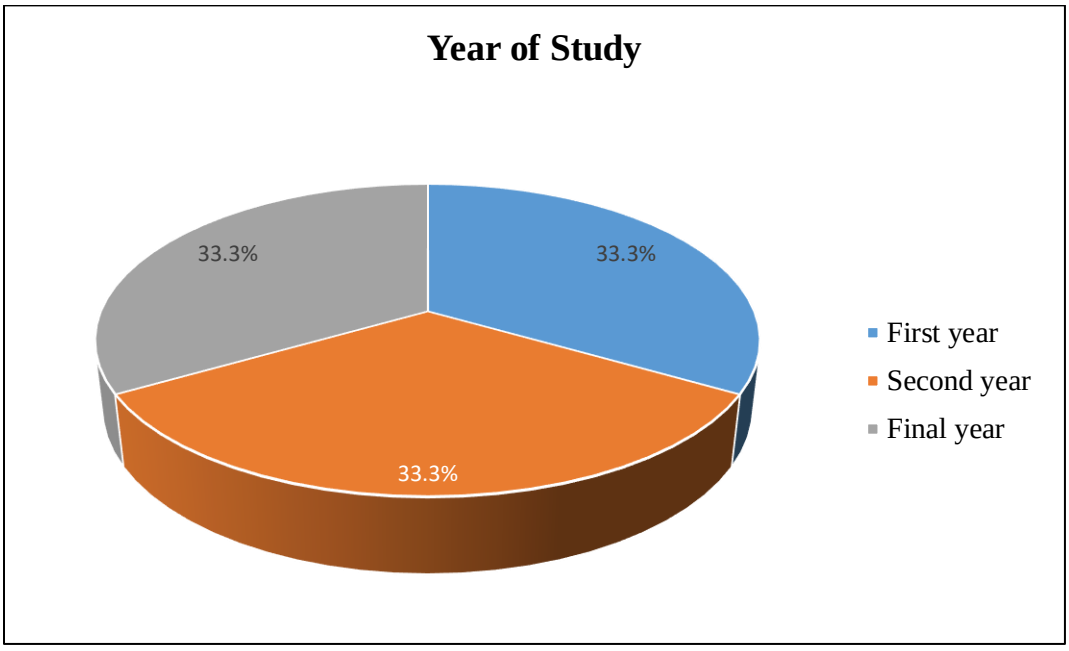


Figure 7 Percentage Distribution of Undergraduate Students according to their Monthly Family Income (N=600)

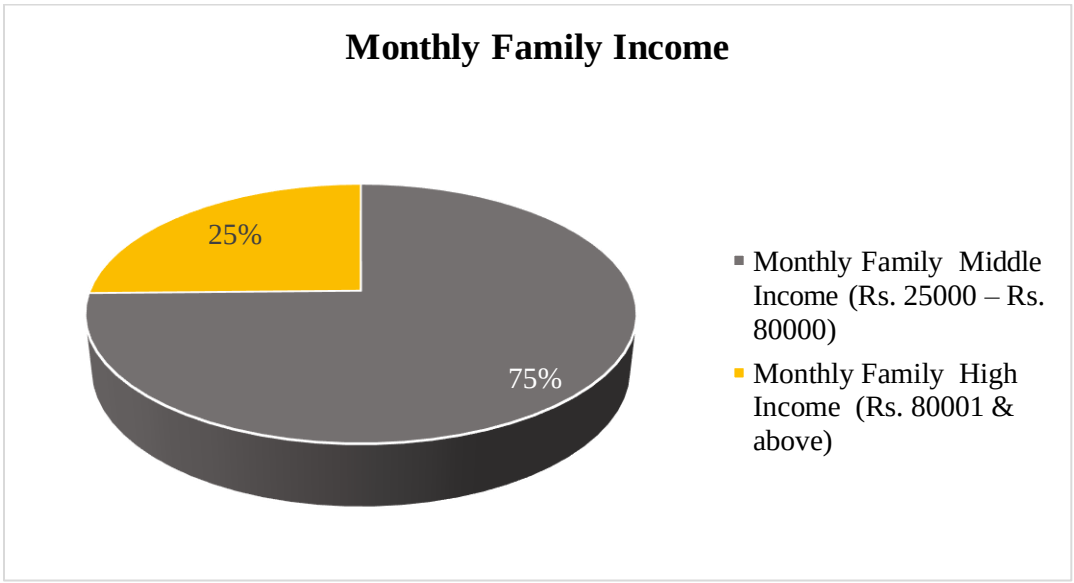


Table 22 Frequency and Percentage Distribution of Undergraduate Students According to Web-based learning Facilities

(N=600)

Web-based learning facilities	Personal Space		Department	
	F	%	F	%
Internet connection	554	92.30	198	33
Computer	409	68.20	240	40
Computer with Internet facility	259	43.20	160	26.70
Computer without Internet facility	186	31	140	23.30
Laptop with Internet facility	340	56.70	39	6.50
Laptop without Internet facility	226	37.70	64	10.70

Table 22 shows the data regarding the Web-based facilities available to Undergraduate Students in their personal space as well as in their department. It revealed that a very high majority of the Undergraduate Students (92.30%) had an Internet connection in their personal space and one-third of them also had an Internet connection at their department also where they were studying. Table 22 further revealed that more than two-thirds of the Undergraduate students (68.20%) had computer facilities in their personal space. Forty percent of them had a computer facility at their department. The data regarding computers with facilities revealed that a little more than forty percent of them had the same in their personal space whereas, a little more than one-fourth of them had computers with Internet facilities in their department. It was also found that less than one-third of the Undergraduate students (31%) had computer facilities without the internet in their personal space and less than one-fourth of them (23.30%) had the same facility at their department. Moreover, more than half of the Undergraduate students (56.70%) reported that they had a laptop with an Internet connection at their personal space and very few of them had the same facility at their department. Further, it is also revealed from table 22 that more than one-third of the Undergraduate students had laptops without an Internet facility at their personal space and few of them (10.70%) had the same facility at their department. The internet and computer

have become a necessity in almost every household. According to Kantar IMRB 2019, there were more than half-billion Internet users in India. The growth is due to the increasing number of Internet users in rural and remote areas of India. This data supports the present research data that a very high majority of the respondents had an internet connection at their front. The use of ICT is also promoted in higher education in India. Therefore, each educational institute tries to include ICT in their teaching and learning patterns. Not only private institutions but also Government educational institutes including primary and secondary schools, colleges, universities have computers as a subject for their students and also have computer lab facilities for teachers as well as for their students. Many scholars have stressed the importance of introducing ICT in education**.**

Cross and Adam (2007) have given four rationales for introducing ICT in education i.e. a.) Social: the need for familiarizing students with technology; b) Vocational: Preparing students for jobs that require skills in technology; c) Catalytic: use of technology to improve performance and efficiency in teaching, management and many other social activities; d) Pedagogical for enhanced learning, flexibility and efficiency in curriculum delivery. **(in Mondal and Mete, 2012)** The present data also reflects that the university campus has computer facilities with and without the internet.

Figure 8 Percentage Distribution of Undergraduate Students according to Internet connection (N=600)

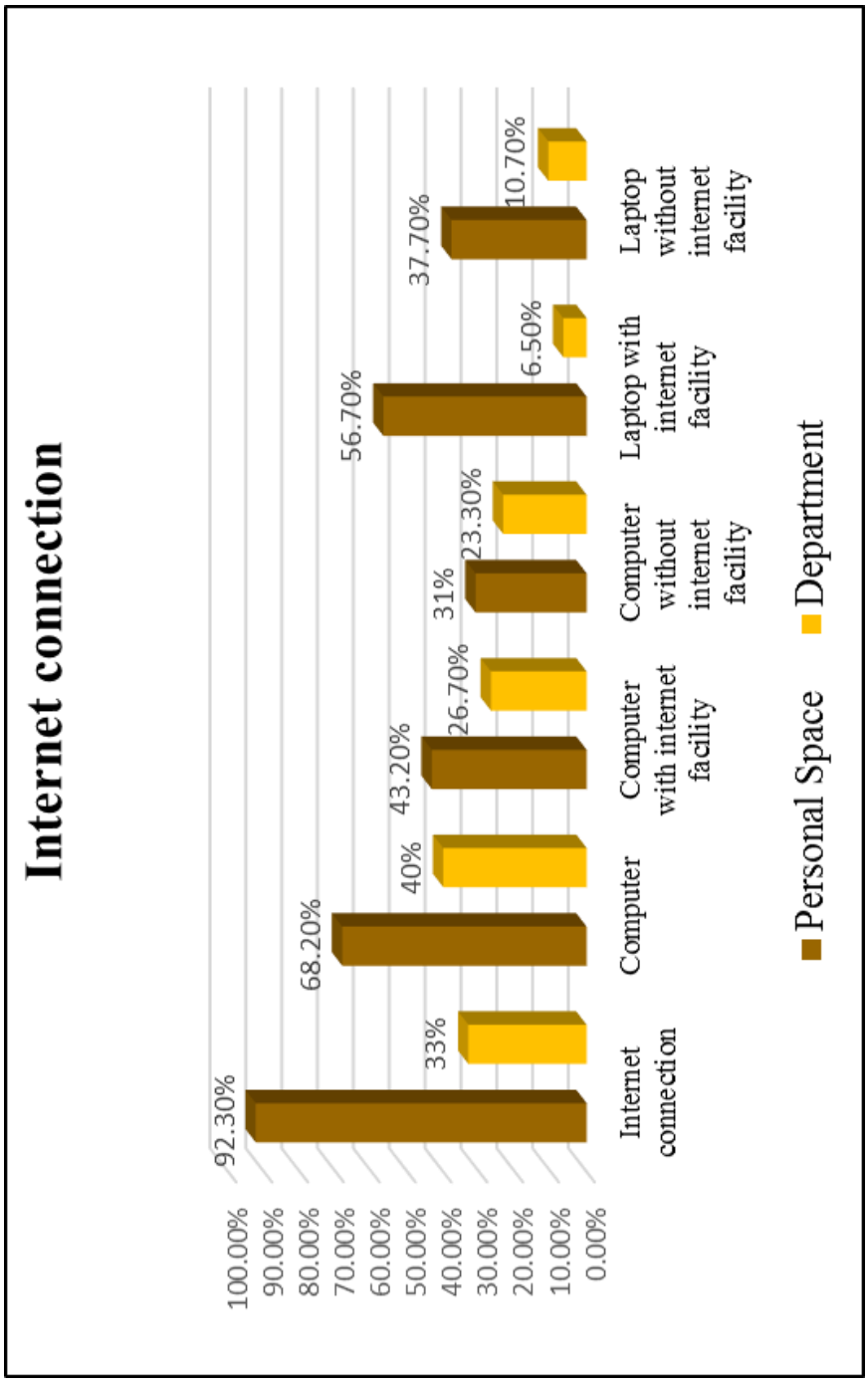
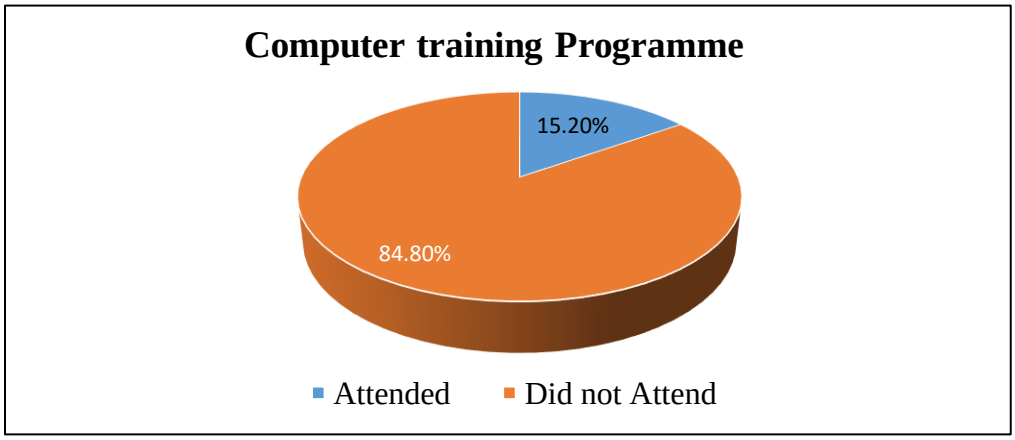


Table 23 Frequency and Percentage Distribution of undergraduate Students according to Computer Training Programe Attended (N=600)

Training Programme	F	%
Attended	91	15.2
Did not Attend	509	84.8

Table 23 reveals that a very high majority of the Undergraduate had not undergo any computer training program whereas, fifteen percent of them had attended the computer training program. It will not be considered wrong to assume that computer training can improve ICT competency. However, in the present technologically advanced era, one cannot deny the ability of youth to consume ICT in a various manner viz. for entertainment, business, e-banking, and education. **Wang and Dostal (2017)** also mentioned that training is important to the integration of ICT into education. Although the CBSE (Central Board of Secondary Education, India) had asked schools to have ICT enabled teaching, learning, and ICT support to school administration **.** It would not be wrong to assume that those students who had studied from CBSE schools had the experience of using computers for studying various subjects like math and science and they had exposure to ICT enabled teaching and learning. Therefore, it can be understood that these students might not have undergone the formal training program but had an experience of using ICT for their educational purposes

Figure 9 Percentage Distribution of Undergraduate students according to their Computer training Programme Attended (N=600)



4.2 Usage of Web-based Learning resources amongst Undergraduate Students

4.2.1 Usage of Web-based Learning resources amongst Undergraduate Students

This section shows findings regarding the Usage of Web based learning resources amongst undergraduate students. The findings include data regarding their Internet accessibility, Use of Web based resources at the University and Home.

Table 24 Frequency and Percentage Distribution of Undergraduate students according to their frequency of using of Computer (N=600)

Frequency of Using Computer	F	%
Daily	288	48.0
Two - three times in a week	85	14.2
Weekly	77	12.8
Fortnightly	11	1.8
Rarely	139	23.1
Total	600	100

Table 24 shows that a little less than half (48%) of the Undergraduate students were using computer daily for various activities. Despite that very little i.e. (23%) were using computer rarely. The finding also revealed that very few of the Undergraduate students were using Computers two-three times a week (14.20%), and weekly (12.80%). Very few of them (1.80%) were using Computer fortnightly. The findings revealed that higher percentages of Undergraduate students were using Computers daily. The possible reason could be their educational needs. The present curriculum of higher education in India requires the use of ICT. Students are supposed to prepare their reports and assignment on the computer. Higher education students are expected to prepare to give seminars and presentations on their given topics. Hence, they are expected to use various presentation software viz MS Office PowerPoint presentations, Prezi, and so on. Therefore, those students who were using computers daily or twice/thrice a week use it to prepare their assignments, reports, and presentations.

