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Research Article

Impact Of Digital Education On HEI's Teachers In Terms Of Accessible Higher Education: An Empirical Analysis

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ABSTRACT

Online Teaching plays an important role in modern digital era. In this method, teachers teach and provide notes to students in the electronic contents. Teachers will use these notes for students in the future.

The aim of this study is to identify the impact of digital education on HEI's teachers in terms of accessible higher education and to give recommendations. This study is based on primary as well as secondary data. The study found significant impact of digital education on HEI's teachers in terms of accessible higher education because majority of respondents (teachers) are prefers offline study and maximum teachers use smart phones and Google Meet app for online classes. It is recommended that all the teachers of universities/institutions should make efforts to motivate students for use different digital technologies and Government should make efforts on specialized courses so that educators can acquire enough knowledge on how to use various digital devices and platforms and Pedagogy courses to enable them to run online classes and assess learners in the modern way.

Keywords: Online Teaching, Digital Platforms, E-Contents, IC

Introduction

NEP 2020 is on the basis of Draft of National Education Policy 2019. It aims at making "India a global knowledge superpower". It has been designed nearly three decades since the last educational policy and also recognizes the criticality of Education as the most important vehicle for socio-economic mobility and transformation for socio-economic mobility and transformation. Even since its announcement, the NEP is being debated and dissected from different corners.

Online teaching is a process of educating students through the internet. Teachers prepare e-contents in the form of PDF, PPT and Word files for taking classes of courses, and then they can use these e-contents for students in future.

One-on-one video calls, group video calls and webinars can be used in online teaching, in which teachers and learners participate in different places. The teachers may make use of different approaches for different sets of students in the online teaching process. The teacher should ensure whether the student understands the content, for that the teacher may ask simple questions. The teacher will get immediate feedback from the student so that they change the teaching strategies. The teacher can use PowerPoint presentations, videos lectures, audio lectures and PDF guides to make the student learn.

Review of Studies

Baruah and Mohalik (2022) This study aimed to explore the status of ICT integration in institutional activities, teaching, assessment, professional development, and internship of Teacher Education Institutions (TEIs) of Assam. This study is based on primary data and took a sample of four Teacher Education Institutions (TEIs), twenty Teacher Educators (TEs) and eighty trainees selected randomly from TEIs affiliated to Guwahati University of Assam, India. The data collected by personal visits to TEIs. The test-retest reliability (0.67) was estimated for closed-ended items in all the tools. The study found that 75 percent of TEIs have digital cameras, projectors, scanners, power backup and routers but no TEI has a smart

classroom. Majority 19(95 percent) teacher educators sometimes use video clips, 18(90 percent) share online study material with students, 17(85 percent) sometimes use ICT for reading e-books, 19(95 percent) and 18(90 percent) of them never use any mobile applications and different online libraries.

Malhi et al. (2022) During the time of the epidemic, the current study looked at elements pertaining to teachers' satisfaction as well as their opinions on the advantages and difficulties of online learning in colleges and universities. The snowball sampling technique was applied in this study, and a Google form was distributed over social media channels. The degree of satisfaction with online instruction served as the primary outcome indicator. Four hundred twenty-two teachers (58.1 percent males) participated in this study. 36.9 percent of respondents said they were happy overall with their online teaching experience. Faculty in the medical and scientific fields had considerably lower levels of satisfaction with the online platform (χ^2=13.41, P=.037), and satisfaction was correlated with the educational stream they taught. Merely 11.8 percent of the educators agreed that kids learned more effectively when they were taught online, while almost half (44.8 percent) thought otherwise.

Sundararasan and Ganesan (2022) The objective of the present study was to reveal the various forms of online learning and instructing ways, to study the perceptions of faculties and student teachers on online learning and instructing and also examine the difficulties faced by the faculties and student teachers in adapting to the online learning and teaching process during Covid-19 pandemic. Both quantitative and qualitative methodologies were used and this study was delimited to Tirunelveli district. Total seventy five faculty members and three hundred thirty nine student teachers participated as a sample in a descriptive survey. The study found that 31 percent of teachers using Google classroom and 44 percent teachers using Zoom/ Life size/Cisco WebEx/Google Meet/Skype platform for taking online classes, but the recipient students were found only 19 percent and 14 percent respectively. 49 percent of faculties recorded their lectures on YouTube as teaching through online mode, whereas 27 percent of student teachers watched presentations and recorded videos of all sources on YouTube.

Almahasees et al. (2021) The objective of study was to identify perceptions of faculty's and students' online learning. It took a sample of fifty faculty members and another two hundred eighty students randomly to investigate effectiveness, challenges, and advantages of online education in Jordan. Google forms for the online two surveys were created and SPSS analysis done through 25 versions. It used arithmetic mean, standard deviation and Cronbach's alpha for result analysis. Majority 30(60 percent) faculty used Microsoft Teams app for online teaching and 20(40 percent) used Zoom app, 35(70 percent) respondents used WhatsApp to communicate with students and 15(30 percent) used chat and call options. The study recommends that blended learning would help to provide a rigorous learning environment.

Naik et al. (2021) The present study highlighted the online education during COVID - 19 pandemic and took the sample of eight hundred seventy four respondents; among them 81.7 percent were students, 13.8 percent were faculties and remaining were professionals/general public. The age group of 18-26 years was 84.89 percent students and 11.55 percent from 27-40 years were faculty members and the rest 3.55 percent respondents of 41 years were professors, parents and other professionals. Out of 874 responses, 86.27 percent have responded with their preference given to traditional in-class face-to-face learning and 13.73 percent of respondents' recommended online teaching and majority 81.69 percent among them were using the Zoom app for online classes.

Paul et al. (2021) This study was aimed to ascertain the impact of remote education on the learners as well as on the teachers in the higher education sector and to evaluate the perceptions of learners and teachers about the new form of teaching and learning developed by Higher Education Institutions. This empirical study was conducted through the analysis of primary data (structured questionnaire) and responses were gathered from a total one hundred twenty seven students and forty four teachers of different higher education institutions of West Bengal during June 2021. To analyze all the gathered responses of different statistical tools were used viz. a. Cronbach's Alpha: to test the reliability of the data set b. Kendall's and Spearman's Correlation Matrix: to ascertain the impact of COVID situation on Higher Education and to assess the perception of students and teacher towards the new normal methods of teaching and learning. The study revealed that the learners and educators of HEIs are not completely satisfied as the process of virtual education is not yet methodically instigated in India due to paucity of any standardized Online Teaching Learning Framework.

Mishra et al. (2020) The objective of this study was to identify the different online teaching and learning modalities used during the COVID-19 pandemic, investigate how educators and students perceived online learning, and investigate the difficulties educators and students encountered in adjusting to the online teaching and learning process. In order to determine their perceptions on online teaching and learning two hundred sixty students and seventy-eight faculty members took part in a descriptive survey as a sample. Besides, there were twenty teachers (ten male and ten female) and twenty students (ten male and ten female) selected for semi-structured interviews using nested concurrent sampling design to collect qualitative data.

The study stated that while 28 percent of students viewed presentations and recorded videos from all sources on YouTube, just 50 percent of teachers recorded their lectures as web-based instruction on YouTube. Of the teachers that used Google Classroom for online instruction, 32 percent used Zoom, 45 percent used Cisco WebEx, Google Meet, and Skype. However, only 20 percent and 15 percent of the teachers' online classrooms included recipients. The majority of educators believed that faculty members could only be more motivated if

they were persuaded of the benefits of online learning, particularly during the lockdown. Furthermore, the erratic network connection presented a significant difficulty for those teaching online.

Research Gap

From the review of previous studies, the present study found that review studies have not been associated with corresponding advances in the teaching practices of teachers to teach in online mode, in pedagogy for online teaching and efforts towards improved learning outcomes. So, now this study has a better understanding of the way that online teaching changes learning and teaching practices.

Research Methodology

The present study is descriptive as well as empirical in nature with aim to identify the impact of digital education on HEI's teachers in terms of accessible higher education and to give recommendations. The primary data collected with the help of well drafted and pre-tested questionnaires by google forms and direct personal interview. Secondary data is collected from research journals, publications, etc. This study took a sample of 160 teachers of universities/institutions with convenience sampling technique from four districts, namely Mohali, Ludhiana, Rupnagar and Fatehgarh Sahib. The forms were sent through email and WhatsApp and the researcher went to various universities/institutions for the data collection in working hours. Microsoft Office Excel Version 2007 and IBM SPSS Statistics Version 26 software used to analyse the data. In statistical analysis, arithmetic mean, standard deviation, variance, correlation and regression are used.

Research Hypothesis

- H01: There would be no significant impact of digital education on HEI's teachers in terms of accessible higher education
- H11: There would be significant impact of digital education on HEI's teachers in terms of accessible higher education

Detail of variables used in the study

Dependent Variable	Independent Variables
HEI's teachers in terms of accessible higher education	In order to see the impact of digital education on HEI's teachers in terms of accessible higher education, independent variable used such as**:** • Preference of type of teaching - Online, Offline, Hybrid and Distance/Correspondence • Teachers' access to use application tool - Zoom, Google Meet, Microsoft Teams, Cisco Webex Teams and Amazon Chime • Teachers provide study material to students - PPT, PDF, Doc/Excel, Word File, Web Link, Audio Lectures and Video Lectures • Integrate ICT in teaching and learning process - To conduct Research, To develop most interactive classrooms, To encourage cooperative interaction and To encourage collaborative learning or activities

Data Analysis

The data analysis covers the demographic profile of the respondents of private and aided government universities/institutions and their perceptions regarding online teaching. The respondents are distributed on the basis of gender, age, present designation, department, educational qualification and teaching experience.

Analysis of Demographic Profile of the Respondents (Teachers)

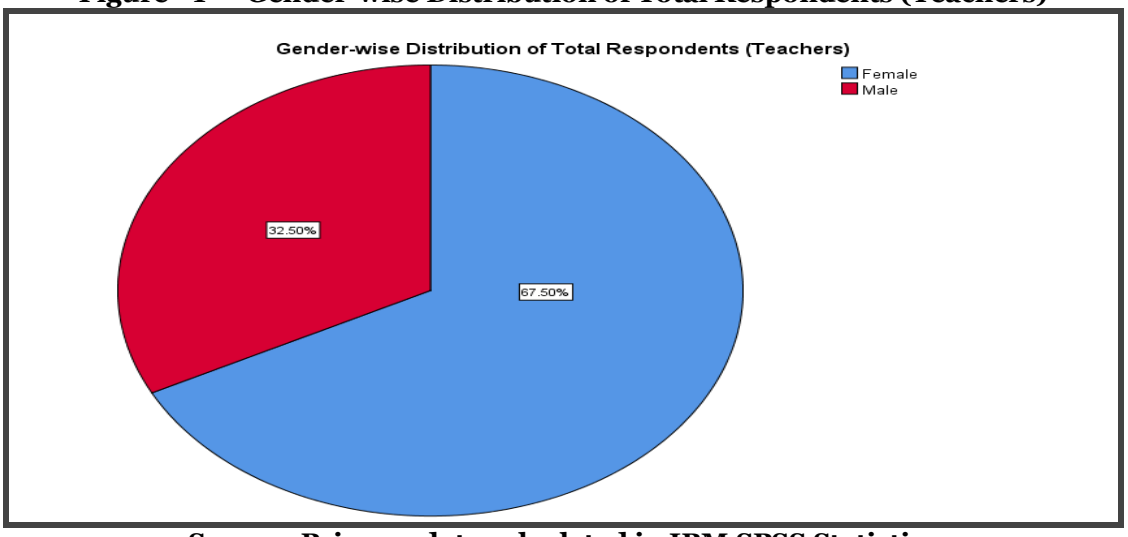
Table-1 Gender-wise Distribution of Total Respondents (Teachers)

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	108	67.5	67.5	67.5
	Male	52	32.5	32.5	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 1 Gender-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

From Table - 1 and Figure - 1, it is revealed that the majority of the responses are female responses 108(67.5 percent) and male responses are 52(32.5 percent).

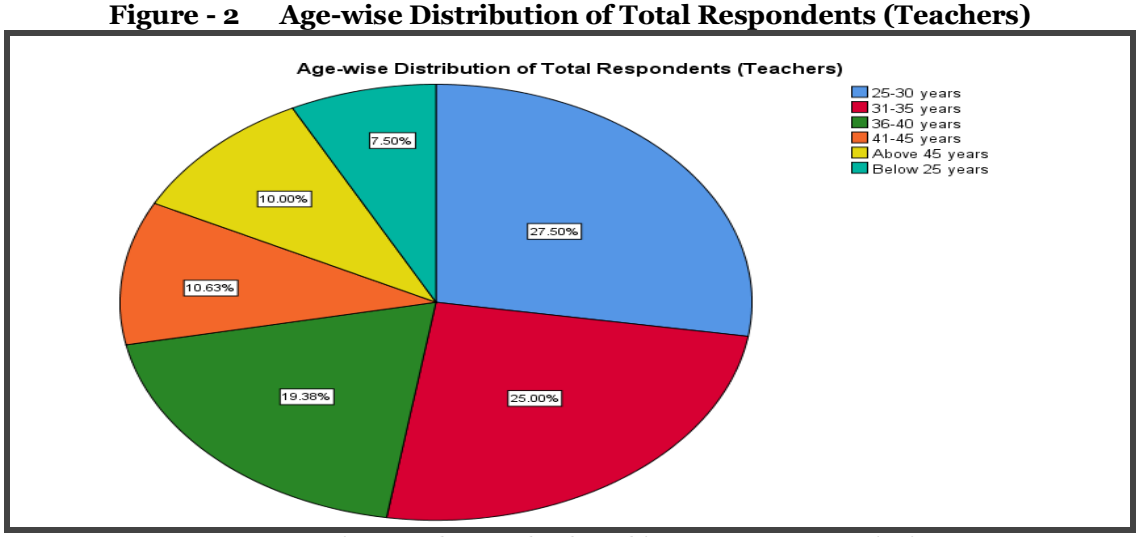
Table-2 Age-wise Distribution of Total Respondents (Teachers)

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-30 years	44	27.5	27.5	27.5
	31-35 years	40	25.0	25.0	52.5
	36-40 years	31	19.4	19.4	71.9
	41-45 years	17	10.6	10.6	82.5
	Above 45 years	16	10.0	10.0	92.5
	Below 25 years	12	7.5	7.5	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 2 Age-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

The Table - 2 and Figure - 2 indicate that the majority of the respondents 44(27.5 percent) belong to the age group 25-30 years, only 12(7.5 percent) respondents belong to the age group below 25 years, 40(25 percent) respondents are from 31-35 years, 31(19.4 percent) respondents from 36-40 years, 17(10.6 percent) respondents from 41-45 years and 16(10 percent) respondents belong to age group above 45 years.

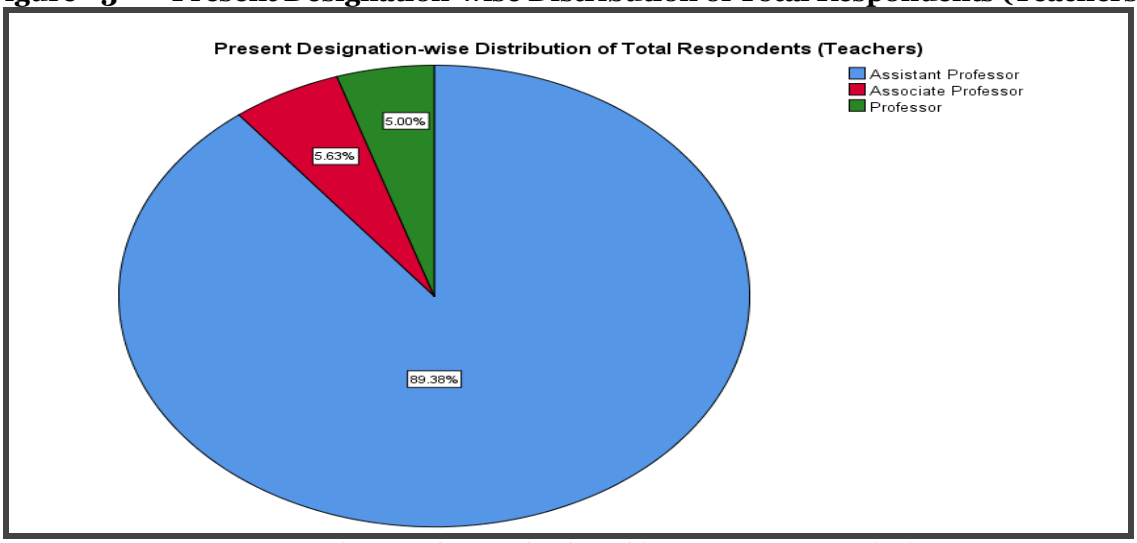
Table-3Present Designation-wise Distribution of Total Respondents (Teachers)

Present Designation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Assistant Professor	143	89.4	89.4	89.4
	Associate Professor	9	5.6	5.6	95.0
	Professor	8	5.0	5.0	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 3 Present Designation-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

The Table - 3 and Figure - 3 shows that the majority of the respondents 143(89.4 percent) are Assistant Professors, 9(5.6 percent) respondents are Associate Professors and 8(5 percent) respondents are Professors.