Figure 10 Percentage Distribution of usage of computer among undergraduate students (N=600)

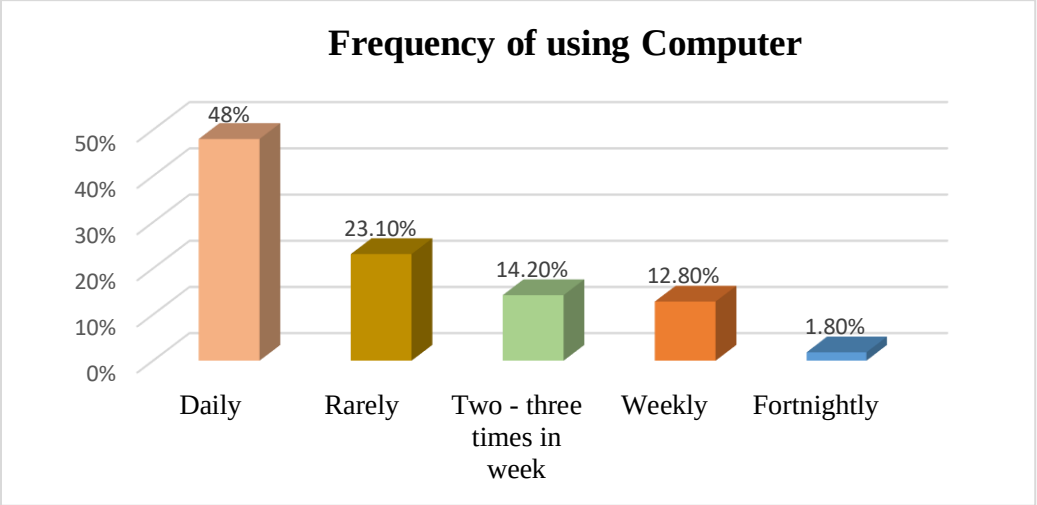


Table 25 Frequency and Percentage Distribution of undergraduate students according to accessibility to Computer and Internet (N=600)

Places of Accessing	Computer		Internet	
	F	%	F	%
Home	464	77.30	486	81
Department Computer lab	278	46.30	237	39.50
Cyber café	149	24.80	129	21.50
Friend's House	112	18.70	171	28.50
Neighbor's House	63	10.50	112	18.70
Relative Place	80	13.30	147	24.50
Other Places	48	7.80	92	15.30

Table 25 shows the data regarding the place where undergraduate students access computers and the Internet. It was found that a high majority of the Undergraduate students were accessing computers from their homes. However, little less than half of them were accessing it at their Department's Computer lab. It further showed that nearly one-fourth of the Undergraduate students were accessing Computers at Cyber Café and remaining were accessing it at their friend's house (18.70%), relative place (13.30%), and other places (7.80%). The findings regarding the place used for Internet accessibility revealed that a high

majority of them were accessing the Internet from their home. Nearly forty percentages of them were accessing the Internet at the Department's Computer lab (39.50%). Furthermore, it also highlighted that more than one-fourth of them were accessing the Internet at their friend's house and little less than one-fourth of them were accessing it at their relative's place (24.50%) and Cyber Café (21%). Remaining a few of them were accessing it at neighbour's house (18.70%) and other places (15.30%). Other places include public places like Malls, Restaurants, Railway Stations, and so on. The main reason for accessing Computer and Internet at home could be the free time they have while they are at home. However, the reasons for using Computers and Internet at other places than the home could be its unavailability and also the restriction by family members. Some families might restrict their children including (teenagers and young youth) to use Internet and Computer due to the availability of uncensored content on it. Therefore, students could find it easy to use it at their friend's or relative's place. The speed of internet connectivity could be one of the other reason to use it at a different place like a Department or Cyber Café

Figure 11 Percentage Distribution of Undergraduate students according to place accessing of Computer and Internet. (N=600*)

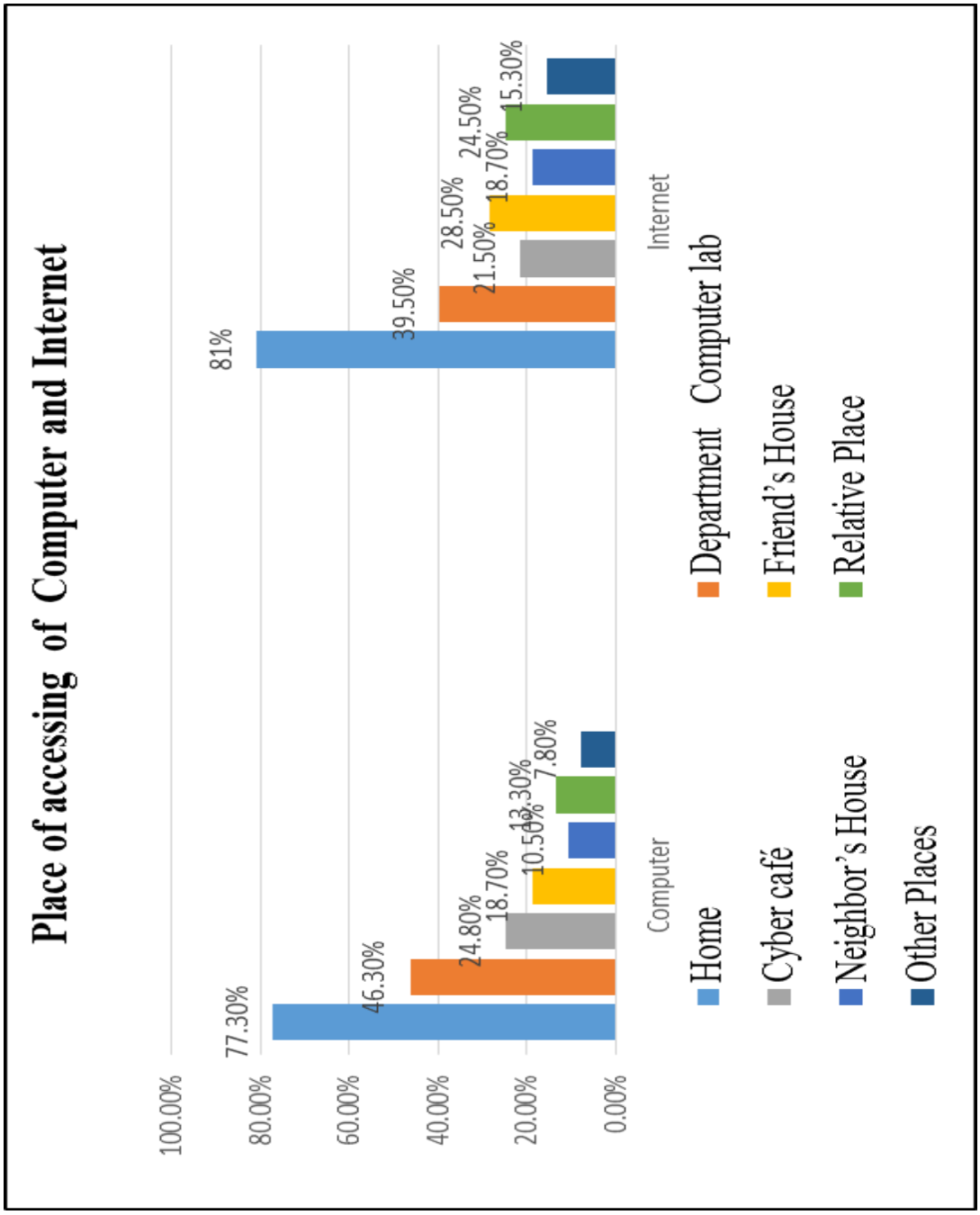


Table 26 Frequency and Percentage Distribution of undergraduate students according to Gadget for accessing Internet (N=600)

Gadget	F	%
Smart Phone	474	79.5
Laptop	356	59.7
Personal Computer	157	26.3
Tablet	144	24.2
Computer Lab	135	22.7
Cyber café Computer	59	9.9

Table 26 revealed that a high majority of the Undergraduate Students were using smartphones (79.50%) to access the Internet and the majority of them were using laptops (59.70%) for the same. It was also found that a little more than one-fourth of them were accessing the Internet at their personal computer (26.30%). However, less than one-fourth of them were accessing it on Tablets (24.20%) and Computer Lab (22.70%) at their Department. Very few of them were also accessing it at Cyber Café (9.90%). **Lavanya L et.al (2018)** also quoted that undergraduate students mostly use a mobile phone to access the internet. **Taghizadeh and Yourdshahi (2019)** also found that youth were using a smartphone for their educational purposes. **Bhattacharjee et.al (2015)** found that the higher percentage of the monthly active internet users were college going students and the main reason for this was their increased mass media exposure, penetration of smartphones/Handheld devices, and also the rising number of social networking apps targeting to the youth. These evidences suggest that youth have been using smartphones for various purposes. Smartphones are portable and user friendly, hence youth uses them more in comparison to other devices. The table 26 also highlights that undergraduate students were accessing the internet from their department's computer lab and cyber café. The possible reason could be the high speed of the internet available at the University computer lab next followed by the cyber cafe.

Figure 12 Percentage Distribution of Undergraduate students according to Gadget used to access Internet (N=600)

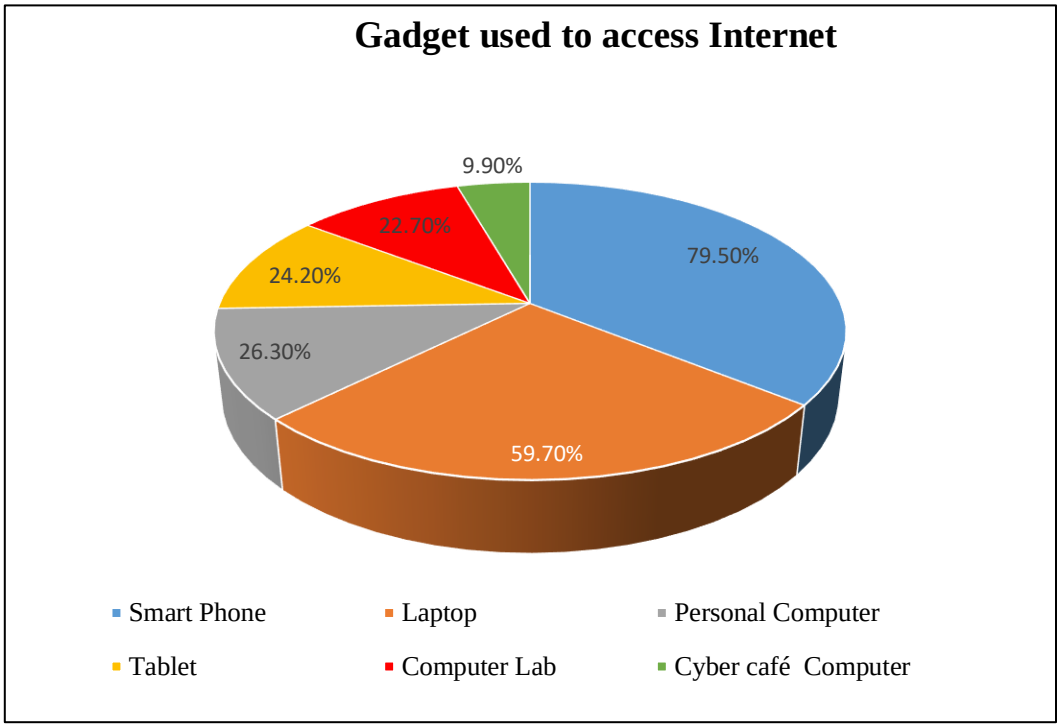


Table 27 Frequency and Percentage Distribution of Undergraduate Students according to the type of Internet connection they were using to access the Internet (N=600)

Types of Internet connection	F	%
3G Mobile Network	400	67.70
4G Mobile Network	163	27.60
Free Wifi of University	152	25.70
Paid Wifi at Home	117	19.80
Dongle with 2G Speed	5	8
Dongle with 3G Speed	27	4.60
LAN	23	3.90
2G Mobile Network	11	1.90

Table 27 shows that more than two third (67.70%) of the university students of the using 3G Mobile network to access mobile data and one fourth i.e. is (27.60%)of them responded

that they use 4G Mobile Network for the same. This indicates that high majority of them were using high speed internet for various purposes. Whereas, one fourth of them were using Universities' free Wifi facility (25.70%) to access internet. It was found that nearly one fifth of them were accessing it through paid wifi service (19.80%) at their home and very few them were accessing internet through Dongle with 2G (8%) Dongle with 3G (4.60%), LAN (3.90%), 2G Mobile Network (1.90%). The recent market research also suggests the high speed usage among Indian Internet users. The cheaper data plans for 4G and 3G mobile network across all the network operators had increased the number of internet users in the country. Mobile phones has become a primary device access internet and 4G and 3G network are most opted connection among the urban and rural population of India**. (IAMAI and Nielsen 2019)**

Figure 13 Percentage Distribution of Undergraduate Students according to the type of Internet connection they were using to access the Internet

(N=600)

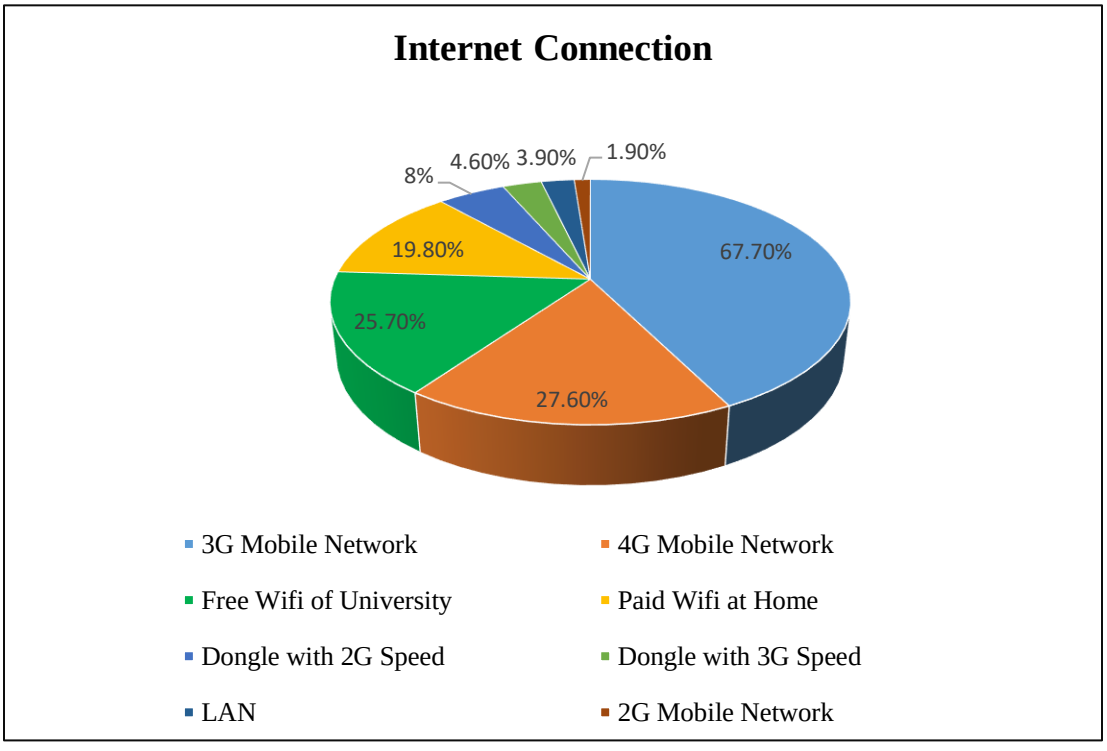


Table 28 Frequency and Percentage Distribution of Undergraduate Students according to their Use of the Web-based Resources provided by the Computer lab of the University. (N=600)

Web-based resources	Most of the time		Sometime		Rarely		Not using	
	F	%	F	%	F	%	F	%
Wi-Fi facility	245	**40.80**	193	32.20	141	23.50	21	3.50
University Website	123	20.50	297	**49.50**	163	27.20	17	2.80
Faculty Website	105	17.50	231	**38.50**	230	**38.30**	34	5.70
Hansa Mehta Library Portal	62	10.30	182	30.30	298	**49.70**	58	9.70
e-book	86	14.30	176	29.30	291	**48.50**	47	7.80
e-journal	75	12.50	152	25.30	314	**52.30**	59	9.80
Web-OPAC	21	3.50	113	18.80	404	**67.30**	62	10.30
e-dictionaries	111	18.50	142	23.70	297	**49.50**	50	8.30

Table 28 revealed that higher percentages of the Undergraduate students were using WiFi facility (40.80%) at the their campus most of the time. It further revealed that half of them were using university's Website (49.50) sometimes and little less than forty percent of them responded that they were use faculty website (38.50%) sometimes. Further, table 28 also highlighted that Undergraduate students were rarely using Hansa Mehta Library Portal (49.70%), e-book (48.50%), e-journal (52.30%), Web-OPAC (67.30%), and e-dictionaries (49.50%). It further showed that very few of them were not using all facilities available to them. This finding indicates that students were not taking optimum advantage of the Web based learning resources available to them in University campus. The possible reason could be that student were aware of these available facilities. However, it was also found that very high majority of them were using Internet through their mobile phones, therefore it would not be wrong to assume that Undergraduate students might be using internet for

referring Web based learning resources on their mobile phones and laptops as it could be more convenient and easy to use.