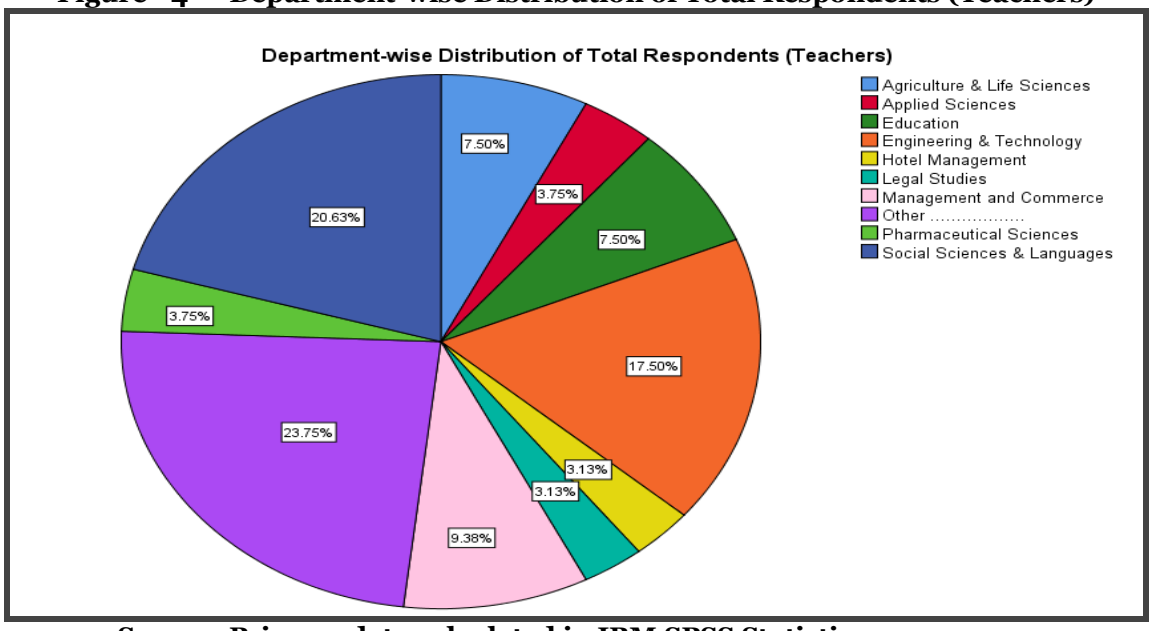
Table - 4 Department-wise Distribution of Total Respondents (Teachers)

Department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agriculture & Life Sciences	12	7.5	7.5	7.5
	Applied Sciences	6	3.8	3.8	11.3
	Education	12	7.5	7.5	18.8
	Engineering & Technology	28	17.5	17.5	36.3
	Hotel Management	5	3.1	3.1	39.4
	Legal Studies	5	3.1	3.1	42.5
	Management and Commerce	15	9.4	9.4	51.9
	Other	38	23.8	23.8	75.6
	Pharmaceutical Sciences	6	3.8	3.8	79.4
	Social Sciences & Languages	33	20.6	20.6	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 4 Department-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

As per Table - 4 and Figure - 4, 28(17.5 percent) respondents belong to the department of engineering & technology.
15(9.4 percent) respondents from the department of Management and Commerce, 12(7.5 percent) respondents from department of Education, 33(20.6 percent) respondents from Social Sciences & Languages, 6(3.8 percent) respondents from Applied Sciences, 6(3.8 percent) respondents from Pharmaceutical Sciences, 12(7.5 percent) respondents from Agriculture and Life Sciences, 5(3.1 percent) respondents from Legal studies, 5(3.1 percent) respondents from hotel management and 38(23.8 percent) from other department such as fashion technology, fine arts, etc.

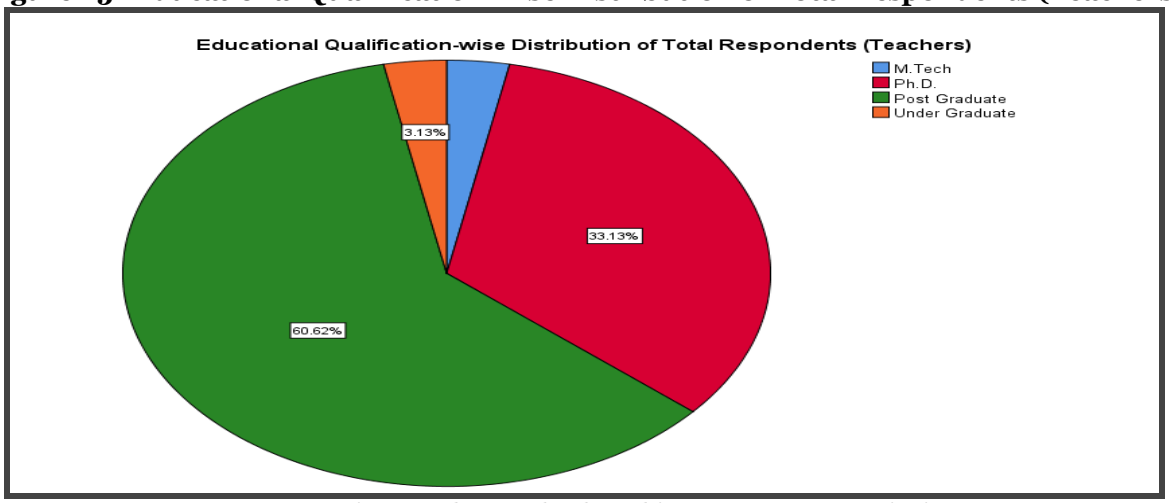
Table - 5 Educational Qualification-wise Distribution of Total Respondents (Teachers)

Educational Qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	M.Tech	5	3.1	3.1	3.1
	Ph.D.	53	33.1	33.1	36.3
	Post Graduate	97	60.6	60.6	96.9
	Under Graduate	5	3.1	3.1	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 5 Educational Qualification-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

The Table - 5 and Figure - 5 shows that the majority 97(60.6 percent) respondents have Post Graduation qualification, 5(3.1 percent) respondents have M.Tech qualification, 53(33.1 percent) respondents have Ph.D qualification, 5(3.1 percent) respondents have Undergraduate qualification.

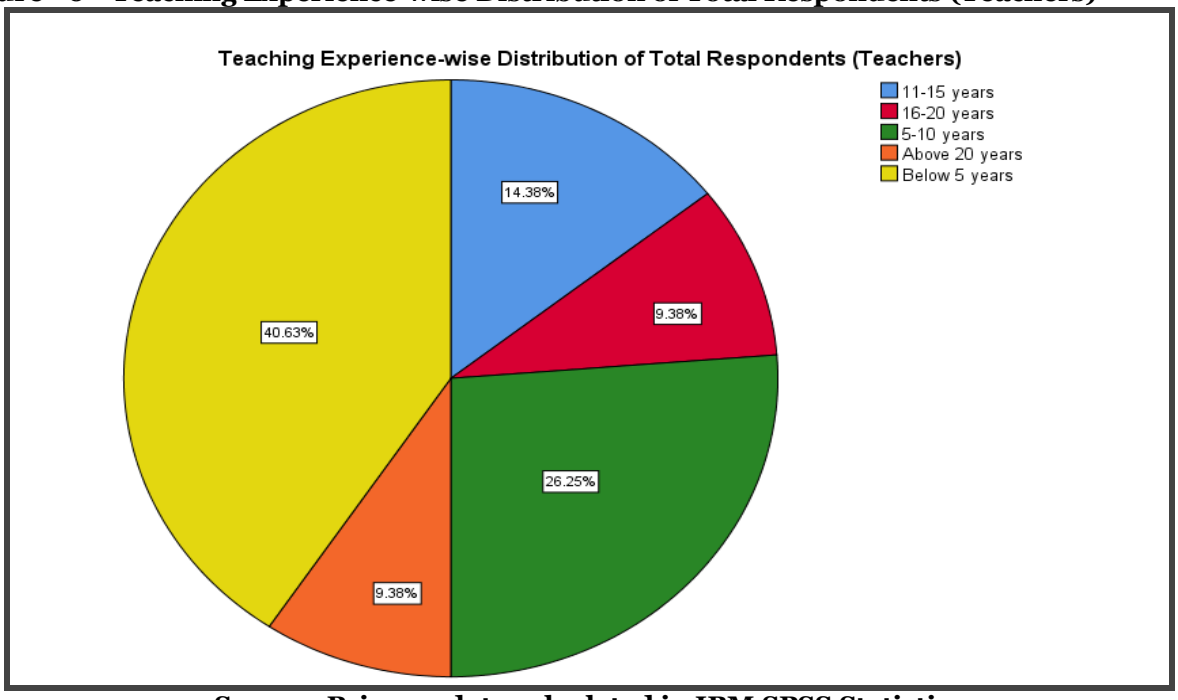
Table - 6 Teaching Experience-wise Distribution of Total Respondents (Teachers)

Teaching Experience (in years)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11-15 years	23	14.4	14.4	14.4
	16-20 years	15	9.4	9.4	23.8
	5-10 years	42	26.3	26.3	50.0
	Above 20 years	15	9.4	9.4	59.4
	Below 5 years	65	40.6	40.6	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 6 Teaching Experience-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

It has been observed from Table - 6 and Figure - 6, maximum 65(40.6 percent) respondents have teaching experience of below 5 years, 42(26.3 percent) respondents have 5-10 years experience, 23(14.4 percent) respondents have experience of 11-15 years, 15(9.4 percent) respondents have experience of 16-20 years and also 15(9.4 percent) respondents have above 20 years teaching experience.

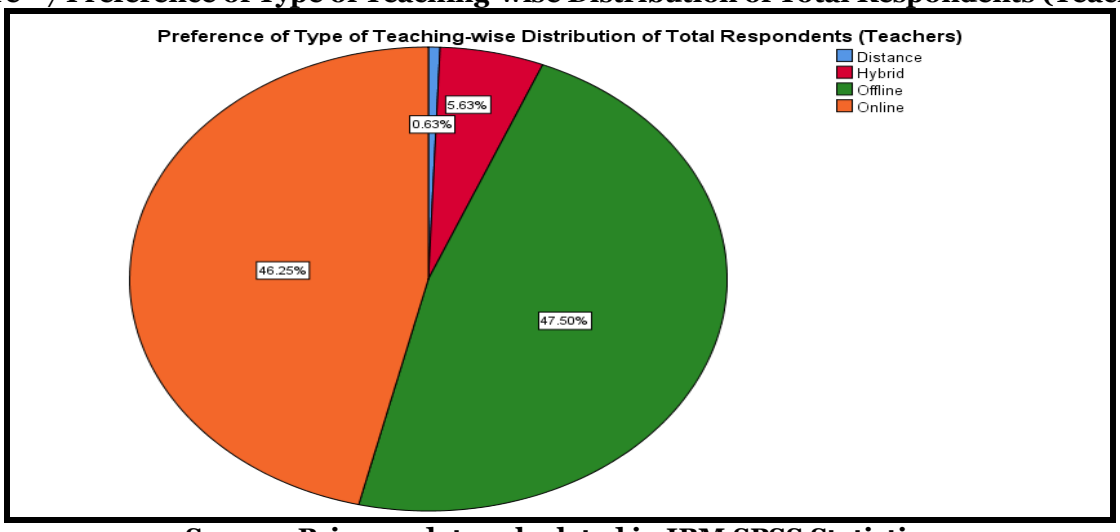
Table - 7 Preference of Type of Teaching-wise Distribution of Total Respondents (Teachers)

Which type of teaching do you prefer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Distance	1	.6	.6	.6
	Hybrid	9	5.6	5.6	6.3
	Offline	76	47.5	47.5	53.8
	Online	74	46.3	46.3	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 7 Preference of Type of Teaching-wise Distribution of Total Respondents (Teachers)



Source: Primary data calculated in IBM SPSS Statistics

From Table - 7 and Figure - 7, it has been noticed that a maximum of 76(47.5 percent) respondents prefer offline teaching due to technical issues like lack of clarity about audio-video lectures, 74(46.3 percent) respondents prefer online teaching because due to availability of online teaching material, students can learn from wherever they need it, 9(5.6 percent) respondents prefer hybrid teaching and only 1(0.6 percent) respondent prefer to distance/correspondence teaching.

Table - 8Informative Statistics of Preference of Type of Teaching-wise Distribution of Total Respondents (Teachers)

Statistics

		Online	Offline	Hybrid	Distance/Correspondence
N	Valid	160	160	160	160
	Missing	0	0	0	0
Mean		.4625	.4750	.0563	.0063
Std. Deviation		.50016	.50094	.23113	.07906
Variance		.250	.251	.053	.006

Source: Primary data calculated in IBM SPSS Statistics

The Table - 8 indicates the informative statistics such as mean, standard deviation and variance of Preference of Type of Teaching-wise Distribution of Total Respondents (Teachers).

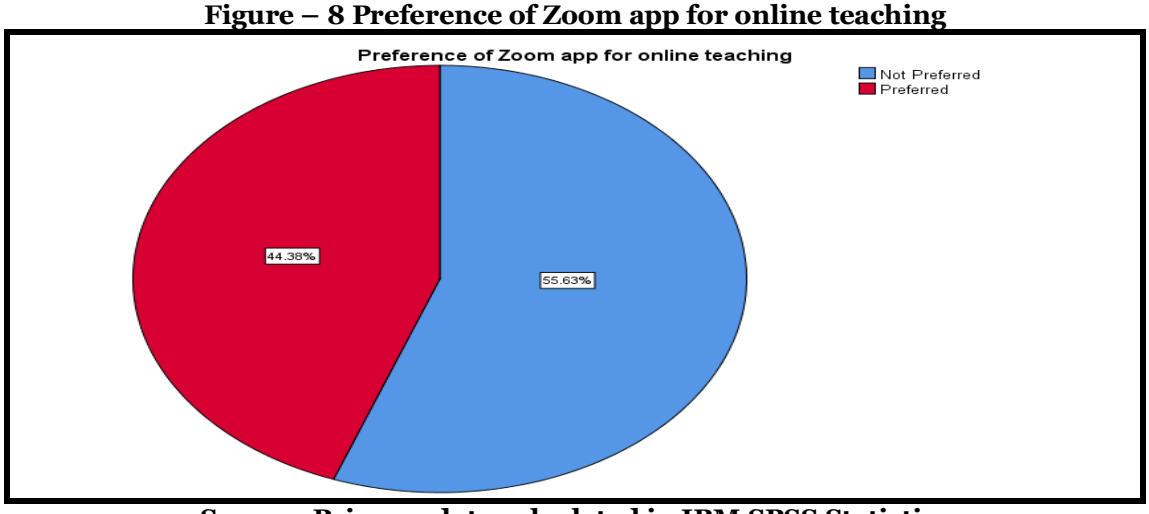
Table - 9Preference of Zoom app for online teaching

Zoom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Preferred	89	55.6	55.6	55.6
	Preferred	71	44.4	44.4	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure – 8 Preference of Zoom app for online teaching



Source: Primary data calculated in IBM SPSS Statistics

The Table - 9 and Figure - 8 indicate that only 71(44.4 percent) respondents prefer the Zoom app for online teaching while 89(55.6 percent) respondents do not prefer it.

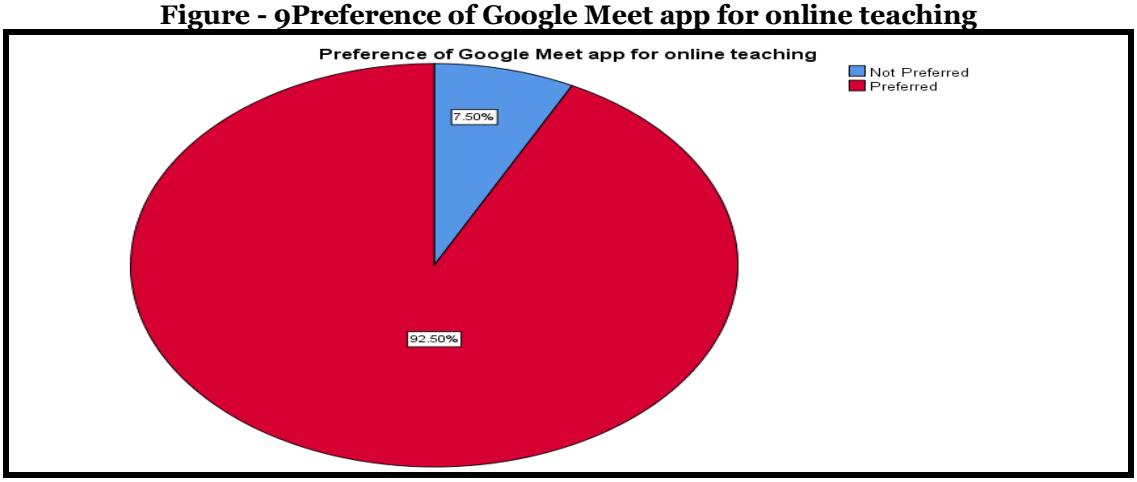
Table – 10 Preference of Google Meet app for online teaching

Google Meet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Preferred	12	7.5	7.5	7.5
	Preferred	148	92.5	92.5	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 9Preference of Google Meet app for online teaching



Source: Primary data calculated in IBM SPSS Statistics

Table - 10 and Figure - 9 shows that a maximum of 148(92.5 percent) respondents prefer the Google Meet app for online teaching while only 12(7.5 percent) respondents do not prefer it.

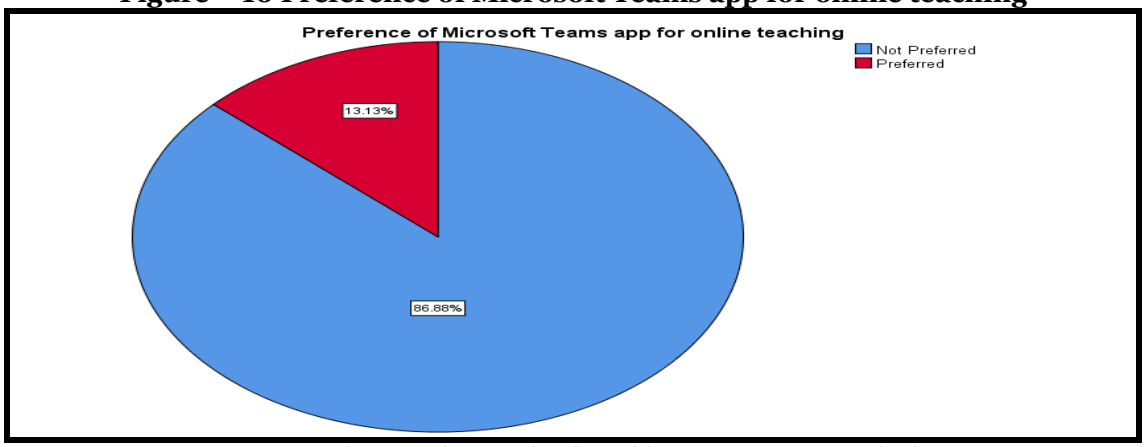
Table – 11 Preference of Microsoft Teams app for online teaching

Microsoft Teams

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Preferred	139	86.9	86.9	86.9
	Preferred	21	13.1	13.1	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure – 10 Preference of Microsoft Teams app for online teaching



Source: Primary data calculated in IBM SPSS Statistics

The Table - 11 and Figure - 10 indicates that only 21(13.1 percent) respondents prefer Microsoft Teams app for online teaching and majority 139(86.9 percent) respondents never prefer it.