Figure 14 Percentage Distribution of Undergraduate students according to Web-based resources provided by the University (N=600)

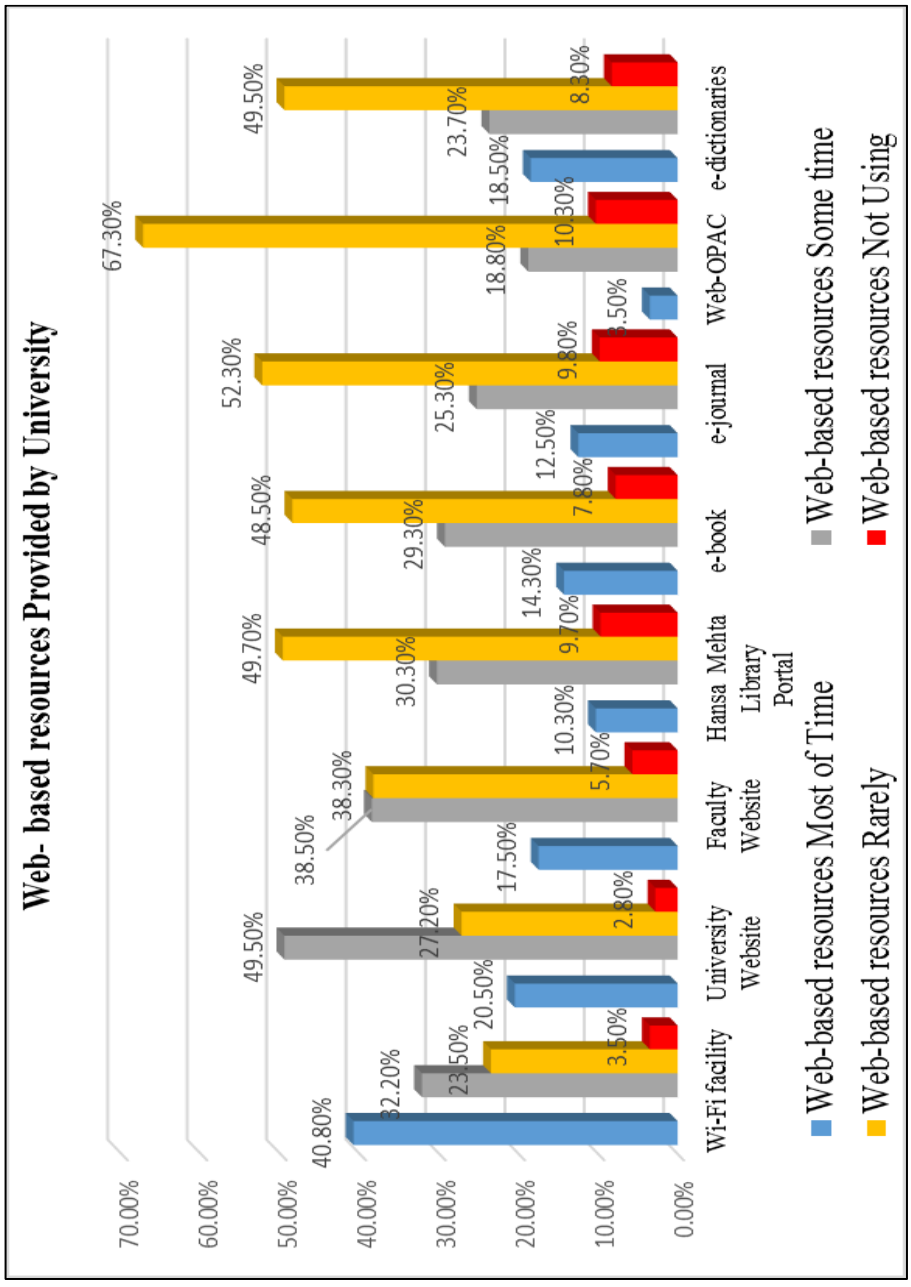


Table 29 Frequency and Percentage Distribution of Undergraduate students according to their ICT Competency (N=600)

ICT Competency	F	%
High Competency	466	77.7
Moderate Competency	128	21.3
Low Competency	6	1.0

Table 29 shows that a high majority of the Undergraduate students had high ICT competency (77.70%) whereas one-fifth of them i.e is (21.30%) had moderate ICT competency and very few of them had low ICT competency (1%). ICT competency means the comfort level of Undergraduate students in working with computers and the internet was higher. The higher ICT competency indicates a higher comfort level and efficiency in working with computers and the internet. ICT has become a part of the daily life of everyone. Its integration into every aspect of day to day life has made it important and significant part of life. The researches show that the young generation is more and more interested and would like to be familiar with technology and hence, they are considered as easy and early adopters of technology **. Olson et.al. (2012)** also found that younger adults use most of the technologies and internet frequently for a wide range of domains in comparison to older adults. Higher ICT competency may affect the use of Web-based learning resources amongst Undergraduate students. ICT offers new activities to its users for their day to day activities like making interaction, money transactions, learning, getting informed, and so on. Undergraduate students may use it for varied purposes including their education. **JISC and Mc Hardy (2013)** gave a broader view of ICT competency as digital competence. The researchers argued that digital competency encompasses a wide range of capabilities in their seven elements model viz. a.) media literacy, b) communication and collaboration, c) career and identity management, d) ICT literacy, e) learning skills, f) digital scholarship, g) information literacy. (in Muller, 2017)

Figure 15 Percentage Distribution of Undergraduate students according to their ICT Competency (N=600)

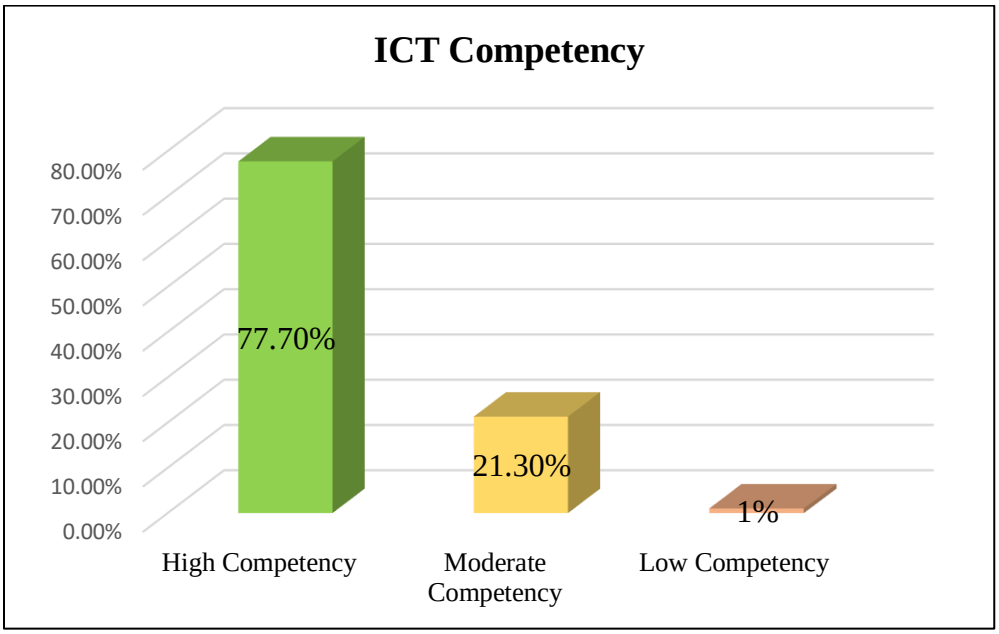


Table 30 Frequency and Percentage distribution of Undergraduate students according to their Attitude towards ICT (N=600)

Attitude towards ICT	F	%
Positive Attitude	229	38.2
Neutral Attitude	350	58.3
Negative Attitude	21	3.5

Table 30 reveals the attitude of Undergraduate students towards ICT. It was found that a higher percentage of the Undergraduate had a neutral attitude towards the usage of ICT and a little less than forty percentages of them had a positive attitude towards the same. However, very few of them had negative attitudes towards the same (3.50%). The attitude indicates the perception of Undergraduate students regarding the use of ICT. The present findings indicated that the majority of the students had a neutral attitude towards ICT usage. This reflects that Undergraduate students were unsure about the impact of ICT on their day

to day life and hence, they neither gave positive or negative responses for the same. However, a little more than forty percent of the Undergraduate students had a positive attitude towards the use of ICT. This can be inferred as that those who had a higher level of media consumption, who were spending more time on using ICT like the internet, smartphones, and computers had a positive attitude towards ICT. **Muller (2017)** also found that a positive attitude for using a computer can act as an agent for being digitally competent. The researcher mentioned that a positive attitude towards using a computer may enhance the learning process and a negative attitude may lead to computer resistance.

Figure 16 Percentage Distribution of Undergraduate students according to their Attitude towards ICT (N=600)

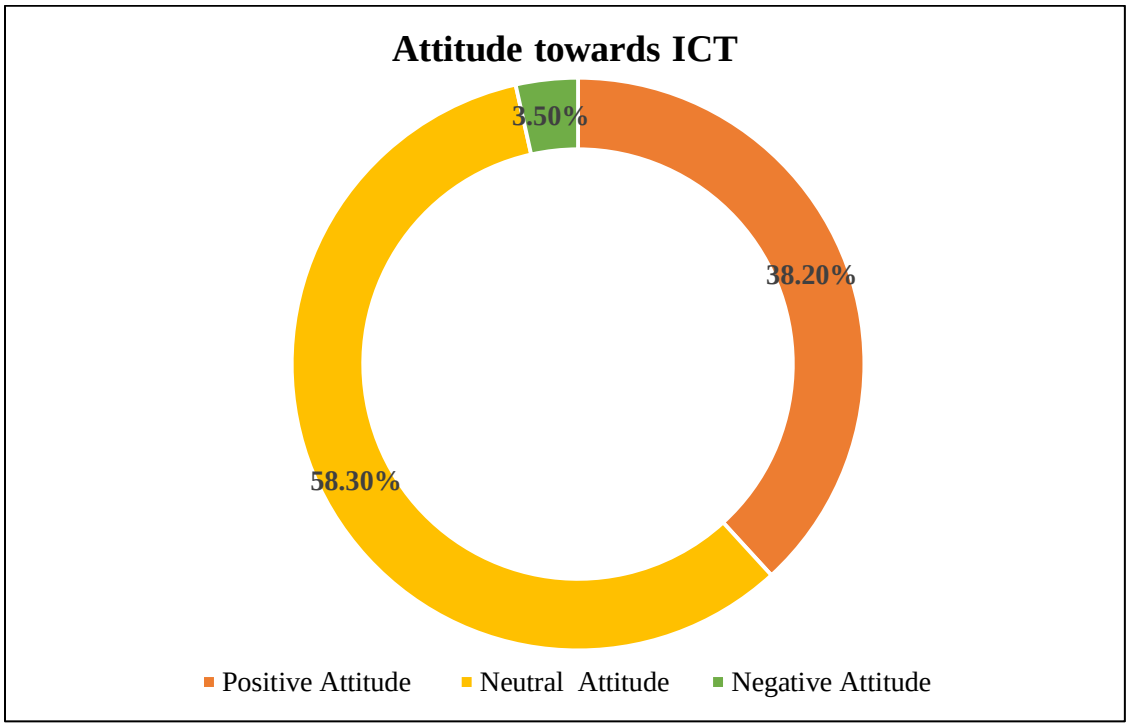


Table 31 Intensity Indices Showing Attitude of Undergraduate Students towards ICT (N=600)

	Attitude towards ICT	I.I
Positive Attitude	**Enjoy using ICT**	2.6
Neutral Attitude 1.6-2.5	**ICT helps to gain knowledge related to the subject**	2.5
	It helps to develop Skills related to the subject	2.5
	It helps to do academic activities in a better way	2.4
	It helps to do academic activities faster	2.4
	It facilitates self-assessment processes	2.4
	It helps in planning work	2.3
	It changes the learning style and makes an active learner.	2.3
	It helps to exchange ideas with teacher	2.2
	It does not allow to exchange ideas with classmates	2.1
	It diverts the attention from the subject matter	2.1
	It does not improve the pace of work	2.0
	It never generates a pleasant atmosphere in the classroom	1.9
	It makes me uncomfortable while learning	1.8
	It does not help in resolving doubts	1.8
	It never enables me to ask others questions	1.8
	It makes me unenthusiastic.	1.7

Table 31 shows that the Intensity Indices showing attitude of Undergraduate students towards ICT. It ranged between 2.6 to 1.7 It showed that highest intensity index was for "enjoying using ICT" (2.6). This indicates the Undergraduate students had neutral attitude that they enjoyed using ICT. The other statements which showed higher intensity index were-

- It helps to gain knowledge related to the subject (2.5)
- It helps to develop skills related to the subject (2.5)

- It helps to do academic activities in a better way (2.4)
- It helps to do academic activities faster (2.4)
- It facilitates self-assessment processes (2.4)

The present findings indicates the neutral attitude of Undergraduate students for using ICT for gaining knowledge and skills related to their subject as well as for doing academic activities in better and faster manner. Moreover, the neutral attitude of Undergraduate students towards using ICT was also observed for its help in work planning (2.3), changes the learning style and makes an active learner (2.3), exchange ideas with teacher (2.2). The table 32 also highlights that the students had neutral attitude towards the negative statement viz.

- It does not allow to exchange ideas with classmates (2.1)
- It diverts the attention from the subject matter (2.1)

It can be inferred from the above finding that Undergraduate students were not sure regarding the aspect of ICT that allows exchanging ideas with classmates and concentration on subject matter. This finding highlights that Undergraduate students may consider that they can exchange ideas only through ICT and it inhibits the face to face conversation. However, it also shows that Undergraduate students had mixed opinion that ICT diverts the attention from the subject matter. The possible reason could be the availability of numerous content at the same time on same device. Furthermore, the findings highlighted that Under graduate students had negative attitude towards the negative statements. It showed the disagreement of Undergraduate students regarding the following:

- It does not improve the pace of work (2.0)
- It never generates a pleasant atmosphere in the classroom (1.9)
- It makes me uncomfortable while learning (1.8)
- It does not help in resolving doubts (1.8)
- It never enables me to ask others questions (1.8)
- It makes me unenthusiastic (1.7)

This indicates that Undergraduate Students consider ICT as an important tool for their learning. The data showed in table 32 reflects the negative attitude of these students that the

ICT does not improve their pace of work, does not generate pleasant learning atmosphere, create discomfort while learning, does not resolve doubts and create disability to ask questions. The present findings indicated that the Undergraduate students had positive and neutral attitude towards ICT. This indicates that they would be using ICT for the educational purposes.

Table 32 Intensity Indices Showing ICT Competency of Undergraduate Students

Competency	ICT Competency	I.I.
	I can -	
High (2.60-3.00)	Use internet for communication	2.80
	Use different Web site for learning	2.67
	Easily access to Internet	2.63
	Organize and manage Computer files, folders, and directories with ease	2.61
	Save files	2.60
Moderate (1.60-2.59)	Use Internet for communication (e.g email)	2.50
	Move file from one place to another with ease.	2.42
	Work on search engines, web directories, and bookmarks.	2.41
	Play various media files using appropriate media players	2.40
	Work on the basic functions of the operating system	2.39
	Use Internet to check Grammar & Spellings with ease.	2.38
	Use Google drive and iCloud to share documents	2.34
	Use Printer	2.34
	Work simultaneously with different applications	2.32
	Remove computer virus	2.28
	Use Word, Corel, Photoshop & Illustrator with ease with the help of Internet Tutorials.	2.25
	Enhance slide presentations by adding sound, customizing animation and inserting images	2.25
	Subscribe online journals, books and materials for references	2.22
	Operate a graphics program	2.18
	Assess data using spreadsheets	2.15
	Use computer for statistical applications	2.09

Table 32 shows Intensity Indices for ICT competencies of Undergraduate students of the Maharaja Sayajirao University of Baroda. The Intensity Indices ranged between 2.28 - 2.61 and showed high to moderate level of ICT competency. It was found that Undergraduate

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). The findings suggest that Undergraduate students were using computer for various purposes and were able to do basic computer aided tasks with ease.

Moderate competency was observed for the following tasks-

- Move file from one place to another with ease (2.42)
- Work on search engines, web directories, and bookmarks. (2.41)
- Play various media files using appropriate media players (2.40)
- Work on the basic functions of the operating system (2.39)
- Use internet to check Grammar & Spellings with ease. (2.38)
- Use Google drive and iCloud to share documents (2.34)
- Use Printer (2.34)
- Work simultaneously with different applications (2.32)
- Remove computer virus (2.28)

Table 32 revealed that Undergraduate students had moderate competency for using ICT for moving computer files from one place to another, using features of search engines like directories and bookmarks, selecting appropriate media player for playing numerous type of media files, operating basic function of operating system, using internet for checking grammar and spellings and so on. Furthermore, it was also found that Undergraduate students were moderately comfortable in using Google drive and iCloud to share documents whenever needed. The present data also revealed that more than half of the respondents were using computer daily for various activities (refer table 24). This indicates their heavy usage of the same. If they were using computer daily their might have good ICT competency related to computer handling. The data regarding the place used by Undergraduate students to access computer and internet. It revealed that high majority of the Undergraduate students were accessing computer and Internet from their home (refer table 25). The place of Internet and computer accessibility highlights that these students might be findings it easy to learn though web based resources for their curriculum aspects from their home.

4.2.2 Overall Usage of Web based Learning Resources amongst Undergraduate Students

The previous sections showed the evidences that Undergraduate Students were using Web based learning resources for their Curriculum aspects and also for Soft skill development. This section will throw light upon the differences in use of Web based Learning Resources amongst Undergraduate Students in relation with their gender, age, monthly family income, discipline of study, ICT competency and their attitude towards use of ICT.