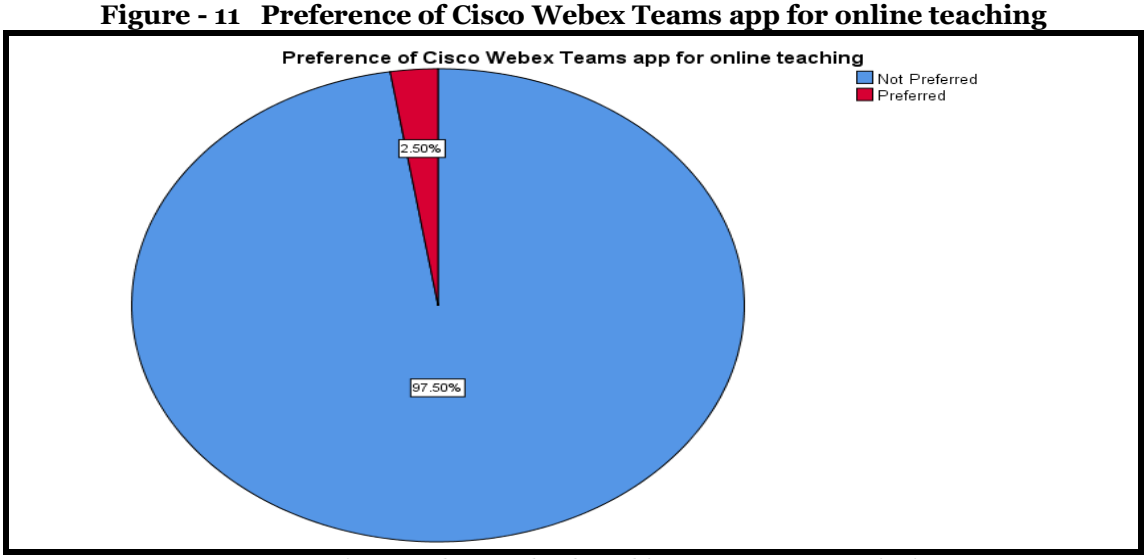
Table – 12 Preference of Cisco Webex Teams app for online teaching

Cisco Webex Teams

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Preferred	156	97.5	97.5	97.5
	Preferred	4	2.5	2.5	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 11 Preference of Cisco Webex Teams app for online teaching



Source: Primary data calculated in IBM SPSS Statistics

It is revealed from Table - 12 and Figure - 11 that only 4(2.5 percent) respondents prefer the Cisco Webex Teams app for online teaching while 156(97.5 percent) respondents do not prefer it.

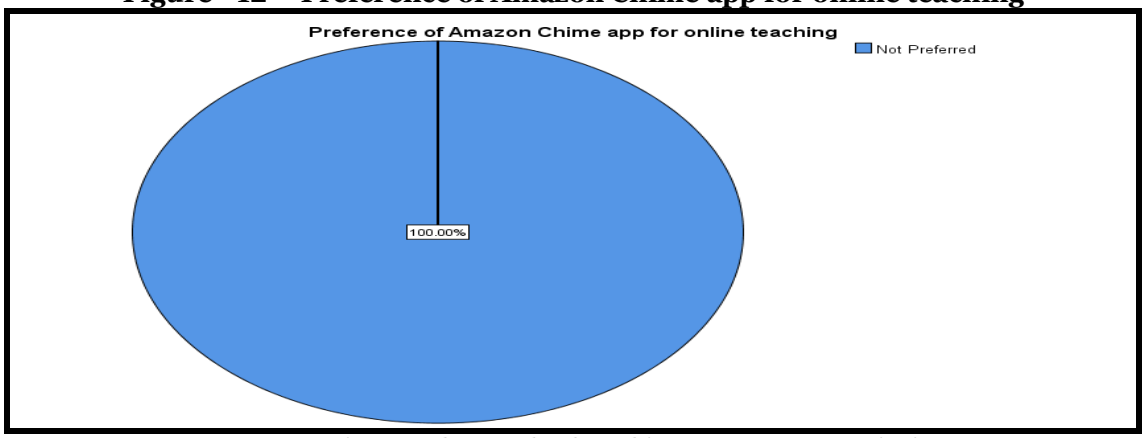
Table – 13 Preference of Amazon Chime app for online teaching

Amazon Chime

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Preferred	160	100.0	100.0	100.0

Source: Primary data calculated in IBM SPSS Statistics

Figure - 12 Preference of Amazon Chime app for online teaching



Source: Primary data calculated in IBM SPSS Statistics

As per Table - 13 and Figure - 12, no respondent prefers the Amazon Chime app for online teaching.

Table - 14Illustrative Statistics of Preference of Type of Application Tool-wise Distribution of Total Respondents (Teachers)

Statistics

		Zoom	Google Meet	Microsoft Teams	Cisco Webex Teams	Amazon Chime
N	Valid	160	160	160	160	160
	Missing	0	0	0	0	0
Mean		.4438	.9250	.1313	.0250	.0000
Std. Deviation		.49839	.26422	.33873	.15662	.00000
Variance		.248	.070	.115	.025	.000

Source: Primary data calculated in IBM SPSS Statistics

Table - 14 indicates illustrative statistics such as mean, standard deviation and variance of preferred type of application tool-wise by respondents.

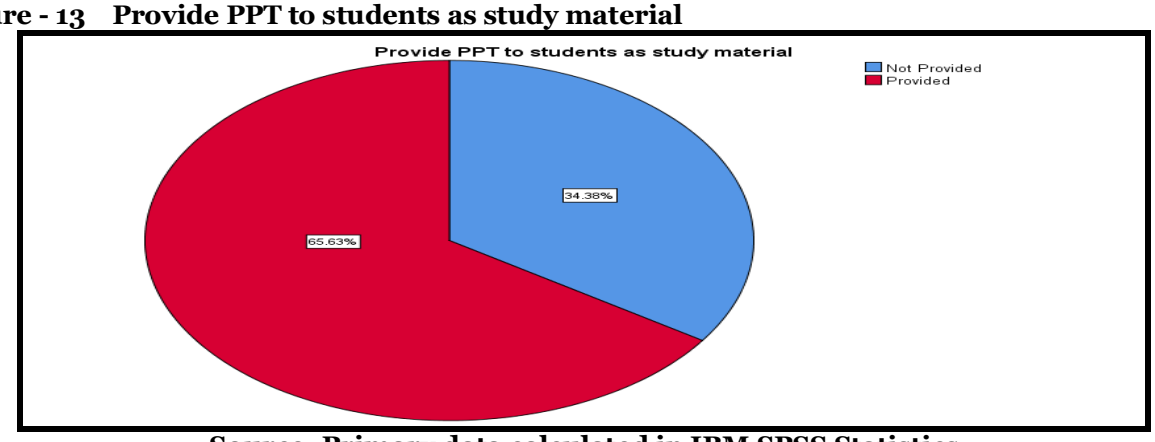
Table – 15 Provide PPT to students as study material

PPT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	55	34.4	34.4	34.4
	Provided	105	65.6	65.6	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 13 Provide PPT to students as study material



Source: Primary data calculated in IBM SPSS Statistics

As per Table - 15 and Figure - 13, the majority 105(65.6 percent) respondents provide PPT to students as study material while 55(34.4 percent) respondents never provide it.

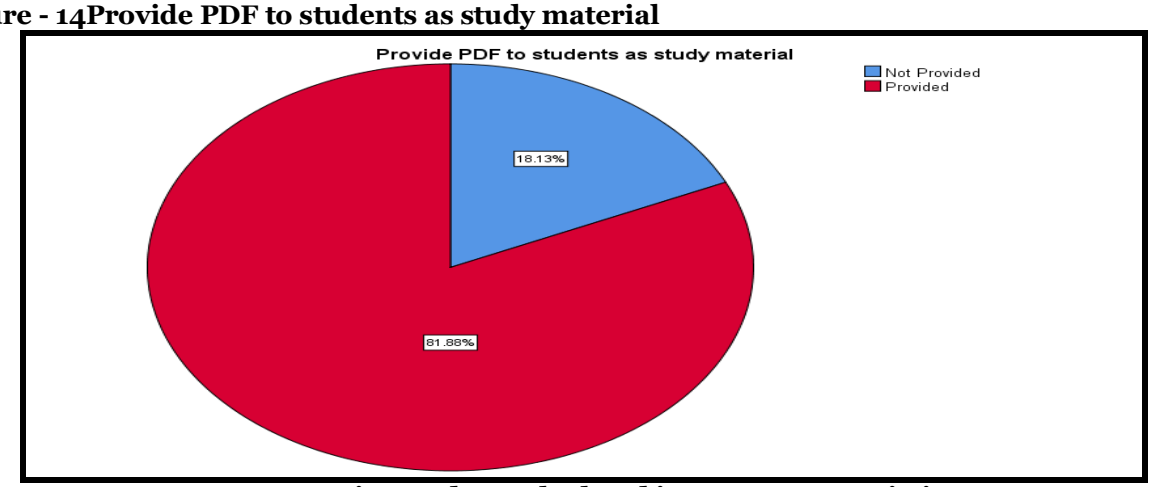
Table - 16 Provide PDF to students as study material

PDF

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	29	18.1	18.1	18.1
	Provided	131	81.9	81.9	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 14Provide PDF to students as study material



Source: Primary data calculated in IBM SPSS Statistics

The Table - 16 and Figure - 14 indicate that the majority 131(81.9 percent) respondents provide PDF to students as study material while only 29(18.1 percent) respondents do not provide it.