Table 33 Frequency and Percentage Distribution of Undergraduate students according to their usage pattern of Web-based learning Resource (N=600)

Aspects	High Usage		Moderate Usage		Low Usage	
	F	%	F	%	F	%
Overall	578	96.30	21	3.50	1	2
Curriculum Aspects	435	72.50	160	26.70	5	0.8
Soft skill Aspects	463	77.20	128	21.30	9	1.50

Table 33 shows the findings related to the usage of Web based learning resources by Undergraduate students. It revealed that very high majority of them (96.30%) had high usage for Overall Web based learning. Similarly, higher percentage of the Undergraduate students had high usage of Web based learning related to the Curriculum aspects (72.50%) and Soft skill aspects (77.20%) respectively. It further revealed that a little more than one fourth of the Undergraduate students had moderate usage of Web based learning for Curriculum aspects (26.70%), whereas a little more than one fifth of them had moderate usage for Soft skill aspects (21.30%). The findings also highlighted that very few of them had low usage for overall (2%), Curriculum aspects (0.8%), Soft skill aspects (1.50%) related Web based learning. The present finding shows that Undergraduate students were using Web based learning resources for their Curriculum needs and also to upgrade their Soft skills. The importance of ICT in higher education have been an area of concern among educationist and higher education research scholars. The emergence of ICT in the field of education has proven the effectiveness of it teaching and learning process. **Alam (2016)**

mentioned the benefits of integration of ICTs in higher education for students. It will provide increased access to learning material, flexibility of content and delivery, combination of work and education, learner-centred approach, higher quality of education and new ways of interaction to students and teachers both. ICT can play as an change agent in higher education as it provide anytime and anyplace learning with student centred approach with supported knowledge construction **(Oliver, 2002).** However, other study in developing country showed the low use of ICT among female students. The results indicated limited usage of ICT despite of having the knowledge of ICTs, positive attitude and interest towards it **(Adeola, Olufunke and Olubunmi, 2013).** The use of ICT tools/applications in higher education institutes situated in big cities were sufficient but largely the use was low **(Shaikh and Khoja, 2013)**

Figure 17 Percentage Distribution of Undergraduate students according to their usage pattern of Web-based learning Resources (N=600)

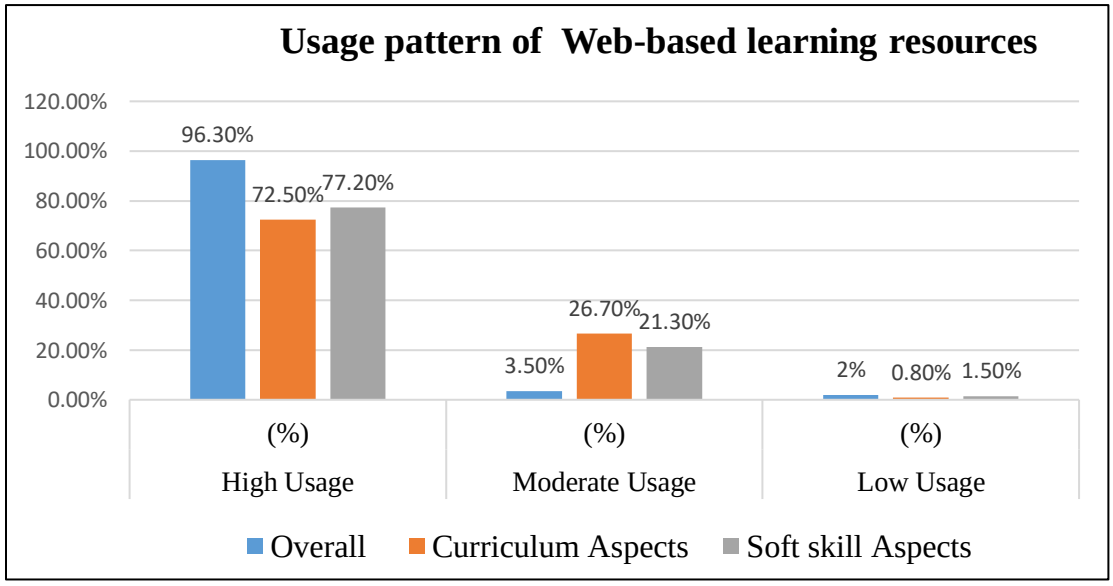


Table 34 T- Ratio showing Differences in Overall Use of Web-based Learning Resources amongst Undergraduate Students

(N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value
Gender	Male	300	70.51	12.30	1.45	0.149
	Female	300	69.06	12.28		
Age	Young Youth	186	71.33	13.47	1.95	0.05*
	Youth	414	69.10	11.69		
Monthly family Income	Middle Income	448	70.59	12.31	2.75	0.00**
	High Income	152	67.43	12.01		

**p < 0.01

Table 34 shows the difference in overall use of Web based leaning resources amongst Undergraduate students. The data revealed that there has no significant difference in overall use of Web based leaning resources amongst Undergraduate students in relation to their gender. This indicates the similar usage pattern amongst both males and females. Hence, the null hypothesis stating that there will be no significant differences in the overall usage of Web-based learning resources amongst the Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to their gender was accepted. However, the table 34 also shows that there were significant differences in the overall use of Web based leaning resources amongst Undergraduate students in relation with their age and monthly family income. The results showed that students who belonged to younger age group (16-18 Years) were using it more in comparison to other category. Income group wise, it was found that Undergraduate students who belonged to middle income group had overall more usage of web based learning resources in comparison to students belonging to higher income groups. This means that the overall use of Web based learning resources amongst Undergraduate students differ according to their age group and income group. Hence, the null hypothesis stating that there will be no significant differences in the overall usage of Web-based learning resources amongst the Undergraduate students of The Maharaja Sayajirao University of Baroda in relation to their age and income group was not accepted. It can be

understood that younger students would be using it more in comparison to the older age group. The researches have proven that younger age group users are more comfortable in adapting new technology and hence, they are expected to use it more than their counter parts. The finding regarding the overall usage of web based learning in relation with their income group showed that students from Middle income group were using it more. The possible reason could be the affordable price of the internet these days. A lot of resource materials related to various subjects are available on internet with free access. Therefore, Undergraduate students belonging to middle income group might be finding it easier to gather reading materials from Web rather than buying books and subscribing libraries and journals and hence, their overall usage for the same would be more in comparison to others.

Table 35 Analysis of Variance (ANOVA) Showing Differences in Overall Usage of Web-based learning resources amongst Undergraduate students in Relation with Selected Variables (N=600)

Variable	Source	Sum of Squares	Df	Mean Square	F	p-Value
Discipline of Study	Between Groups	5469.7	4	1367.4	9.6	0.01**
	Within Groups	85146.5	595	143.1		
Year of Study	Between Groups	3366.0	2	1683.0	8.8	0.01**
	Within Groups	114240.9	597	191.4		
ICT competency	Between Groups	31270.8	2	15635.4	157.3	0.01**
	Within Groups	59345.4	597	99.4		
Attitude towards ICT	Between Groups	25176.4	2	12588.2	114.8	0.01**
	Within Groups	65439.8	597	109.6		

**p < 0.01, *p<0.05

Table 35 indicates that there were significant differences in Overall Usage of Web-based learning amongst Undergraduate students in relation with the discipline of their study, year of study, ICT competency and also with their attitude towards ICT. Therefore, the null hypotheses that 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 their discipline of study, year of study, ICT competency and also with their attitude towards ICT were not accepted. This signifies that the overall usage of Web-based learning resources among Undergraduate students varied according to the aforementioned variables.

Table:36 Tukey's HSD comparison in overall usage of web-based learning resources in relation with selected variables (N=600)

Variables	Variables (I)	Variable (J)	Mean Difference (I-J)	Std. Error	Sig.
Discipline of the Study	Faculty of Science ($\bar{x}$ =74.80)	Arts and Commerce ($\bar{x}$ =66.57)	9.73333*	1.75525	0.01**
		Community and Social Sciences ($\bar{x}$ =66.80)	9.69167*	1.75525	0.01**
Year of Study	1st year ($\bar{x}$ =92.55)	3rd year and final year ($\bar{x}$ =86.75)	5.79500*	1.38332	0.01**
ICT Competency	Low Competency ($\bar{x}$ =44.66)	Moderate Competency ($\bar{x}$ =77.27)	-32.60677*	4.80064	0.01**
		High Competency ($\bar{x}$ =93.52)	-48.86123*	4.72204	0.01**
Attitude towards ICT	Positive Attitude ($\bar{x}$ =97.85)	Neutral Attitude ($\bar{x}$ =85.58)	12.26732*	1.00992	0.01**
		Negative Attitude ($\bar{x}$ =65.81)	32.23685*	2.70921	0.01**

**p < 0.01, *p<0.05

Table 36 shows the post hoc analysis for overall usage of web based learning and highlights the significant differences amongst the categories of variables. It was found that Discipline of the study among Undergraduate students of Faculty of Science had more usage ($\bar{x}$ =74.80, p<0.01) and Arts and Commerce ($\bar{x}$ =66.57)and Faculty of Family and Community Sciences had low usage ($\bar{x}$ =66.80). The first year students ($\bar{x}$ =92.55, p<0.01) had overall high usage of web based learning resources in comparison to third year and final year

students ($\bar{x}$ =86.75). It is understood that the undergraduate students have to study a wide course outline covering all the major subjects at first year level. Whereas, in final year their course outline focuses on one major subject that they have opted for (their specialization). Therefore, in first year they need to gather variety of reading materials for numerous sources. The Web based resource materials are easily available and accessible. Hence, the students would be using it more in comparison to other categories. Furthermore, it was also found that students who showed low ICT competency ($\bar{x}$ =44.66) had overall, low usage of web based learning resources in comparison to those who had high ($\bar{x}$ =93.52) and moderate ($\bar{x}$ =77.27, $p<0.01$) competency. The obvious reason behind this finding is their comfort for using ICT for different purposes. Those students who had high to moderate ICT competency possessed higher comfortable attitude towards ICT. Hence, they would be finding it easy to use Web-based learning resources in comparison to those who had low ICT competency. Therefore, they showcased overall high usage. The results for attitude towards ICT and their overall usage for web based learning resources showed that those who had positive attitude towards ICT were using it more in comparison to those who had negative ($\bar{x}$ =65.81, $p<0.01$) and neutral ($\bar{x}$ =85.58 $p<0.01$) attitude towards the same. Positive attitude towards ICT indicates the higher level of adaptability towards the new technology. This reflects that those who had positive attitude towards ICT would be using web based learning resources with ease in comparison to their counterparts.

Ranjan and Agarwal (2018) found that the undergraduate students of medical studies had internet addiction and the significant values were noted in relation with their areas of residence, frequency of using internet, and their data plan. The research showed higher usage for those who were residing in urban areas, using mobile phone to access internet, accessing internet daily. The research argued that the factors like addictions like smoking and alcohol, romantic relationship as well as boredom leads youth to access internet more. Jamaludin S et al. (2018**)** found through research investigation that the ICT tools are effective in the field of medical education and the internet has a positive effect on academic performance.

4.2.3 Differences in the usage of Web-based Learning Resources for Curriculum Aspects amongst Undergraduate Students

Table 37 Intensity Indices Showing Use of Web-Based Learning Resources For Curriculum Aspects (N=600)

Usage	Use of Web-Based Learning Resources For Curriculum Aspects	I.I
High Usage (2.60-3.00)	Downloading exam result from Websites.	2.6
	Using for filling up online Application Form	2.6
Moderate Usage (1.60-2.59)	Watching videos as learning materials (e.g. You-tube video)	2.5
	Use Website to pay fees	2.5
	Using Internet to look up information	2.5
	Using Internet for filling up online subject selection form	2.4
	Downloading materials from the University/ Department's Website. (e.g. course outline , Brochure)	2.3
	Using Internet to revise for exams	2.3
	Use online software for grammar and spelling checker (e.g. Grammarly, Theasaurus.com)	2.2
	Editing my profile on university Website	2.2
	Combining files from different resources (sound or video files) to create presentations (like preparing PPT)	2.2
	Using different designing softwares (e.g. Photoshop, Flash)	2.1
	Preparing presentation for class	2.1
	Using online chat room to discuss regarding subject with my friends	2.1
	Using ICT when I want to know more about a topic	2.1
	Using educational software to learn some lessons (like LaTax, Prezi)	2.0

Table37 shows the Intensity Indices for use of Web based learning resources by Undergraduate students for their curriculum aspects. The intensity indices ranged from 2.60-2.00, that indicated high to moderate usage. It revealed that Undergraduate students had usage of Web based learning resources for downloading their results from Website and

to fill online application form. The moderate usage was found for remaining listed items. The highest intensity index (2.5) in moderate usage was for watching online videos for learning, payment of fees and searching information. It further revealed that students were also using Web based learning resources for filling up online subject selection form (2.4), downloading materials from the university/ department's Website (2.3), using internet to revise for exams (2.3), using software for grammar and spelling checker (2.2), editing my profile on University's Website (2.2), combining files from different resources (sound or video files) to create presentations (2.2), using different designing softwares e.g. Adobe Photoshop/flash (2.1), preparing presentation for class (2.1), using online chat room to discuss regarding the subject with friends (2.1), using ICT to know more about a topic (2.1), using educational software to learn some lessons (2.0). The present findings revealed that Undergraduate students were using Web based learning resources for their curriculum based needs. They were using it to prepare their presentation, for gathering information, learning, for their examination and admission purposes. It was also found that they were using it for group learning. The other researches also highlighted the use of internet and ICT for educational purposes amongst higher education students in India and also other countries. (Lavanya L et.al 2018; Sharma and Hardia 2010)

Apuke and Lyendo (2018) also found that students perceived that informal interactions such as friendly chat among friends were often converted to academic debate on course topics. The study highlighted that students share knowledge with each other through internet technological devices such as email and social networking sites, including Facebook and WhatsApp.

Table 38 T- Ratio showing Differences in Use of Web-based Learning Resources for Curriculum Aspects amongst Undergraduate Students (N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value
Gender	Male	300	37.05	7.38	1.41	0.159
	Female	300	36.21	7.21		
Age	Young Youth	186	37.06	8.46	0.90	0.367
	Youth	414	36.43	6.72		
Monthly family Income	Middle Income	448	37.08	7.45	2.65	0.008**
	High Income	152	35.28	6.70		

**$p < 0.01$

Table 38 reveals that there were no significant differences found in the use of Web based learning resources amongst Undergraduate Students for their Curriculum aspects in relation with their gender and age. This signifies that the usage of Web based learning resources for their Curriculum aspects amongst them was equal irrespective of their gender and age group. Therefore, the null hypotheses will be no significant differences in the usage of Web-based learning amongst Undergraduate students of The Maharaja Sayajirao University of Baroda for their Curriculum Aspects in relation to their age and gender were accepted. The possible reason such finding could be that the curriculum-based needs of the students might be similar with respect to their gender and their age. Therefore, they would be using it in similar manner. **Sharma and Hardia (2010)** also found similar finding in their research on e-learning that the usage of e-learning among higher studies students is significantly same in relation to their gender. However, the findings regarding the differences in the same in relation with their income group reflected that there was significant difference in the use of Web based learning resources amongst Undergraduate students for their Curriculum aspects in relation with their monthly family income. The findings revealed that those students who belonged to Middle income group were using it more in comparison to those who belonged to higher income. Hence, the null hypothesis had no significant differences will be in the usage of Web-based learning amongst Undergraduate students of The Maharaja Sayajirao University of Baroda for their Curriculum Aspects in relation to their monthly family income was rejected.

Table 39 Analysis of Variance (ANOVA) Showing Differences in Usage of Web-based learning resources for Curriculum Aspects amongst Undergraduate Students in Relation with Selected Variables (N=600)

Variable	Source	Sum of Squares	Df	Mean Square	F	p-Value
Discipline of Study	Between Groups	855.7	4	213.9	5.7	**0.01****
	Within Groups	22269.6	595	37.4		
Year of Study	Between Groups	1172.3	2	586.2	11.4	**0.01****
	Within Groups	30780.0	597	51.6		
ICT competency	Between Groups	6369.8	2	3184.9	113.5	**0.01****
	Within Groups	16755.5	597	28.1		
Attitude towards ICT	Between Groups	4547.6	2	2273.8	73.1	**0.01****
	Within Groups	18577.7	597	31.1		

**p < 0.01, *p<0.05

Table 39 reveals that usage of Web-based learning resources for Curriculum aspects among Undergraduate students. It showed that there were significant differences found in the usage of resources for Curriculum aspects amongst Undergraduate students in relation with their the discipline of their study, year of study, ICT competency and also with their attitude towards ICT. It can be inferred that the usage of Web-based learning resources for curriculum aspects among undergraduate students differed according to these selected variables. Hence, the null hypotheses that there will be no significant differences in the usage of Web-based learning resources for curriculum aspects amongst Undergraduate students of the Maharaja Sayajirao University of Baroda in relation to their discipline of study, year of study, ICT competency and also with their attitude towards ICT were not accepted. Table 39 also indicated the similar results for overall usage of the same.

Table 40 Tukey's HSD comparison in Curriculum Aspects and their usage of web-based learning in relation with ICT Competency (N=600)

Variables	Variables (I)	Variable (J)	Mean Difference (I-J)	Std. Error	Sig.
Year of Study	3rd year & Final Year ($\bar{x}$ =34.81)	1st year ($\bar{x}$ =38.21)	-3.40000*	.71804	0.01**
		2nd year ($\bar{x}$ =36.86)	-2.05000*	.71804	0.01**
Discipline of Study	Faculty of Science ($\bar{x}$ =39.81)	Arts & Commerce ($\bar{x}$ =34.81)	5.00000*	.91549	0.01**
		Technology ($\bar{x}$ =37.19)	2.62500*	.91549	0.03*
		Medicine ($\bar{x}$ =36.45)	3.36667*	.91549	0.01**
		Community & Social Sciences ($\bar{x}$ =34.85)	4.95833*	.91549	0.01**
ICT Competency	Low Competency ($\bar{x}$ =19)	Moderate Competency ($\bar{x}$ =29.92)	-10.92969*	2.55621	0.01**
		High Competency ($\bar{x}$ =38.69)	-19.69313*	2.51436	.000
Attitude towards ICT	Positive Attitude ($\bar{x}$ =40.97)	Neutral Attitude ($\bar{x}$ =34.40)	6.56959*	.53423	.000
		Negative Attitude ($\bar{x}$ =26.14)	14.83531*	1.43312	.000

**p < 0.01, *p<0.05

Table 40 revealed the significance differences among the categories of variables for the use of Web-based learning resources for Curriculum aspects by Undergraduate students. It highlighted that those students who were studying in early level of their Undergraduate degree course viz. first year ($\bar{x}$ =38.21) and second year($\bar{x}$ =36.86) had higher usage of Web-based learning resources in comparison to those who were studying in third year and final year ($\bar{x}$ =34.81, p<0/01). The possible reason could be the sincerity to complete the Under graduation degree programme. The present findings also highlighted that the students

had neutral attitude towards the use of ICT for its effectiveness in improving the pace of work (refer table 31). This indicates that students were unsure about the effectiveness of ICT in increasing the pace of their work related to their academic goals. Therefore, the final year students might not be using it as much as the first year and second year students for their curriculum aspects.

Furthermore, it was found that students from Faculty of Science ($\bar{x}$ =39.81) had higher usage of it for their curriculum aspects in comparison to the students from Arts and Commerce ($\bar{x}$ =34.81, p<0.01), Technology ($\bar{x}$ =37.19, p<0.03), Medicine ($\bar{x}$ =36.45, p<0.01) and Community and Social Sciences ($\bar{x}$ =34.85, p<0.01). The possible reason could be the need of research based inquiries in the Field of Science and also the vast range of online learning materials and software available to them. Students belonging to other streams might not be using computer softwares as much as the students of science would be using especially those who were studying mathematics and statistics.

Jamaludin et.al (2018) mentioned that student of Health and Medicine related university use internet not only for their academic purposes but also for socializing, entertainment and others purposes. The review paper highlighted the significance of the effectiveness of the internet usage for academic purposes and its effectiveness in academic achievement among the health care students. Apuke and Lyendo (2018) found that large proportion of the Arts, Humanities and Social Science students (89.6%) claimed to make use of the internet for their academic purposes, and more than half used the internet on a daily basis. Their empirical findings suggested that students considered internet as a helpful tool to prepare for their examinations and aids them in sourcing reading materials from various websites viz., Google Scholar, E-journals. E-books and also through E-conferences.

ICT competency wise it was observed that those students who showed high ($\bar{x}$ =38.69) and moderate ($\bar{x}$ =29.92) ICT competency were using it more for their Curriculum aspects in comparison to those who had low competency ($\bar{x}$ =19, p<0.01). Moreover, it was also revealed that those who had positive attitude towards ICT ($\bar{x}$ =40.97) were using more Web-based learning resources for their curriculum aspects in comparison to those who had neutral ($\bar{x}$ =34.40, p<0.01) and negative ($\bar{x}$ =26.14, p<0.01) attitude. The higher level of ICT competency and positive attitude reflects the higher level of comfort among ICT users.

Hence, it leads them to use it more for various purposes like for learning curriculum aspects, in comparison to those who had less ICT competency scores and neutral or negative attitude for using ICT. The similar observation was noted for overall use of web based learning resources (refer table 32). In contradiction to the available literature, Shahibi and Rusli (2017) found that the use of online media for education did not have significant positive impact on student's academic performance. However, they also argued that the use of internet for non-academic purposes also did not show significant impact on their academic performance. Furthermore, the research also highlighted the significant impact of use of online media on learning process of students. This finding supports that the e-platforms helps students to learn numerous topics or subjects. Therefore, it may be considered that Web based learning resources ease up the learning process among students. However, it is difficult to explore the route between IT use and academic performance is complex **(Jackson et al., 2011).**

4.2.4 Differences in the Usage of Web-based learning resources for Soft Skill amongst Undergraduate students

Table 41 Intensity Indices Showing Use of Web-based learning resources for Soft Skills Aspects (N=600)

Usage	Use of Web-based learning For Soft Skills	I.I.
High	Verbal communication is good to connect with friends	2.6
Moderate	Manage multi-tasking skills sufficiently	2.5
	Feel confident while discussing content learnt	2.4
	I express thinking differently and in a positive way	2.4
	Using technology improves higher order thinking skills	2.4
	Use of Online learning improve interpersonal skills	2.4
	Use of soft skills helps to build positive relationship among learners.	2.4
	I like to learn Soft Skills courses	2.3
	Use of problem solving approach through Soft Skills learning	2.3
	I use motivating instructional technology to develop my skills	2.3
	It improves comprehensive and analytical ability.	2.3
	Uses of Web-based resource help to improve critical thinking.	2.3
	Skill to pay Online different Bills	2.3
	Web based learning develop affective skills	2.3

Table 41 shows the Intensity Indices for use of Web based learning resources by Undergraduate students for their Soft Skills aspects. The intensity indices ranged from 2.60-2.30 that indicated high to moderate usage. It was found that students had a high amount of usage of web-based learning for verbal communication to connect with their friends. A moderate usage was found for remaining listed items. The highest Intensity Index (2.5) in moderate usage was found amongst students for managing multi-tasking skills sufficiently. It further revealed that students were also using Web based learning resources to express their thinking differently and in a positive way (2.4), Feel confident while discussing content learnt (2.4), Using technology to improve higher order thinking skills (2.4), Use of Online learning & improve interpersonal skills(2.4), Use of Soft skills to build positive relationship among learners (2.4), like to learn Soft Skills courses (2.3), use of problem solving approach through soft Skills learning (2.3), use motivating instructional technology to develop skills (2.3), Improving comprehensive and analytical ability (2.3), to improve critical thinking (2.3), to pay Online different Bills (2.3), to develop affective skills (2.3) The present findings revealed that Undergraduate students were using Web based learning resources for their Soft skills based needs. They were using it to enhance their skills, ability and thinking power, with the use of Web-based learning resources The other researches also highlighted that the content of media such as television and the Internet have impact of perspectives, feelings and qualities, information, and psychological abilities in individual human beings.

Table 42 T- Ratio showing Differences in Use of Web-based learning for Soft Skill amongst Undergraduate students (N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value
Gender	Male	300.0	33.47	6.10	1.20	0.230
	Female	300.0	32.86	6.32		
Age	Young Youth	186.0	34.26	6.24	2.92	0.004**
	Youth	414.0	32.67	6.14		
Monthly Family Income	Middle Income	448.0	33.50	6.11	2.31	0.021*
	High Income	152.0	32.16	6.43		

**p < 0.01

Table 42 indicates the differences in use of Web-based learning for Soft skill amongst Undergraduate students. The findings revealed that no significant difference existed in use of Web-based learning for Soft skill amongst Undergraduate students in relation with their gender. This means that both male and female Undergraduate students were using Web based leaning for learning Soft skills in similar manner. Hence, the null hypotheses that there will be no significant differences 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 gender was accepted .However, significant differences were found for the same in relation with their Age and Monthly family income. Hence, the null hypotheses that there will be no significant differences 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 and monthly income group were not accepted. The mean scores of the age group showed that younger youth were using it more for learning Soft skills in comparison to those who belonged to older age group. Income group wise the data indicated that the students who belonged to middle income group were using Web-based learning resources more for their Soft skill development in comparison to those who belonged to higher income group.

Table 43 Analysis of Variance (ANOVA) Showing Differences in Use of Web-based learning resources for Soft Skill amongst Undergraduate students in Relation with Selected Variables (N=600)

Variable	Source	Sum of Squares	Df	Mean Square	F	p-Value
Discipline of Study	Between Groups	855.710	4	213.928	5.716	.000**
	Within Groups	22269.608	595	37.428		
Year of Study	Between Groups	724.3	2	362.1	9.7	0.000
	Within Groups	22401.1	597	37.5		
ICT competency	Between Groups	6369.827	2	3184.914	113.479	.000**
	Within Groups	16755.491	597	28.066		
Attitude	Between Groups	4547.593	2	2273.796	73.069	.000**
	Within Groups	18577.726	597	31.118		

**p < 0.01, *p<0.05

Table 43 reveals that in usage of Web-based learning resources for soft skills aspects among Undergraduate students. Hence, there were significant differences found in the Usage of Web-based learning resources for Soft skill development amongst undergraduate students in relation with their discipline of their study, year of study, ICT competency and also with their attitude towards ICT. It can be inferred that the usage of Web-based learning resources for Curriculum aspects among undergraduate students differed according to these selected variables.

Hence, the null hypotheses that there will be no significant differences 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 discipline of study, year of study, ICT competency and also with their attitude towards ICT were not accepted. Table 39 and 42 also indicated the similar results for overall usage of the same.

Table 44 Tukey's HSD comparison in Soft skills Aspects and their usage of Web-based learning resources in relation with selected variables (N=600)

Variables	Variable (I)	Variable (J)	Mean Difference (I-J)	td. Error	Sig.
Year of Study	1st Year ($\bar{x}$ =34.67)	2nd Year ($\bar{x}$ =32.71)	1.96500*	.61256	0.01**
		3rd & Final Year ($\bar{x}$ =32.10)	2.57500*	.61256	0.01**
Discipline of Study	Science ($\bar{x}$ =34.98)	Arts & Commerce ($\bar{x}$ =31.75)	3.22500*	.78981	0.01**
		Community & Social Science ($\bar{x}$ =31.94)	3.04167*	.78981	0.01**
ICT Competency	Low Competency ($\bar{x}$ =13.16)	Moderate Competency ($\bar{x}$ =28.44)	-15.27865*	2.21291	0.01**
		High Competency ($\bar{x}$ =34.71)	-21.54793*	2.17668	0.01**
Attitude towards ICT	Positive Attitude ($\bar{x}$ =36.19)	Neutral Attitude ($\bar{x}$ =31.71)	4.47936*	.47413	0.01**
		Negative Attitude ($\bar{x}$ =24.14)	12.05365*	1.27190	01**

**p < 0.01, *p<0.05

Table 44 highlights that those Undergraduate students who were in their first year of study ($\bar{x}$ =34.67) were using Web based resources more for leaning Soft skills in comparison to those who were in second year ($\bar{x}$ =32.71, p<0.01) and third and final year($\bar{x}$ =32.10, p<0.01). It can be inferred from the present finding that student might be more focused to learn Soft skills at the entry level of their Under graduation. These Soft skills would help them in preparing for their presentations, seminars, field work and conferences. Therefore, the first year students would be using Web-based resources more for learning Soft skills in comparison to their seniors. Furthermore, the table 44 highlighted that the students from Science stream ($\bar{x}$ =34.98) were using Web-based learning resources more for their soft skills in comparison to the students studying in Arts and Commerce stream ($\bar{x}$ =31.75, p<0.01) and Community & Social Sciences stream ($\bar{x}$ =31.94, p<0.01). It can be understood that the students from Arts and Commerce stream and Community & Social Sciences stream have field exposures at various levels during their under graduation course. This might have given exposure to them for learning Soft skills whereas, students from Science stream had lab oriented curriculum and allows them to study with minimal public interaction. This might trigger them to learn Soft skills from various Web based learning resources. The present findings further showcased that students who had high ($\bar{x}$ =34.71) and moderate ($\bar{x}$ =28.44) ICT competency were using it more for their Soft skill development in comparison to those who had low ICT competency ($\bar{x}$ =13.16, p<0.01). It was also found that those who had positive attitude for using ICT had more usage of Web-based learning resources for Soft skills in comparison to those who had neutral attitude ($\bar{x}$ =31.71, p<0.01) and negative attitude ($\bar{x}$ =24.14, p<0.01).

The importance of learning Soft skills among Undergraduates is noticed by many scholars. Soft skills increase the employability of graduates who can demonstrate effective communication skills with clients and colleagues. Online Learning Environment (OLE) engages students and develops team building and interpersonal skills among them **(Myers et.al 2014).** Some researchers contend that these skills are often overlooked within the tertiary level curriculum, particularly with the recent shift towards online delivery **(Ahmed, Capretz, Bouktif, & Campbell, 2012).**

Clark and Gibb (2006) found that through innovative virtual team exercises, cognitive, affective and action-learning outcomes can be achieved. **Enache R et al. (2014)** have found that the impact of Internet over the development of pupils' skills is a positive, beneficial to the development of their personality and to their social integration and adaptation. Apart from the development of active and conscious participation, of communication within virtual space or networking, of teamwork, in pairs, individually or frontally pupils develop functional skills like: organizational skills, self-management skills, time management, critical thinking, decision making, processing and contextual use of information and the capacity to identify and solve problems. Online Learning Environment (OLE) that engages students and develops team building and interpersonal skills. One of the difficulties in creating effective OLEs is student isolation, which is said to invoke an individual-centric model of learning that encourages discrete study rather than teamwork **(Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000)** Despite this, employers still insist that a key learning objective of ICT graduates is the ability to work in team environments as this mirrors work force requirements (**Ahmed et al., 2012; Australian Workforce and Productivity Agency, 2013).** Due to this need, group exercises and projects have become an important component of higher education **(Blackman, 2012; Friedman, Cox, & Maher, 2008; Myers, Monypenny, & Trevathan, 2012).** An assessment of experiences, techniques/methods used and student-learning outcomes such as Approaches to Study Inventory (ASI) **(Epstein Educational Enterprises, 2009; Richardson, 1993)** were used to determine the effectiveness of key graduate attributes, specifically: teamwork, communication skills, organisational skills, responsibility and accountability.

4.3 Opinions of Web-based learning resources amongst Undergraduate students

An individual forms opinions based on different aspects those aspects include exposure, experience, competence and also at times educational background and gender may affect. Current section of the research gives overview on overall opinions of students regarding their experience of web-based learning, aspect wise opinions regarding web-based learning and differences on the opinions regarding web-based learning in relation with variables.

4.3.1 Overall Opinions of Web-based learning resources amongst Undergraduate students

Table 45 Percentage Distribution of Undergraduate Students according to their Opinion regarding the Web-based learning resources (N=600)

Aspects	Most Favourable		Favourable		Least Favourable	
	F	%	F	%	F	%
Overall	466	77.7	129	21.5	5	8
Curriculum Aspects	473	78.8	120	20.0	7	1.2
Soft skill Aspects	394	65.7	199	33.2	7	1.2

The table 45 gives on overview regarding overall and aspect wise opinions of students regarding their experience of Web-based learning. It reveals that high majority (77.7 %) of students had most favorable opinions, very few students reported their opinions to be favorable (21.5%) and least favorable (8%). Web based learning platform can play variety of roles in a student's life. It functions as per the need of the user.

Rashid et.al. (2016) listed the advantages of Web- based learning for Undergraduate students. They were distance learning, student centered learning, more convenient for students and saves time, instilling high order thinking skills, and increase motivation and access. The weaker points were also discussed. They were Technological Obstacles and Lack of Moral Value Implementation. It was stressed on that WBL can provide a satisfactory experience for those who faces the challenge of accessing continuing education. Therefore, It can be understood that those who had favourable opinions regarding Web based learning resources might be having more experience of its usage.

Figure 18 Percentage Distribution of Undergraduate students according to the Opinions regarding the Web-based learning resources

(N=600)

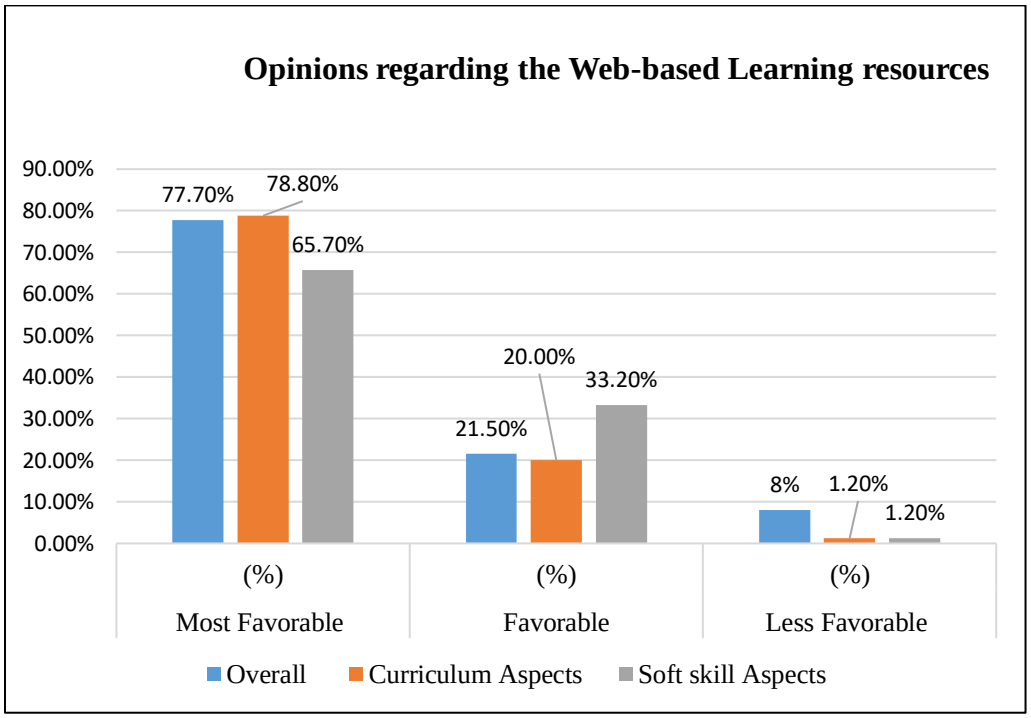


Table 46 T- Ratio showing Differences in Overall opinions of Web-based Learning Resources amongst Undergraduate Students (N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value	Remarks
Gender	Male	300.0	61.84	10.94	**0.465**	0.642	NS
	Female	300.0	62.24	10.50			
Age	Young Youth	186.0	63.01	10.63	**1.489**	0.137	NS
	Youth	414.0	61.60	10.74			
Monthly Income	Middle Income	448.0	62.53	10.60	**1.93**	0.054	NS

**p < 0.01

Table 46 highlighted that there were no significant differences in the overall opinions of undergraduate students regarding Web-based learning experiences in relation with their gender,

age and monthly income. Thus, the null hypotheses stating that there will be no significant differences in the overall opinions of Undergraduate students regarding Web-based learning experiences in relation with their gender, age and monthly income were accepted. This finding indicates that the Undergraduate students had similar opinions for overall learning through Web-based resources according to their gender, age and monthly family income. It can be understood that the Undergraduate students did not had much exposure of Web- based learning experiences. The teaching pattern in the Maharaja Sayajirao University of Baroda is traditional. At Undergraduate level students get assignments that require use of different softwares like MS Word and MS Powerpoint. The reading material and pamphlets are also provided to students for their preparation purposes. The assignment submission is taken in hard copy. Thus, the teaching pattern does not involve much exposure to ICT. However, students may use internet and computer for other purposes like entertainment, socialization and so on. Therefore, it becomes difficult for them to have strong opinions for Web based learning experiences and hence no significant differences were found. However, researchers had found positive views of blended learning at various levels Akkoyunlu, Uğu & Kurbanoğlu, (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.