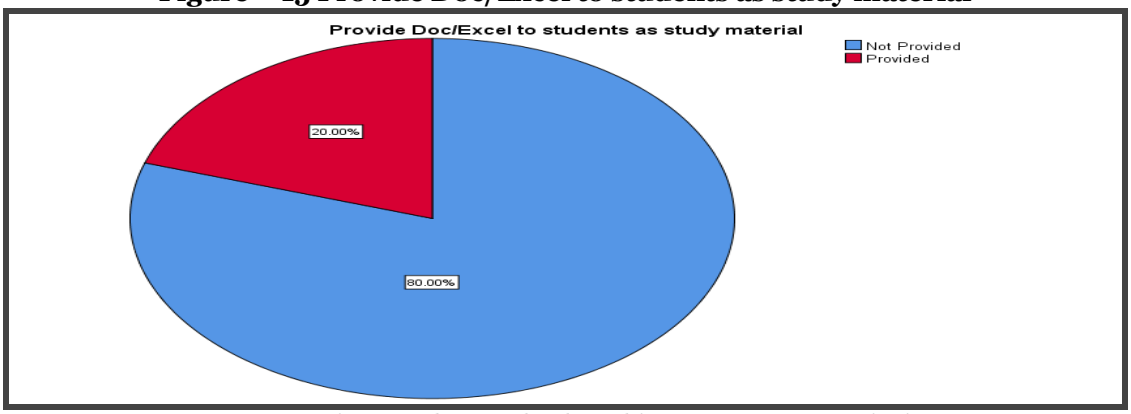
Table – 17 Provide Doc/Excel to students as study material

Doc/Excel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	128	80.0	80.0	80.0
	Provided	32	20.0	20.0	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure – 15 Provide Doc/Excel to students as study material



Source: Primary data calculated in IBM SPSS Statistics

It has been observed from Table - 17 and Figure - 15 that only 32(20 percent) respondents provide Doc/Excel to students as study material while maximum 128(80 percent) respondents never provide it.

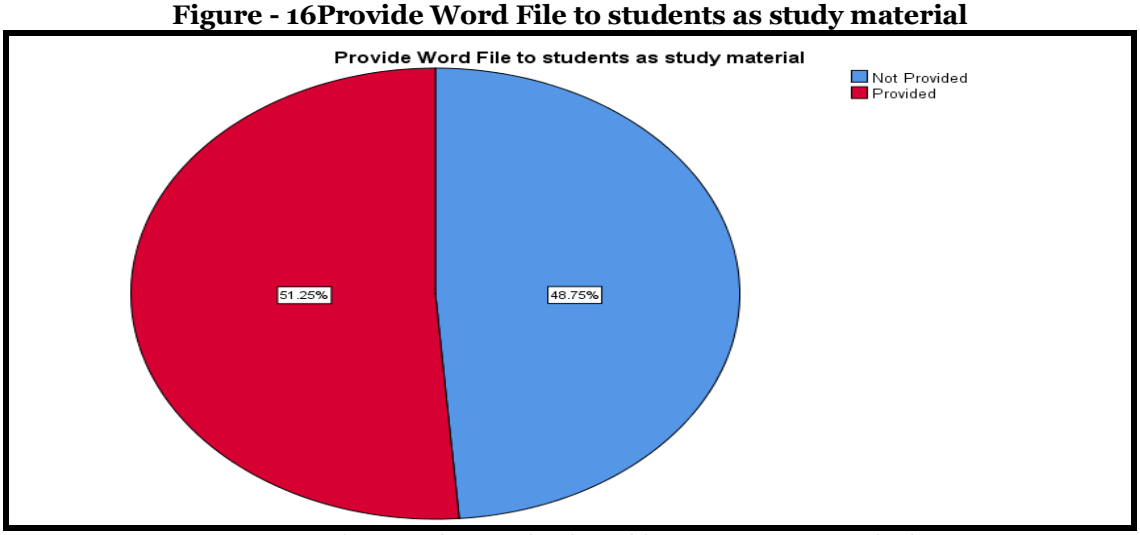
Table – 18 Provide Word File to students as study material

Word File

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	78	48.8	48.8	48.8
	Provided	82	51.2	51.2	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 16Provide Word File to students as study material



Source: Primary data calculated in IBM SPSS Statistics

The Table - 18 and Figure - 16 shows that 82(51.2 percent) respondents provide Word Files to students as study material while 78(48.8 percent) respondents do not provide it.

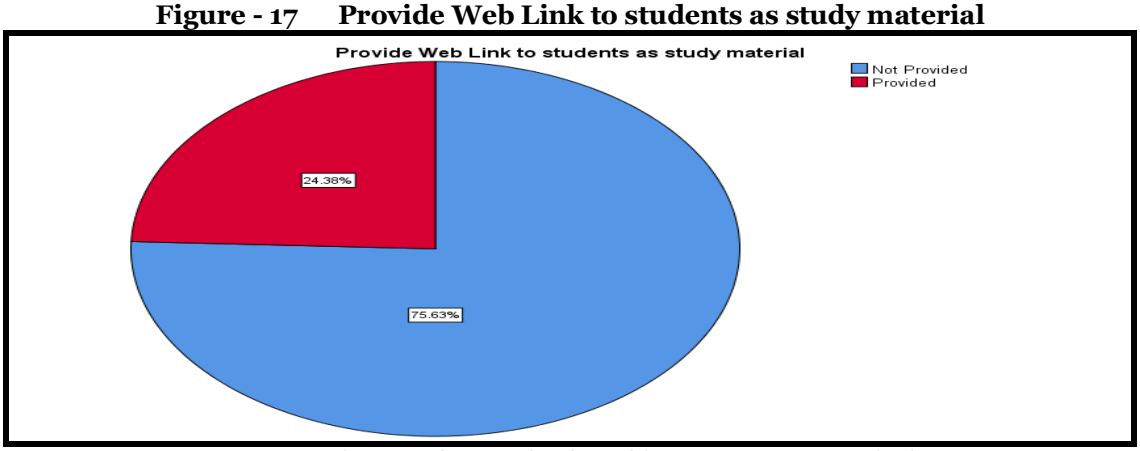
Table - 19 Provide Web Link to students as study material

Web Link

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	121	75.6	75.6	75.6
	Provided	39	24.4	24.4	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 17 Provide Web Link to students as study material



Source: Primary data calculated in IBM SPSS Statistics

It has been observed from Table - 19 and Figure - 17 that only 39(24.4 percent) respondents provide web links to students as study material while majority 121(75.6 percent) respondents never provide it.

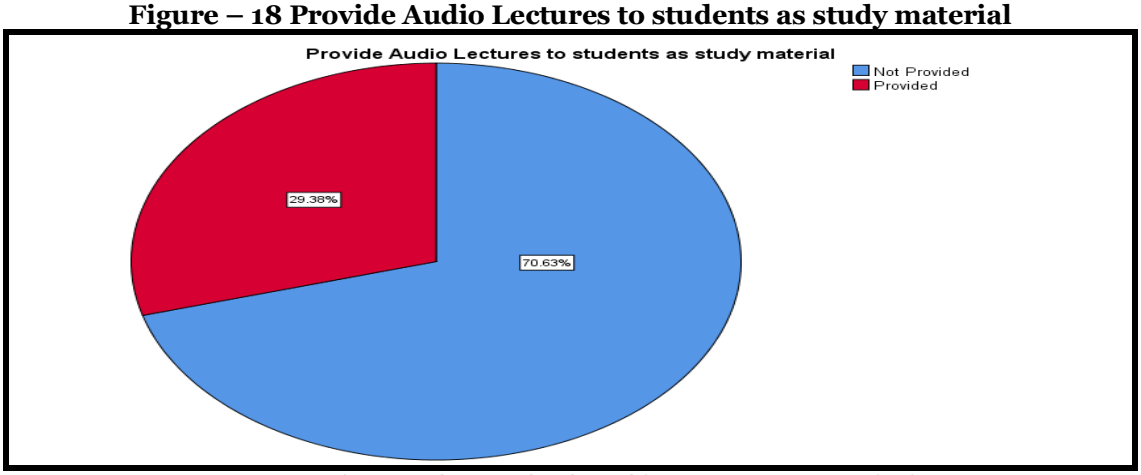
Table – 20 Provide Audio Lectures to students as study material

Audio Lectures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	113	70.6	70.6	70.6
	Provided	47	29.4	29.4	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure – 18 Provide Audio Lectures to students as study material



Source: Primary data calculated in IBM SPSS Statistics

The Table - 20 and Figure - 18 shows that only 47(29.4 percent) respondents provide audio lectures to students as study material and 113(70.6 percent) respondents do not provide it**.**