Table 47 Analysis of Variance (ANOVA) Showing Differences in Overall opinions of Web-based learning amongst Undergraduate students in Relation with Selected Variables (N=600)

Variable	Source	Sum of Squares	Df	Mean Square	F	p-Value
Year of Study	Between Groups	2439.8	3	813.3	7.3	0.01**
	Within Groups	66317.2	596	111.3		
Discipline of Study	Between Groups	3929.5	4	982.4	9.0	0.01**
	Within Groups	64827.6	595	109.0		
ICT competency	Between Groups	21950.2	2	10975.1	140.0	0.01**
	Within Groups	46806.8	597	78.4		
Attitude towards ICT	Between Groups	19105.7	2	9552.9	114.9	0.01**
	Within Groups	49651.3	597	83.2		

**p < 0.01, *p<0.05

The table 47 reveals the significant differences in the opinions of Undergraduate students regarding their Web-based learning experiences.

It reveals that there were significant differences in the opinions of students regarding their Web-based learning experiences in relation with their year of study, discipline of study, ICT competences and attitude towards ICT. Thus hypotheses stating there were no significant differences in opinions of students regarding their Web-based learning experiences in relation with their year of study, discipline of study, ICT competences and attitude towards Web-based learning were not accepted. This indicates that the opinions of them varied on the basis of aforementioned variables.

Table 48 Tukey's HSD comparison in overall opinions of Web-based learning resources in relation with selected variables (N=600)

Variable	**Variables (I)**	**Variable (J)**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**
Year of Study	1st Year ($\bar{x}$ =64.36)	2nd Year ($\bar{x}$ =61.54)	2.820*	1.059	0.05*
		3rd & Final Year ($\bar{x}$ =60.23)	4.125*	1.059	0.01**
Discipline of Study	Science ($\bar{x}$ =65.72)	Arts & Commerce ($\bar{x}$ =58.81)	6.908*	1.348	0.01**
		Family & Community Science ($\bar{x}$ =59.68)	6.033*	1.348	0.01**
	Technology ($\bar{x}$ =63.83)	Arts & Commerce ($\bar{x}$ =58.81)	5.025*	1.348	0.01**
		Community & Social Sciences ($\bar{x}$ =59.68)	4.150*	1.348	0.01**
ICT Competency	Low Competency ($\bar{x}$ =30.17)	Moderate Competency ($\bar{x}$ =52.52)	-22.357*	3.699	0.01**
		High Competency ($\bar{x}$ =65.06)	-34.898*	3.638	0.01**
Attitude towards ICT	Positive Attitude ($\bar{x}$ =68.48)	Neutral Attitude ($\bar{x}$ =58.84)	9.637*	.775	0.01**
		Negative Attitude ($\bar{x}$ =45.10)	23.385*	2.079	0.01**

**p < 0.01, *p<0.05

Table 48 showed the post hoc analysis for overall opinions of Web-based learning in relation with selected variables. It highlighted that those undergraduate students who were studying in first year ($\bar{x}$ =64.36) had significantly more favourable opinions in comparison to those who were in second year ($\bar{x}$ =61.54, p<0.05) and final year ($\bar{x}$ =60.23, p<0.01). The reason could be the heavy usage of Web based resources among the first year students for various purposes. (Table 40, 43, 46). It can be understood that the first year students had more favourable opinion regarding web based learning because they were using it more in comparison to others. The significant differences were also observed according to the discipline of their study. It was found that those students who were in Science ($\overline{x}$ =65.72) discipline had more favourable opinion for overall experience of Web-based learning in comparison to those who were studying in Arts and Commerce ($\overline{x}$ =58.81, p<0.01) and Community & Social Science ($\bar{x}$ =59.68, p<0.01). Table 52 further revealed that undergraduate students studying in Technology ($\bar{x}$ =63.83) also had significantly favourable opinions for web based learning in comparison to the students studying in Arts and Commerce ($\overline{x}$ =58.81, p<0.01) and Community and Social Science ($\bar{x}$ =59.68, p<0.01). The reason could be the more usage of Web based learning resources by Science and Technology students in comparison to those who were studying in Arts and Commerce and Community & Social Sciences. The present findings also showcased heavy usage of Web based learning resources among Science students (refer Table 44). ICT competency wise it was observed that those students who showed high ($\bar{x}$ =65.06) and moderate ($\bar{x}$ =52.52) ICT competency had overall more favourable opinions for web based learning resources in comparison to those who had low ICT competency ($\bar{x}$ =30.17, p<0.01). Moreover, it was also revealed that those who had positive attitude towards ICT ($\bar{x}$ =68.48) had more favourable opinion for overall web based learning in comparison to those who had neutral ($\bar{x}$ =58.84, p<0.01) and negative ($\bar{x}$ =45.10, p<0.01) attitude. The present findings indicate that technology is playing as a helping hand for undergraduate students in their learning process. Ghavifekr, Afshari & Amla Salleh, 2012 also stressed upon the ICT integration in school and other educational institutes' curriculum to prepare students to live in a knowledge society. National ICT Competency Framework for student teachers can be implemented through combining ICT skills and pedagogical knowledge with emergent educational views. (UNESCO 2008)

4.3.2 Differences in the Opinions of Undergraduate Students regarding Web-based learning resources in reference with Curriculum Aspects

Table 49 Intensity Indices Showing opinions of students regarding Web-based learning experiences in reference to Curriculum Aspects (N=600)

Opinions for Curriculum Aspects	I.I.
Web-based Learning material is relevant and useful for Curriculum	2.6
Downloading material from a learning platform is easy(e.g. YouTube, Academia.edu, Education.com)	2.6
It makes it easier to access educational resources to achieving academic excellence	2.6
Browsing material to collect information to prepare notes (e.g. YouTube, Academia.edu, Education.com)	2.5
Preparation of class notes using different Web sites to collect information is easier	2.5
Uploading material on a learning platform is easy (e.g. YouTube, Academia.edu, Education.com)	2.4
Learning becomes interesting through Online quiz and exam.	2.4
ICT for downloading result through website has become very accessible.	2.4
Use inflibnet portal to find out material related to course is very convenient	2.3
Refer online e-books and journal for learning new things.	2.3
Easy to download course certificate from Websites	2.3
Helps to create and maintain a social network for learning	2.3
To use different Software for Web-based-learning	2.2
Creating digital learning module for assignments is very convenient	2.2

Table 49 elicits the opinions of students regarding Web-based learning experiences in reference to Curriculum Aspects. The Intensity Indices for the same ranged between 2.2 – 2.6 and showed favourable opinions of the Undergraduate students for use of Web based learning resources related to Curriculum aspect. The items which were rated on high on Intensity Indices included Web-based learning material being relevant and useful for the curriculum. The opinion related to Curriculum aspects "Browsing material to collect information to prepare notes, Preparation of class notes using different Web sites to collect

information is easier, Uploading material on a learning platform is easy, Learning becomes interesting through online quiz and exam, ICT for downloading result through website has become very accessible, Use inflibnet portal to find out material related to course is very convenient, Use inflibnet portal to find out material related to course is very convenient, Easy to download course certificate from websites, and Helps to create and maintain a social network for learning" were rated moderate on intensity indices. Whereas rest were also rated on moderate scale but they were on the lower side, having a lower mean score. Web based learning can be incorporated in existing curriculum at different levels in the Universities. It can be added to give Student-focused guidance, Multisensory incitement, Multipath movement, Multimedia, Collaborative work, Information trade, Active/exploratory/request based learning, Critical reasoning and educated dynamic, credible, certifiable setting in accordance with customary instructing learning instructional methods. Wasim et.al. (2014). Present findings also highlighted that students had favourable opinions for their different experiences of web based learning related to their curriculum aspects. Rusman (2016) suggested that the Universities pay attention to learning components in order to develop e-learning services. It ought to be actualized " by utilizing well known programming dialects to empower understudies to see; such projects are first page or Moodle for plans and MySQL for database motors, introducing pictures to finish e-getting the hang of programming, intended for open access and utilized as both the fundamental source and an enhancement in learning exercises".

Table 50 T- Ratio showing Differences in opinions of Undergraduate students about Web-based learning resources for Curriculum aspects (N=600)

Variable	Category	N	Mean	Std. Deviation	-Value	p-Value
Gender	Male	300	37.05	7.38	1.41	0.159 (NS)
	Female	300	36.21	7.21		
Age	Young Youth	186	37.06	8.46	0.90	0.367 (NS)
	Youth	414	36.43	6.72		
Monthly Income	Middle Income	448	37.08	7.45	2.65	**0.01****
	High Income	152	35.28	6.70		

**p < 0.01, *p<0.05

The table 50 shows the differences in opinions of Undergraduate students about Web-based learning resources for Curriculum aspects . It reveals that 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. Therefore, the null hypotheses that there will no significant differences in the opinions of students about Web-based learning experience regarding curriculum aspect in relation with their gender and age was accepted. This indicates that the Undergraduate students had similar opinions regarding the same irrespective of their gender and age. However, significant differences were found in opinions of Undergraduate students about Web-based learning resources for curriculum aspects in relation with their monthly family income. The mean scores reflected that that the students who belonged to middle income group had more favourable opinions in comparison to those who had high family income.. Therefore, the null hypothesis stating there will no significant differences in opinions of Undergraduate students about Web-based learning experience regarding curriculum aspect in relation with their monthly income was not accepted.

Table51 Analysis of Variance (ANOVA) Showing Difference in Opinions of Undergraduate Students for Web-based learning for curriculum Aspects in Relation with Selected Variables (N=600)

Variable	Source	Sum of Squares	Df	Mean Square	F	p-value
Year of Study	Between Groups	806.6	3	268.9	7.0	0.01**
	Within Groups	22908.1	596	38.4		
Discipline of Study	Between Groups	2031.6	4	507.9	10.1	0.01**
	Within Groups	29920.8	595	50.3		
ICT competency	Between Groups	6934.4	2	3467.2	123.4	0.01**
	Within Groups	16780.3	597	28.1		
Attitude	Between Groups	6934.7	2	3467.4	123.4	0.01**
	Within Groups	16780.0	597	28.1		

**p < 0.01, *p<0.05

Table 51 showcases the analysis of variance for opinions of Undergraduate students for Web-based learning for Curriculum aspects in relation with selected variables. This

analysis suggests that there were significant differences in the opinions of students about Web-based learning regarding Curriculum aspect in relation with their year of study, discipline of study, ICT competencies, and attitude towards ICT. Thus, the null hypotheses stating there will no significant differences in the opinions of undergraduate students about Web-based learning experience regarding curriculum aspect in relation with year of study, discipline of study, ICT competencies, and attitude towards ICT were not accepted. It can be inferred from this finding that the opinions of the Undergraduate students for Web based learning resources for Curriculum aspects differed on the basis of above mentioned variables.

Table 52 Tukey's HSD comparison in Opinions of Undergraduate Students for Web based learning for Curriculum Aspects in Relation with Selected Variables

(N=600)

Variable	**Variables (I)**	**Variable (J)**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**
Year of Study	First year ($\overline{(x}$ = 34.87)	Final Year ($\overline{(x}$ = 32.76)	1.425	.624	0.01**
Discipline of Study	Faculty of Science ($\overline{(x}$ =39.81)	Arts & Commerce ($\bar{x}$ =34.81)	3.667	.792	0.01**
		Medicine ($\bar{x}$ =36.45)	2.533	.792	0.01**
		Community & Social Sciences ($\bar{x}$ =34.85)	4.058	.792	0.01**
	Technology ($\bar{x}$ =37.19)	Arts & Commerce ($\bar{x}$ =34.81)	2.283	.792	0.05*
		Community & Social Science ($\bar{x}$ =34.85)	2.675	.792	0.01**
ICT Competency	Low Competency ($\bar{x}$ =16.67)	Moderate Competency ($\bar{x}$ =28.23)	-11.560	2.215	0.01**
		High Competency ($\bar{x}$ =35.41)	-18.741	2.178	0.01**
Attitude towards ICT	Positive Attitude ($\bar{x}$ =37.49)	Neutral Attitude ($\bar{x}$ =31.85)	5.641*	.451	0.01**
		Negative Attitude ($\bar{x}$ =22.90)	14.584	1.209	0.01**

**p < 0.01, *p<0.05

Table 52 shows the post hoc analysis of the opinions of Undergraduate students for Web-based learning for curriculum aspects. It highlighted that the those Undergraduate students who were studying in first year ($\bar{x}$ =34.87) had significantly more favourable opinions in comparison to those who were in final year ($\bar{x}$ =32.76, p<0.01) The reason could be the more experience of Web based resources among the first year compare to other years. It also highlighted that the Undergraduate students of Science discipline ($\overline{x}$ =39.81) had more favourable opinions for Web based learning for curriculum aspects in comparison to those who were studying in Arts & Commerce ($\bar{x}$ =34.81, p<0.01), Medicine ($\bar{x}$ =36.45, p<0.01) and Community and Social Science ($\bar{x}$ =34.85, p<0.01). Moreover, it was also found that those students who were studying in Technology ($\bar{x}$ =37.19) had more favourable opinions of web based learning for curriculum aspects in comparison to those who were studying in Arts & Commerce ($\bar{x}$ =34.81, p<0.05) and Community and Social Science ($\bar{x}$ =34.85, p<0.01). These findings indicate that those who were studying in Science and Technology discipline had significantly more favourable opinions for web based learning for curriculum aspects in comparison to other discipline. The reason could be the high usage of web based learning resources among the science and technology students in comparison to others. There is vast range of resource material available for science and technology discipline.

ICT competency wise it was observed that those students who showed high ($\bar{x}$ =35.41) and moderate ($\bar{x}$ =28.23) ICT competency had overall more favourable opinions for web based learning resources in comparison to those who had low ICT competency ($\bar{x}$ =16.67, p<0.01). Moreover, it was also revealed that those who had positive attitude towards ICT ($\bar{x}$ =37.49) had more favourable opinion for overall web based learning in comparison to those who had neutral ($\bar{x}$ =31.85, p<0.01) and negative ($\bar{x}$ =22.90, p<0.01) attitude.

Muller (2017) also found the correlation between the computer attitude and self rated ICT competencies among undergraduate students. The findings showcased that the majority of the students who had an average attitude were intermediate ICT users. The significant relationship, between the students' computer attitude and their self rated ICT ability was found. The majority of the self rated advanced (n=14) ICT users had very positive attitudes towards ICTs. This supports the present finding that those who had high ICT competency had more favourable opinions for WBL. Shaikh and Khoja (2013) found the reasons for

delaying in integration of ICTs in higher education. It highlighted "the difficulty in linking ICT to the curriculum was not considered very important" as one of the major reason for the same. This inability of higher education institutions may cause dissatisfaction among the students for using ICT or web based learning resources for their curriculum aspects. Effectively implemented Web based programmes may, encourage more independent and active learning may become an efficient means of delivering course materials. It has the ability to enhance the teaching and learning by the integration of Information distribution, communication, interactivity, Geographical Independence, Temporal Independence (Wasim J . 2014)

4.3.2 Differences in the Opinion of Undergraduate Students regarding Web-based learning resources in reference with Soft skill Aspects

Table 53 Intensity Indices Showing Opinions of students regarding Web-based learning resources in reference to Soft Skill Aspects (N=600)

Opinions of students regarding Web-based learning experiences	**I.I**
Web-based learning develops strategic thinking	2.5
It helps students in decision making at the time of crisis.	2.5
Web based learning, equips the students with presentation Skills	2.5
Helps to develop Interview Skills	2.4
Web based learning is necessary in the corporate world	2.4
Helps enhance communication Skills – both written as well as oral forms.	2.4
Allows developing leadership skills in Group Assignments	2.3
Web-based learning helps to develop a positive attitude in educational life.	2.3
Soft skills help to function effectively in different circumstances	2.3
Soft skills provide opportunities for hands-on learning experience	2.3
Soft Skills bridge the gap between teachers and students	2.2
Web-based learning is credential to enhance CV/resume	2.2
Web-based learning is Useful to handle stress for learning and to stay globally competitive.	2.2

Table 53 throws light on Intensity Indices showing opinions of students regarding Web-based learning experiences in reference to soft skill aspects. All the soft skills aspects related to opinions regarding Web-based learning experiences were in moderate extent on intensity indices. The aspects included Web-based learning develops strategic thinking, helps students in decision making at the time of crisis, Web based learning, equips the students with presentation Skills, helps to develop Interview Skills, Web based learning is also necessary in the corporate world, helps enhance communication Skills – both written as well as oral forms, allows to develop leadership skills in group assignments.

Web-based learning helps to develop a positive attitude in educational life, is credential to enhance CV/resume and also useful to handle stress for learning and to stay globally competitive. Soft skills help to function effectively in different circumstances, provide opportunities for hands-on learning experience, bridge the gap between teachers and students.