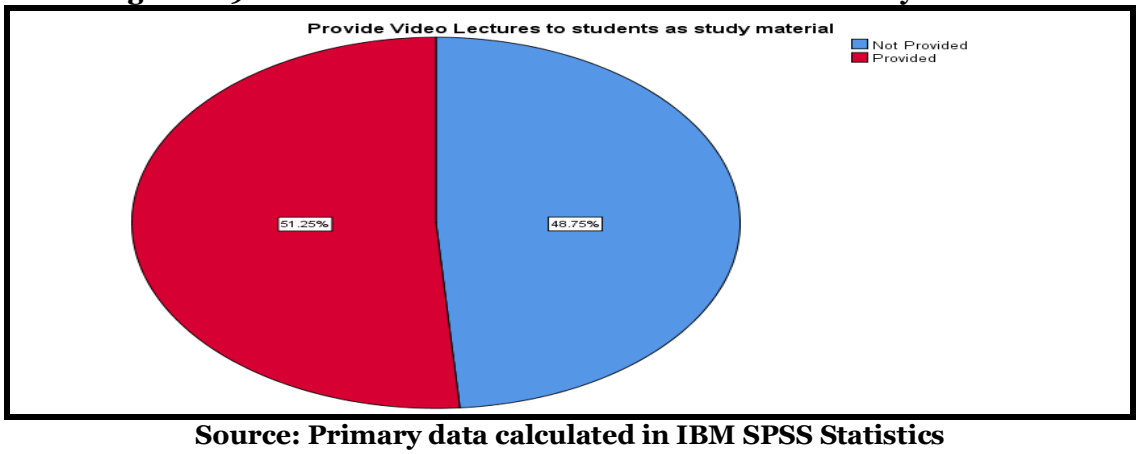
Table - 21 Provide Video Lectures to students as study material

Video Lectures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Provided	78	48.8	48.8	48.8
	Provided	82	51.2	51.2	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 19 Provide Video Lectures to students as study material



Source: Primary data calculated in IBM SPSS Statistics

It is observed from Table - 21 and Figure - 19, 82(51.2 percent) respondents provide video lectures to students as study material and 78(48.8 percent) respondents do not provide it.

Table - 22 Demonstrative Statistics of type of study material provide to students

Item Statistics

	Mean	Std. Deviation	N
PPT	.6563	.47645	160
PDF	.8188	.38643	160
Doc/Excel	.2000	.40126	160
Word File	.5125	.50141	160
Web Link	.2438	.43069	160
Audio Lectures	.2938	.45691	160
Video Lectures	.5125	.50141	160

Source: Primary data calculated in IBM SPSS Statistics

The Table - 22 indicates the demonstrative statistics like mean and standard deviation of perceptions of respondents (teachers) of the type of study material provided to students.

Table - 23 Inter-Item Correlation regarding type of study material provide to students

Inter-Item Correlation Matrix

	PPT	PDF	Doc/Excel	Word File	Web Link	Audio Lectures	Video Lectures
PPT	1.000	.104	.230	.295	.258	.178	.242
PDF	.104	1.000	.032	.125	.192	.125	.093
Doc/Excel	.230	.032	1.000	.269	.298	.192	.113
Word File	.295	.125	.269	1.000	.321	.107	.124
Web Link	.258	.192	.298	.321	1.000	.049	.204
Audio Lectures	.178	.125	.192	.107	.049	1.000	.382
Video Lectures	.242	.093	.113	.124	.204	.382	1.000

Source: Primary data calculated in IBM SPSS Statistics

As per Table - 23, correlation matrix shows that there is very weak correlation between the variables which shows 0% to 19% and weak correlation between the variables which shows 20% to 39%, it can be stated that in the perceptions of respondents (teachers) regarding type of study material provided to students at a low level in this era of modern digital education.

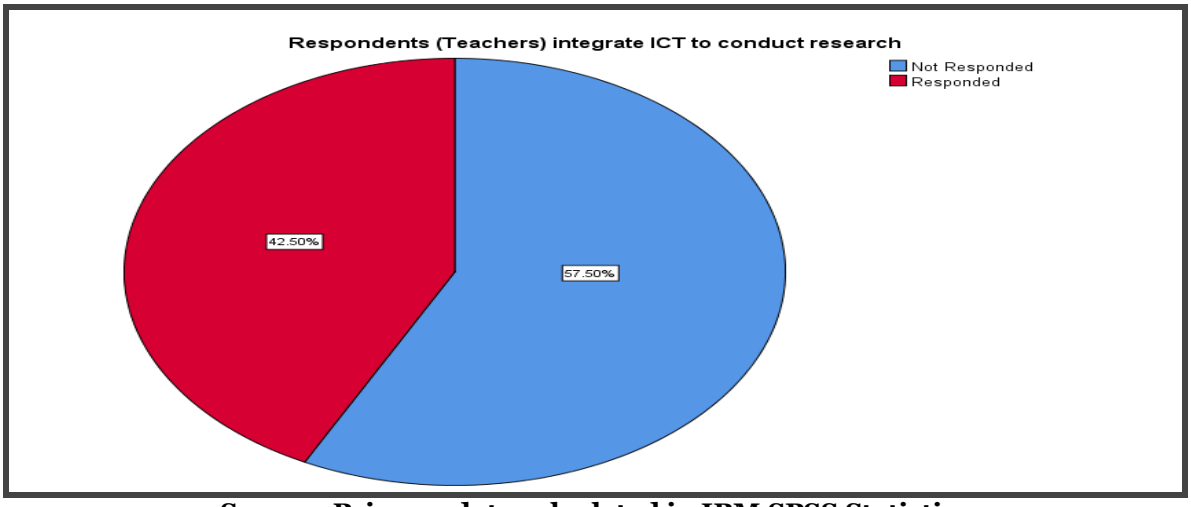
Table - 24 Perceptions of Respondents (Teachers) regarding integrate ICT to conduct research

To conduct research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Responded	92	57.5	57.5	57.5
	Responded	68	42.5	42.5	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 20 Perceptions of Respondents (Teachers) regarding integrate ICT to conduct research



Source: Primary data calculated in IBM SPSS Statistics

As per Table - 24 and Figure - 20, 68(42.5 percent) respondents prefer to conduct research regarding integrating ICT in teaching and learning process while 92(57.5 percent) respondents do not prefer it.

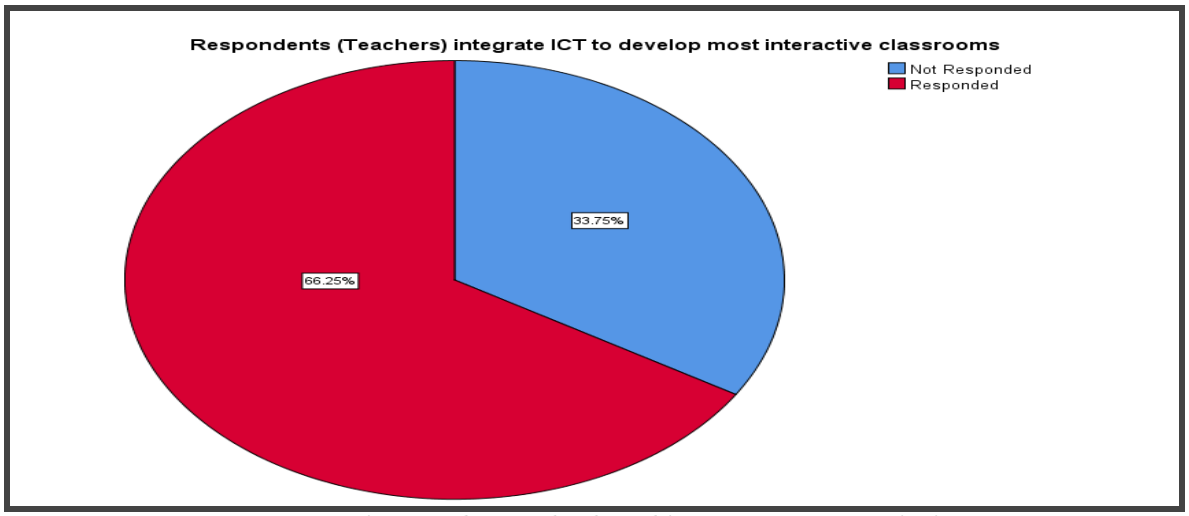
Table - 25 Perceptions of Respondents (Teachers) regarding integrate ICT to develop most interactive classrooms

To develop most interactive classrooms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Responded	54	33.8	33.8	33.8
	Responded	106	66.3	66.3	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 21 Perceptions of Respondents (Teachers) regarding integrate ICT to develop most interactive classrooms



Source: Primary data calculated in IBM SPSS Statistics

It has been observed from Table - 25 and Figure - 21, majority 106(66.3 percent) respondents prefer to develop most interaction classrooms regarding integrating ICT in teaching and learning process and only 54(33.8 percent) respondents do not prefer it.