Table 54 T- Ratio showing Differences in opinions of Undergraduate students about Web-based learning resources with relation to Soft Skills aspects (N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value
Gender	Male	300.0	37.05	7.38	1.41	0.159 (NS)
	Female	300.0	36.21	7.21		
Age	Young Youth	186.0	37.06	8.46	0.90	0.367 (NS)
	Youth	414.0	36.43	6.72		
Monthly Family Income	Middle Income	448.0	37.08	7.45	2.65	0.01**
	High Income	152.0	35.28	6.70		

**p<0.01

Table 54 reveals that there were no significant differences in the opinions of students about Web-based learning experience regarding Soft skill aspect in relation with their gender and age. Thus, the null hypotheses stating that there will be no significant differences in the opinions of Undergraduate students about Web-based learning

experience regarding soft skills aspect in relation with their age and gender were accepted. Whereas, significant difference was found in the opinions of Undergraduate students about Web-based learning for Soft skill aspects in relation with their monthly family income. Thus, the null hypothesis stating there will be no significant difference in the opinions of students about Web-based learning experience regarding Soft skill aspect in relation with their monthly family income is not accepted.

Table 55 Analysis of Variance (ANOVA) Showing opinions of Undergraduate students about Web-based learning resources for Soft Skills aspects in relation with Selected Variables (N=600)

Variables	Source	Sum of Squares	Df	Mean Square	F	P-value
Discipline of Study	Between Groups	855.7	4	213.9	5.7	0.01**
	Within Groups	22269.6	595	37.4		
Year of Study	Between Groups	478.9	3	159.6	5.8	0.01**
	Within Groups	16457.9	596	27.6		
ICT Competency	Between Groups	4221.5	2	2110.8	99.1	0.01**
	Within Groups	12715.3	597	21.3		
Attitude towards ICT	Between Groups	3037.6	2	1518.8	65.2	0.01**
	Within Groups	13899.2	597	23.3		

**p<0.01, *p < 0.05

Table 55 reveals that there were significant differences in the opinions of students about Web-based learning experience regarding Soft Skill aspect in relation with their discipline of study, ICT Competencies and attitude towards Web-based learning. Thus, the null

hypotheses stating that there will be no significant differences in the opinions of students about web-based learning experience regarding Soft skills aspect in relation with their discipline of study, ICT Competencies and attitude towards web-based learning was not accepted. The possible reasons for difference of opinions were significant with discipline of study, as different stream of study may have more or less possibility of availability of Web-based learning experiences. It was also observed that there are more e-resources available in the disciplines like Technology and Science, whereas there are not many e-resources availability in Arts and Humanities. Science and Technology has always been an advanced field for research and Web-based learning strategies. Thus, opinions may differ according to their discipline of study.ICT competences are defined by the years of usage, exposure and number of functions a person can use. Usually it is observed that the student's higher or lower competence of ICT can affect the affect the opinions of students regarding web-based learning experiences in reference to soft skill aspects. Positive or negative attitudes towards web-based learning may affect the opinions of students regarding Web-based learning experiences in reference to soft skill aspects.

Table 56 Tukey's HSD comparison of Opinions of Undergraduate students for web- based learning for Soft skills in relation with selected variables (N=600)

Variable	Variables (I)	Variable (J)	Mean Difference (I-J)	Std. Error	Sig.
Year of Study	1st Year ($\bar{x}$ =29.49)	2nd Year ($\bar{x}$ =28.10)	1.395*	.526	0.05*
		3rd & Final Year ($\bar{x}$ =27.47)	2.020*	.526	0.01**
Discipline of Study	Arts & Commerce ($\bar{x}$ =31.75)	Science ($\bar{x}$ =34.98)	-3.242*	.672	0.01**
		Technology ($\bar{x}$ =33.69)	-2.742*	.672	0.01**
		Medicine ($\bar{x}$ =33.43)	-2.217*	.672	0.01**
ICT Competency	Low Competency ($\bar{x}$ =13.50)	Moderate Competency ($\bar{x}$ =24.30)	-10.797*	1.928	0.01**
		High Competency ($\bar{x}$ =29.66)	-16.157*	1.896	0.01**
Attitude towards ICT	Positive Attitude ($\bar{x}$ =30.99)	Neutral Attitude ($\bar{x}$ =26.99)	3.997*	.410	0.01**
		Negative Attitude ($\bar{x}$ =22.19)	8.801*	1.100	0.01**

**p<0.01, *p < 0.05

Table 56 throws light upon the posthoc analysis of the opinions of undergraduate students for web based learning for Soft skills. It revealed that those students who were studying in first year ($\bar{x}$ =29.49) had more favourable opinions for Web based learning for soft skills in comparison to those who were in Second Year ($\bar{x}$ =28.10, p<0.05) and Final Year ($\bar{x}$ =27.47, p<0.01). Those who were studying in Science ($\bar{x}$ =34.98), Technology ($\bar{x}$ =33.69), Medicine ($\bar{x}$ =33.43) discipline had more favourable opinions for the same in comparison to those who were studying in Arts & Commerce ($\bar{x}$ =31.75, p<0.01). Furthermore, it was also observed that those students who showed high ($\bar{x}$ =29.66) and moderate ($\bar{x}$ =24.30) ICT competencies had more favourable opinions for Web based learning for soft skills in comparison to those who had low ICT competency ($\bar{x}$ =13.50, p<0.01). Moreover, it was also revealed that those who had positive attitude towards ICT ($\bar{x}$ =30.99) had more favourable opinion for web based learning for soft skills in comparison to those who had neutral ($\bar{x}$ =26.99, p<0.01) and negative ($\bar{x}$ =22.19, p<0.01) attitude.

Similar to the findings for opinions of Undergraduate students for overall learning and Curriculum aspect wise Web based learning, first year students, Science and Technology students, and those who had high and moderate ICT competencies as well as positive attitude towards ICT had more favourable opinions in comparison to their counter parts.

Mahat S et.al. (2012) found that management students lack positive attitudes toward ICT that is to be considered dangerously. The research suggested that the new methods must be developed to increase the attitudes of students toward ICT in management related courses. It has its importance in increasing morale of management students. ICT enabled and trained students would feel themselves as appropriate and correct for their career achievement. In contrast to this another research found that engineering students prefer internet for learning their courses.

Jain N et.al (2012) found that Engineering students consider the internet a very useful tool for their studies. They prefer online books and study material. They find internet helpful to boost their confidence for presentations and reports.

The supporting researches proves that Web based learning enhance the Soft skills and confidence among the students.

4.4 Problems Faced by Undergraduate students while Using the Web-based learning resources

The speed and reliableness of Web based learning is a major challenge encountered by students in retrieving resources. In addition, some of the research also revealed that the slow Internet connections attributable to small bandwidth is also a major issue obstructing Internet access and use. In India, the popularity of this medium among the college students has somewhat been restricted to connecting with friends, relatives and searching for higher education institutions. India now boasts of almost highest rate of users of DCT (Digital Communication Technology) and internet including popular social media. The college students are more fortunate than the school students when it comes to internet usage as the higher educational institutes offers emails for the students. The students may possess advanced knowledge about the usage of the computer and internet. But this may have positive as well as negative impact on college students. This section will show the problems of using web-based learning resources by Undergraduate students of the Maharaja Sayajirao University of Baroda.

4.4.1 Problems Faced by Undergraduate students while Using the Web-based learning resources

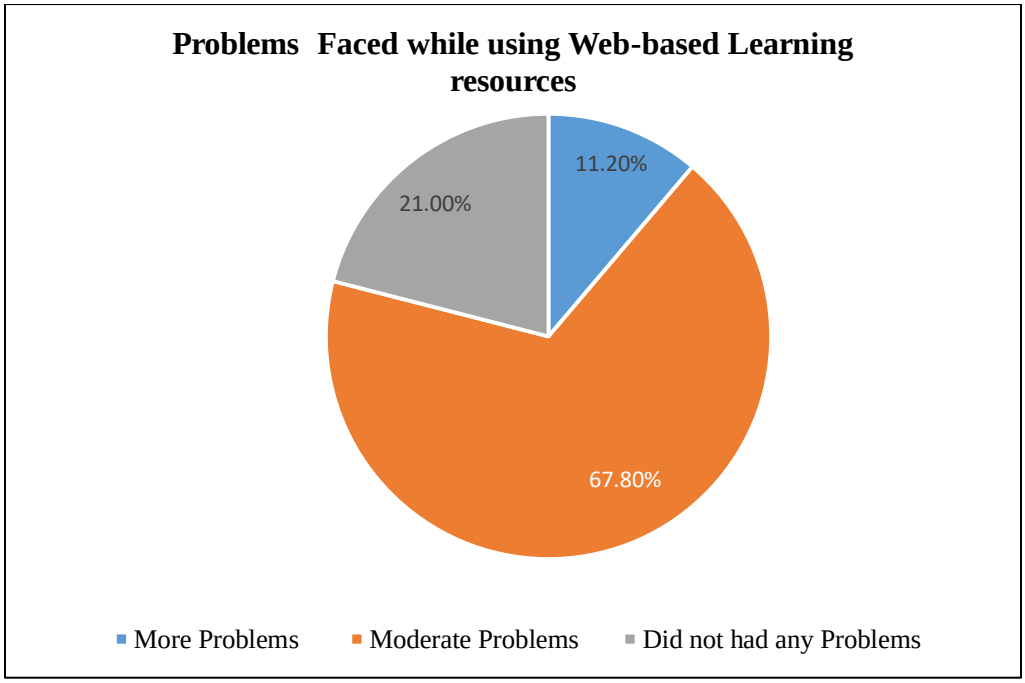
Table 57 Percentage Distribution of Undergraduate student regarding extent of problem faced during using the Web-based learning resources (N=600)

Problems	**F**	**%**
More Problems	67	11.2
Moderate Problems	407	67.8
Did not have any Problem	126	21.0

Table 57 highlights that higher percentage (67.8%) of students had moderate problems whereas more than one fifth of them (21.0%) did not face any problems while using the Web based Resources for their learning purposes. However, very few of them (11.20%) reported more problems regarding the same. The problems that Undergraduate students facing were related to Internet connectivity, affordability, downloading reading materials,

pop-up advertisement, limited data, paid content on internet , virus attack on device. Moreover, the students were also facing the problems as the content was in English and unavailability of physical notes. Priebe M;et.al (2020) "Slow Internet connections or limited access from homes in rural areas can contribute to students falling behind academically. The data also revealed that 21% of the undergraduate students did not face any problems. That means they were comfortable in using web- based resources for their learning.

Figure 19 Percentage Distribution of Undergraduate students according to the Problems related to Web-based learning (N=600)



4.4.2 Item wise finding for Problems Faced by Undergraduate students while Using Web-based learning resources

Table 58 Intensity Indices for problems faced by Undergraduate students while using the Web-based learning resources. (N=600)

Problems	**I.I**
Overall	2.60
Difficulty in choosing trustworthy Websites for learning	3.44
Difficulty in integrating Web-based learning resources into the curriculum.	3.44
Difficulty in downloading materials	3.43
Popup of many unwanted elements (e.g. promotional advertisements.)	3.29
Slow connectivity	3.23
Create Pressure on me for exam without interactions	3.15
internet recharge is expensive	3.08
less data (MB/GB) available for use	2.98
Difficulty in learning without physical notes	2.88
Virus attacks on device	2.86
Dependency on some other people while paying online fees	2.78
Inadequate of material available for learning	2.73
Internet connectivity was creating problem in learning	2.68
Content was in English	2.63
Difficulty in handling computer hardware part	2.44
Difficulty in installing Google chrome or Mozilla Firefox	2.39

The overall intensity indices for problems faced by student while using the Web-based learning resources was 2.60. This reflects that students had moderate problems overall while using the Web-based learning resources. Table 58 reveals that the item wise intensity indices for problems that under graduate students faced while using web-based learning resources ranged between 2.51-3.49. This indicates that Undergraduate students faced moderate to less 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 aspect showed the least intensity index (2.4). Like Google Chrome and Mozilla Firefox and handling hardware parts like CPU, Hard disk, UPS Printer showed the least intensity indices. This reflects that the undergraduate students were hardly facing any difficulty related to installing, software and handling Hardware. It indicates that they were comfortable in working with ICT for various purposes. Furthermore table 58 also shown that undergraduate students faced moderate problems for the following.

- Student had faced moderate problems related to
- Difficulty in downloading materials (3.4)
- Difficulty in choosing trustworthy Websites for learning (3.4)
- Difficulty in integrating Web-based learning resources into the curriculum (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)
- Difficulty in learning without physical notes (2.9)
- Virus attacks on device (2.9)
- Dependency on other people while paying online fees (2.8)
- Insufficient material available for learning (2.7)
- Content was in English (2.6)

The present findings highlighted that Undergraduate students, were moderately facing problems related to internet connectivity, expense on monthly internet recharge, limited

data available to use, dependency on others to pay online fees. It also showed the difficulty that Undergraduate students were facing due to available content was in English, inadequate reading materials and unavailability of physical notes. Virus attack on device was also considered as a moderate problem amongst them along with less data (MB/GB) available for use. Harsha, R (2020)states that apps such as Google class room, Zoom, Easy Class, Go To Meeting, Remind, Slack and many others have been adopted to reach the students as far as possible. Now the challenge was to select an app in among the ocean of applications available on the internet catering to every ones needs which was not only low data consuming but had better stability during the live streaming.

The qualitative data of the present study also showcased similar findings and highlighted that more students were facing problems related to Wi-Fi router while using the web-based resources. Other research related to Web-based learning and internet also showcased similar results. Kim, Mims & Holmes, (2006) argued that internet accessibility speed affect the learning amongst students. They found that those students who access internet only through their mobile phone showed lesser marks through e-learning than those who had fast internet access like Wi-Fi. The Use of ICT and internet may also cause physical problems like backache, neck ache, Headache, strain in eyes and so on. The use of computer and internet results in lack of muscle contractions, lack of physical activity, exercise, and training, reduce sleep time. (Chou, 2001; Hakala, et al., 2006; Van den Bulck, 2004). The Undergraduate students might be facing problems related to downloading reading materials because of copyright issues, unviability of relevant soft were and also the slow internet connectivity. Another problem that Undergraduate students were facing was "Pop up of unwanted advertisement". Almost all the website advertise different products according to their visitors. It may create psychological impact on the visitors. Sometimes the advertisement are promotional and some time they are for some social cause. However, the present finding shows that Undergraduate students consider such pop –up advertisements as problems while using Web- based learning resources.

The Undergraduate students in the Maharaja Sayajirao University of Baroda, come from different schools having different medium of instructions. Like English, Gujarati, Marathi and so on. Hence, the students would be facing problems in using Web-based learning resources that were mostly in English.

4.4.3 Differences in Problems Faced by Undergraduate students while using the Web-based learning resources

Table 59 T-ratio showing problems faced by the Undergraduate students while using Web-based learning resources in relation to selected Variables (N=600)

Variable	Category	N	Mean	Std. Deviation	T-Value	p-Value
Gender	Male	300.0	48.50	12.22	-0.77	0.439
	Female	300.0	49.26	11.73		
Age	Younger Youth	186.0	45.97	13.00	-3.82	**0.01****
	Youth	414.0	50.18	11.26		
Monthly Income	Middle Income	448.0	48.29	12.05	-2.06	**0.03***
	High Income	152.0	50.61	11.63		

*p<0.01,*p<0.05

Table 59 revealed that there were no significant differences found in the problems of Web-based learning resources amongst Undergraduate students in relation to their gender**.** This signifies that the Undergraduate students were facing problems while using Web-based learning resources irrespective of their gender. Hence, the null hypothesis stating that there will be no significant differences in the problems of Undergraduate students of The Maharaja Sayajirao University of Baroda while using Web-based learning resources in relation to their gender was accepted. The possible reason for such a finding could be that the problem-based needs like high-speed internet connectivity, poor data, more data to use, trustworthy websites relevant learning materials; of the students might be similar with respect to their Gender. Therefore, they would be facing problems in a similar manner.

However, the findings regarding the differences in the same in relation with their age and income group reflected that there was a significant difference in the problems Undergraduate students while using Web-based learning resources in relation to their monthly family income as well as their age. The findings revealed that those students who belonged to the younger youth category (45.97) and low-income group (48.29) were facing fewer problems in comparison to those who were youth i.e. 19-21 years old (50.18) and belonged to higher income group (50.61). Hence, the null hypothesis stating that there will be no significant differences in the problems of Undergraduate students of The Maharaja

Sayajirao University of Baroda while using Web-based learning resources in relation to their monthly family income and Age were not accepted**.** (Balasubramanian et al., 2009). There are numerous difficulties with respect to the reconciliation of ICT especially in creating nations, where high open door costs are associated with building up foundation wide ICT frameworks contrasted with created nations. The principle issues are the significant expense of getting, introducing, working, keeping up, and supplanting ICT frameworks, utilization of unlicensed programming, obsolete equipment, and programming frameworks, absence of specialized help for support of frameworks (Balasubramanian et al., 2009). The present finding also highlighted similar problems on the university campus. Students faced problems related to Wi-Fi connectivity, and slow Speed. The result also showed that less than half of the students were using the computer lab in their department for preparing any document on the computer and accessing the internet.(refer table 26).However, very few of the Undergraduate students were using Web-based learning resources like e-books, e-journal, e-dictionary , e-libraries provided in the computer lab by the University.(refer to table 30). The lesser percentage indicates the ability of the institute in providing quality Web-based learning resources. The present result is indicating to strengthen the Web-based learning resource facility in the premises. Another important problem faced by the participants at home was the unavailability of the required software. Unavailability of relevant and appropriate software may cause problems in using computers for various purposes. Other problems participants faced while using web-based learning resources were virus threats, network problems, slow speed of computers and the Internet, lack of data, or accessing the internet. The students might be facing problems due to a lack of technical support available to them in college and at their homes. Different training as the Web is a piece of the innovative and advanced culture of the young people; along these lines, Internet perusing would better suit adolescents contrasted with perusing printed materials or books. Bhatt d. (2018) it was noticeable that low percentage of students faced problems learning through online course. Problems faced while learning through online course that Internet connectivity was creating problem, Self-regulated learning was not possible at undergraduate level, there was interruption in learning because the e-content did not run properly, it was difficult to learn without physical notes, there was interruption in learning because the computer or mobile used to get hanged due to heavy content, It was

found difficult to operate e-content , Background music was distracting, Note making was difficult, Tension and anxiety were faced while learning through e-content and verbal commentary was distracting, Students reported that they faced difficulty in understanding: Language, Visual, Test, Audio and Learning lessons through online course a was scary experience.

Table 60 Analysis of Variance (ANOVA) showing Problems Faced by undergraduate students while using Web-based learning resources in relation to selected variables (N=600)

Variables	Source of Variance	Sum of Squares	Df	Mean Square	F	Sig.
Discipline	Between Groups	8244.843	4	2061.211	**15.793****	**0.01**
	Within Groups	77655.275	595	130.513		
Year of study	Between Groups	5690.5	3	1896.8	**14.1****	**0.01**
	Within Groups	80290.6	596	134.6		
ICT competency	Between Groups	1320.027	2	660.014	**4.659***	**0.01**
	Within Groups	84580.091	597	141.675		
Attitude towards ICT	Between Groups	26.628	2	13.314	0.093	.912
	Within Groups	85873.490	597	143.842		

**p<0.01, *p < 0.05

Table 60 shows that there were significant differences in problems faced by students while using the Web-based resources in relation with their Discipline of study, Year of Study and ICT Competency. Hence, the null hypothesis stating that there will be no significant differences in the problems of Undergraduate students of The Maharaja Sayajirao University of Baroda while using Web-based learning resources in relation with their Discipline of study, Year of Study and ICT Competency were not accepted. The Problems of the undergraduate students varied in relation to these variables. However, no significant differences were found for the same in relation with their Attitude towards ICT. Hence, the null hypothesis stating that there will be no significant differences in the problems of undergraduate students of The Maharaja Sayajirao University of Baroda while using Web-

based learning resources in relation with their Attitude towards ICT was accepted. Therefore, it can be inferred from table 60 that Undergraduate students wear facing different problems according to their discipline of study, year of study and their ICT competency. The post-hoc analysis further showed the differences amongst the categories of these variables.

Table 61 Tukey's HSD comparison for problems faced by Undergraduate students while using Web-based learning resources in relation to selected Variables (N=600)

Variables	Variables (I)	Variable (J)	Mean Difference (I-J)	Std. Error	Sig.
Year of study	2nd year ($\bar{x}$ =50.61)	1st year ($\bar{x}$ =44.57)	6.04500*	1.15949	0.01 **
	Final Year ($\bar{x}$ =51.45)	1st year ($\bar{x}$ =44.57)	6.88000*	1.15949	0.01 **
Discipline	Arts & Commerce ($\bar{x}$ =51.86)	Faculty of Science ($\bar{x}$ =44.37)	7.49167*	1.47486	0.01 **
		Technology ($\bar{x}$ =45.60)	6.25833*	1.47486	0.01 **
	Community & Social Science ($\bar{x}$ =54.21)	Faculty of Science ($\bar{x}$ =44.37)	9.84167*	1.47486	0.01 **
		Technology ($\bar{x}$ =45.60)	8.60833*	1.47486	0.01 **
		Medicine ($\bar{x}$ =48.32)	5.89167*	1.47486	0.01 **
ICT Competency	Moderate Competency ($\bar{x}$ =51.57)	High Competency ($\bar{x}$ =48.21)	3.36001*	1.18780	0.01 **

**p<0.01, *p < 0.05

Table 61 – highlighted the significant differences among the categories of selected variables for problems faced by Undergraduate students while using Web-based learning resources. The data was analyzed using Tukey's HSD comparison test to know that which category of respondents differed in their opinions with regard to year of study, discipline of study and ICT Competency as variables. It was found that First year students were significantly

facing more problems in comparison to those Undergraduate students who were studying in Second year and Final year. It can be understood from these data that those students who were studying in higher level were facing less problems in comparison to those who were freshers. The possible reason could be their experience of using ICT and Web based learning resources for their educational purposes. The teachers give numerous assignments to students that demands the use of Web based learning resources guiding students like using computer for preparing field report, using Internet for preparing IEC materials, using IEC material and seminar based assignment and so on. Table 58 showed that Undergraduate students were facing problems related to downloading reading materials, choosing trust worthy Website, integrating Web-based learning in to the curriculum and learning without physical notes. First year students might be facing such issues as they are at entry level of their Undergraduate degree course.

Discipline wise, it was found that those who were studying in Science, and Technology were facing more problems in comparison to those who were studying in Arts and Commerce, Community and Social Sciences. Undergraduate students who were studying in Medicine discipline also faced more problems in comparison to those who were studying in Community and Social Sciences. The present findings also indicated that the students from Science and Technology streams used more Web-based learning resources in comparison to Arts and Commerce for their curriculum aspects (Table 61).

The More usage indicates higher consumption of ICT. Hence, it can be inferred that Undergraduate students from Science, Technology and Medicine stream might be facing problems of slow internet connectivity, limited data available to use, inadequate material available for learning. The table 61 further revealed that those who had high ICT competency were facing significantly more problems in comparison to those who had moderate ICT competency. Those who had high competency might be exploring Web based learning resources in comparison to others.(Table 61) Therefore, they might be facing more Problems like popup of unwanted elements, virus attack on device, dependency on other people to pay online fees and so on.

Quadri, (2011) also reported problems while using Internet services among student like slow internet speed, power failure, poor computer skills, lack of adequate numbers of

personal computers, payed online services. Shehu, Urhefe and Promise, (2015) featured a few difficulties looked by the members while getting to the web in Nigeria libraries. The investigation uncovers that dominant part (65%) of the respondent showed power blackout as the main consideration that impedes the entrance and the utilization of Internet in schools. Likewise, Rosenberg (2005) saw that speed and relaiability quality of Internet association is a significant test looked by understudies in recovering assets. Furthermore, Luambo and Nawe (2004), in a comparative research uncover that the slow Internet connections attributable to small bandwidth is also a major factor hindering Internet access and use in Africa. UNESCO (2014).It is hard to implement ICT I education if power supply is disturbed because of poor national infrastructure.

Problems faced by students include like insufficiency of time, insufficient access of technological resources, insufficient effective training, problem in its technical operation and lack of confidence amongst student were other reported problems.

4.5 Suggestions of Students while using Web-based learning resources

Table 62 Percentage Distribution of Undergraduate student suggestions while using the Web-based learning (N=600)

Suggestions	**F**	**%**
Strongly Suggested	362	60.30
Moderately Suggested	222	37
Least Suggested	16	2.70

The data presented in Table 62 reflects that majority (60.3%) of the students strongly suggested the usage of Web based learning in higher education is important and very few of them (2.70%) had given least suggestion for the use of Web-based learning in higher education. However, more than one third of them (37%) suggested that moderate use of Web-based learning is important. The results may be inferred as the students had more experience with technology and hence, they were able to suggest more for Web-based learning in a positive manner. The technological experience amongst young students

enabled them to be the independent learners and therefore they strongly suggested the use of Web-based Learning for future students. Misko J et.al (2006) These students made suggestions for upgrading and updating facilities, technology and texts to meet current requirements, improving availability of adequate and appropriate resources, including relevant and practical texts, and using different types of media, including videos, CDROMS, and Web-based materials.Students have to be motivated, proactive and enthusiastic to succeed in the Web-based learning environment. The University of Houston uncovered that understudies see that Online courses help them in creating time the executives aptitudes and in this way, in improving their self-administrative abilities.

Figure: 20 Percentage Distribution of Undergraduate student suggestions while using the Web-based learning resources (N=600)

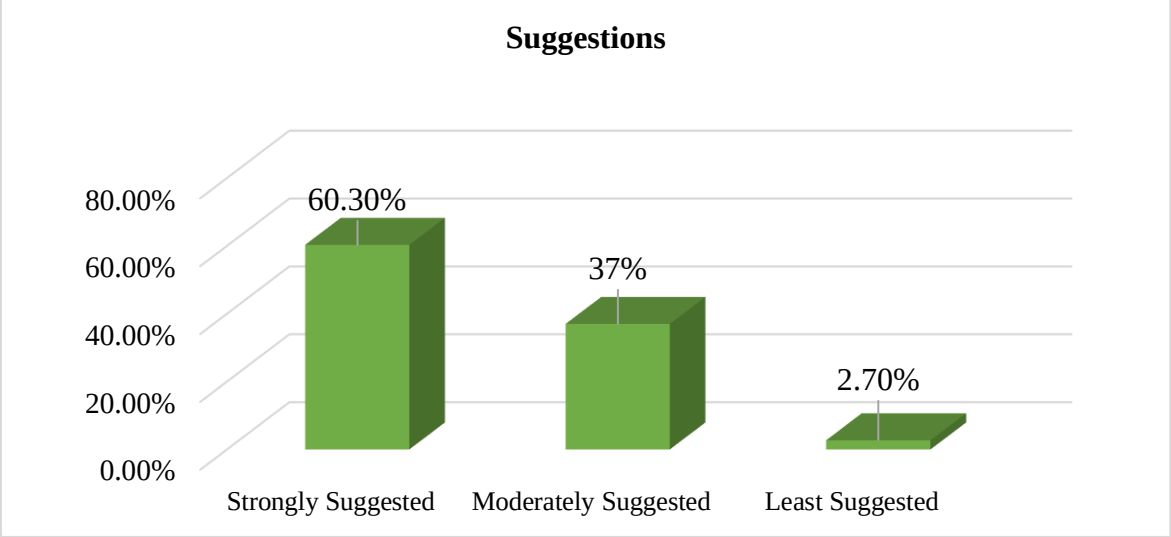


Table 63 Item wise Intensity Indices of Suggestions given by Undergraduate Students for the Use of Web Based Resources for Learning. (N=600)

The University Should	**I.I**
Provide facility to use Web-based learning.	**4.3**
Put help desk to new enrolled students for Online registration	**4.3**
Increase support system for Web-based learning resources in every faculty.	**4.2**
Provide different study materials on its Websites for learning	**4.1**
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 University.	**4.0**
Guest Wi-Fi facility to access Internet in the University	**3.9**
Offer a compulsory subject through Web based Learning at First year Level	**3.9**
Allow access to restricted Websites in Canteen/ Parking	**3.8**
Have integration of Online classes into regular classes	**3.8**
Other Suggestions	**3.3**

Table 63 reveals that the item wise intensity indices for suggestions of students for using Web-based learning ranged between 4.3 – 3.8. This indicates that student had strong suggestions for use of web-based learning. The item that showed the highest intensity index was "University should provide facility to use Web-based learning" (4.3).

Dewhurst et al., 2000; Tweddle et al., 2000 also reported that the Web-based learning environment is an interactive network system consisting of a variety of functions to support a virtual classroom to enhance the quality of teaching and learning activities. Studies have demonstrated that universities are commonly equipped for utilizing internet learning material even more successfully. Hence, the University should provide facilities for Web-based learning.

The WBL (Web-based learning) condition is an intelligent system framework comprising of an assortment of capacities to help a virtual homeroom to improve the nature of instructing and learning exercises. Studies have demonstrated that universities are commonly fit for utilizing web based learning material all the more successfully (Dewhurst et al., 2000; Tweddle et al., 2000).

The present findings also highlighted that the University should put help desk for new enrolled students for Online registration. The student can enquire regarding their courses, subject and enroll themselves for the same through these help desks.

There should be an increase in support system available for Web-based learning resources in every Faculty. (4.2) wasim J et.al (2014) states Web based learning offers immense open doors for learning and access to a huge measure of information and data. The role of educators is to ensure that the educational conditions gave assesses students' wants ‘and guarantees that they are viably organized and upheld. Online learning has blessings, however, internet based mostly learning should not continually be viewed as the method of selection as a result of barriers (like inadequate equipment) will simply reduce from student learning. The technology must therefore be applied appropriately and not used simply because it is available and new or because students and teachers have particular expectations of this means of course delivery. The following suggestions to universities considering deploying Web-based learning tools: provide adequate training for instructors and students, carefully consider the needs (of instructors, students, administrators) before selecting a technology. Provide integration, standardization, flexibility and accessibility in tool/program choices, Ensure universality in access and usability across campus and Universities for every student.

Furthermore, the present findings highlighted the suggestions that university should provide different study materials on its Websites for learning. (4.0) It should provide 24/7 accessibility to course materials. At the point when course substance and exercises are given on the web, understudies no longer need to stress over getting to course materials. Understudies can finish assignments during their most profitable occasions. Occupied understudies can decide to download readings or take practice tests at whatever point it is generally advantageous. Nonstop access to course records likewise protects understudies

can acquire materials whenever, expelling the open door for dissatisfactions, for example, "The library was closed".

Introduce new program policy regarding Web –based learning with UGC.(4.1) Internet society (2017) highlights that Policy makers concerned with ICTs and with education have the opportunity to develop a vision for the Future which will empower innovation to profit the two understudies and national turn of events. They should cooperate to build up that vision, and to plan approaches that incorporate ICTs in national techniques for practical improvement including basic advancement divisions like education.

Provide training to students to use different software for learning. (4.0) concerning these relatively new challenges but also the unprecedented opportunities of ICT, the requirements for training and practical work of students are changing. It is necessary for the students to be trained in the spirit of these new tasks as soon as in their learner's education.

Have good infrastructure facility for Web-based Learning in University.(4.0) The need for infrastructural facilities are assessed by various parameters like the introduction of new courses, increase in the intake of students, changed curriculum demanding the introduction of new laboratories, diversification of courses, need for introducing the technological innovations. Thus, effective infrastructure produces best results in classroom by providing conducive and comfortable condition.

Another suggestions that students stressed upon was to 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). Internet access via wireless computers increased to their highest levels in the year 2008 (Centre for the Digital Future, 2008) at various places. Sulaiman and Yaakub (2010) said the implementation of wireless environments in campuses in areas such as teaching classes, administrative offices, and student accommodation created a virtually wired network that reciprocally increases the interdependency among the campus community in all academic affairs. This statement is supported by (Lo and Fai-hang 2012) state that the wireless environment benefits not only the students but also the instructors. With the Internet access, students can follow and receive lessons not only within the prescribed class. With the Wi-Fi existence, teachers have more autonomy to facilitate interaction among students beyond the classroom time

University should Offer a compulsory subject through Web based Learning at First year Level.(3.9) (Calder & Hanley, 2004) First year students find their initial studies stressful as they are exposed to new ways of learning. Numerous students in their First year of college learning discover trouble with learning approaches that place significant levels of duty onto them. Such strategies can work if there is sufficient scaffolding and support but in large classes, it is often difficult to provide sufficient support to address the many needs of these new students.

University should allow access to restricted Websites in Canteen/ Parking, (3.8) if you come across a Website that is blocked that you feel it has educational value, you can either override the block or submit the Website for review. Some categories of Websites allow you to override the block immediately; others require a request to have them unblocked. Just educators, Staff members and Administrators have ability to submit sites for review whereas students are not allowed.

University should have integration of Online classes into regular classes, (3.8) Integrating Online and in-classroom is beneficial because it combines face-to-face teaching with the agility of virtual learning. No student is alone, yet has a sense of independence in his or her educational journey. With a mix of Online and traditional learning, parents can have a better understanding of progress and struggles. It's less on the teachers to engage with the parents, yet teachers can still be available for if extra information is needed.

Whereas Suggestions related to integrated classroom and some Permission restricted for Websites showed the least Intensity Index (3.8). Students also had moderate suggestions related to Web-based learning. They suggested that:

- There should be strong network connectivity through University Wi-Fi
- Presentations exams should be taken Online to increase the confidence amongst students to be confident or student such presentations must be made compulsory
- University should have an online subject to study for all students studying in various Faculties.
- According to the Sloan Consortium Report (2005), overall Online enrollment increased from 1.98 million in 2003 to 2.35 million in 2004.The current paradigm

shift in higher education, from traditional classroom settings to distance education program delivery via the internet.

Thus, the result of the present study suggests to have Web-based learning environment in University. It is an instructor led technology based learning that may prove to be more effective in comparison to the traditional teaching and learning methods. It becomes difficult for the Undergraduate students to comprehend well with self-regulatory and only self-instructional technology based educational tools. Therefore, the blended teaching and learning method can be the solution to for these issues. Such courses and the mode of the teaching–learning should be used for undergraduate students in formal education system.