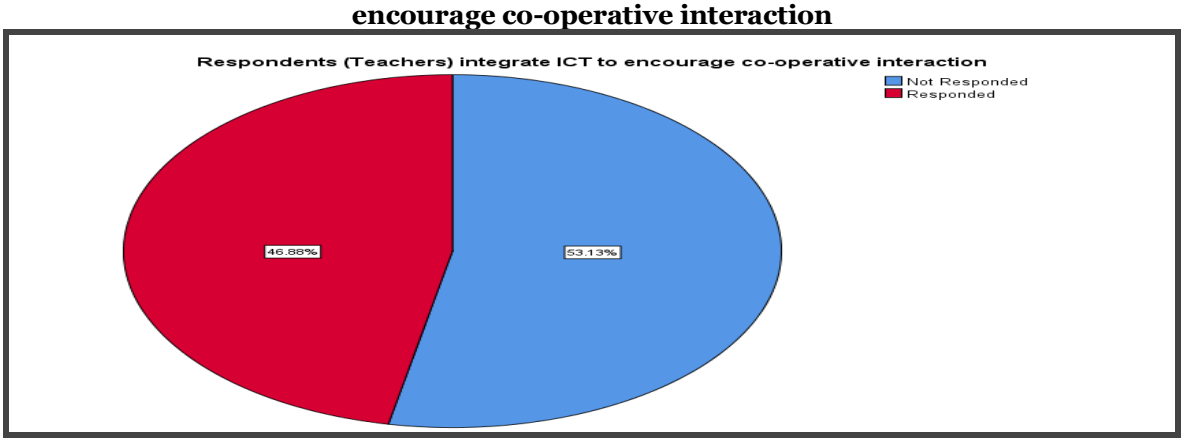
Table - 26 Perceptions of Respondents (Teachers) regarding integrate ICT to encourage co-operative interaction

To encourage co-operative interaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Responded	85	53.1	53.1	53.1
	Responded	75	46.9	46.9	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 22 Perceptions of Respondents (Teachers) regarding integrate ICT to encourage co-operative interaction



Source: Primary data calculated in IBM SPSS Statistics

As per Table - 26 and Figure - 22, 75(46.9 percent) respondents prefer to encourage cooperative interaction regarding integrating ICT in teaching and learning process and 85(53.1 percent) respondents do not prefer it.

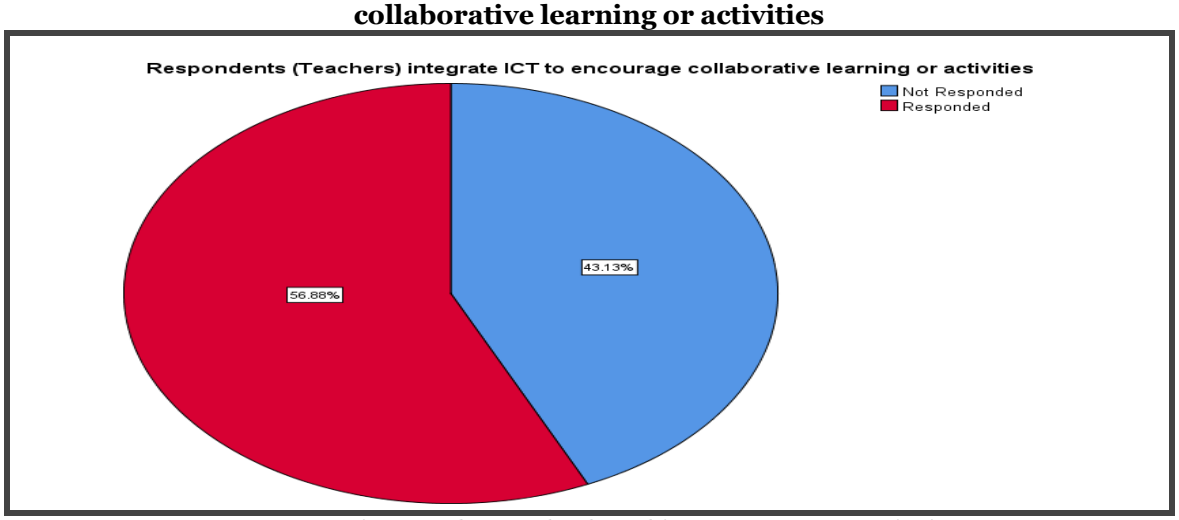
Table - 27 Perceptions of Respondents (Teachers) regarding integrate ICT to encourage collaborative learning or activities

To encourage collaborative learning or activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Responded	69	43.1	43.1	43.1
	Responded	91	56.9	56.9	100.0
	Total	160	100.0	100.0	

Source: Primary data calculated in IBM SPSS Statistics

Figure - 23 Perceptions of Respondents (Teachers) regarding integrate ICT to encourage collaborative learning or activities



Source: Primary data calculated in IBM SPSS Statistics

The Table - 27 and Figure - 23 shows that 91(56.9 percent) respondents prefer to encourage collaborative learning or activities regarding integrating ICT in teaching and learning process and 69(43.1 percent) respondents do not prefer it.

Table - 28Interpretive Statistics of integrate ICT in teaching and learning process

Item Statistics

	Mean	Std. Deviation	N
To conduct research	.4250	.49590	160
To develop most interactive classrooms	.6625	.47434	160
To encourage co-operative interaction	.4688	.50059	160
To encourage collaborative learning or activities	.5688	.49681	160

Source: Primary data calculated in IBM SPSS Statistics

The Table - 28 indicates the interpretive statistics like mean and standard deviation of perceptions of respondents (teachers) regarding integrating ICT in teaching and learning process.

Table - 29Inter-Item Correlation regarding integrate ICT in teaching and learning process

Inter-Item Correlation Matrix

	To conduct research	To develop most interactive classrooms	To encourage co-operative interaction	To encourage collaborative learning or activities
To conduct research	1.000	.052	.333	.110
To develop most interactive classrooms	.052	1.000	.300	.046
To encourage co-operative interaction	.333	.300	1.000	.337
To encourage collaborative learning or activities	.110	.046	.337	1.000

Source: Primary data calculated in IBM SPSS Statistics

As per Table - 29, correlation matrix shows that there is very weak correlation between the variables which shows 0% to 19% and weak correlation between the variables which shows 20% to 39%, it can be stated that in the perceptions of respondents (teachers) regarding integrating ICT in teaching and learning process at a low level in this era of modern digital education.

Regression Analysis

Table - 30 Model Summary of the Digital Education and Teachers

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864[a]	.746	.717	.266

Source: Primary data calculated in IBM SPSS Statistics

The Table - 30 shows the value of R is 0.864 and value of R Square is 0.746 depicts that the model explains 74.6% of variance in teachers is explained by digital education in terms of accessible higher education. The value of Adjusted R Square is 0.717 followed by the Standard Error of the Estimate that is 0.266. So, this model summary explains the percentage of variance in teachers.

Table - 31Analysis of Variance between Digital Education and Teachers

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.662	16	1.854	26.216	.000[b]
	Residual	10.113	143	.071		
	Total	39.775	159			

Source: Primary data calculated in IBM SPSS Statistics
****Significant at 0.05 level**

The dependent variable HEI's teachers regressed on predicting variable digital education in terms of accessible higher education to test hypothesis H11. In the Table - 31, $F(16, 143) = 26.216$, $p < 0.05$ found to be significant at 0.05 level of significance that indicates digital education has a significant impact on HEI's teachers in terms of accessible higher education. Therefore, the null hypothesis H01 is rejected which means the impact of digital education on HEI's teachers in terms of accessible higher education is significant.

Table - 32 Beta Coefficient between Digital Education and Teachers

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.692	.151		-4.589	.000	-.990	-.394
	Which type of teaching do you prefer?	.666	.035	.833	18.862	.000	.596	.736
	Zoom	-.039	.051	-.038	-.749	.455	-.140	.063
	Google Meet	-.051	.087	-.027	-.585	.559	-.222	.121
	Microsoft Teams	-.118	.068	-.080	-1.748	.083	-.252	.015
	Cisco Webex Teams	.117	.142	.037	.820	.414	-.165	.398
	PPT	.071	.050	.068	1.421	.158	-.028	.170
	PDF	-.125	.057	-.097	-2.174	.031	-.239	-.011
	Doc/Excel	.004	.059	.003	.061	.952	-.113	.120
	Word File	.049	.048	.049	1.003	.317	-.047	.144
	Web Link	.012	.057	.010	.207	.837	-.101	.125
	Audio Lectures	.102	.055	.093	1.839	.068	-.008	.212
	Video Lectures	-.022	.049	-.022	-.444	.658	-.119	.075
	To conduct research	.046	.048	.046	.961	.338	-.049	.140
	To develop most interactive classrooms	-.019	.050	-.018	-.389	.698	-.118	.079
	To encourage co-operative interaction	.039	.053	.039	.726	.469	-.067	.144
	To encourage collaborative learning or activities	-.082	.048	-.082	-1.717	.088	-.177	.012

Source: Primary data calculated in IBM SPSS Statistics
****Significant at 0.05 level**

In the Table - 32, beta coefficient between digital education and HEI's teachers in terms of accessible higher education is significant shown of all parameters.

Conclusion

From the above analysis we can say that digital education affects the accessibility of higher education. It has been observed that the majority of the respondents (teachers) prefer offline teaching. Maximum teachers prefer the Google Meet app for online teaching and provide PDFs as study material to students. Many teachers responded that by developing interactive classrooms they integrate information and communication

technology in the teaching-learning process. It has been found significant impact of digital education on HEI's teachers in terms of accessible higher education.

Recommendations for Universities/Institutions

- The first recommendation is for all higher education institutions that to organize programmes for guidance to teachers regarding digital platforms and online library resources,
- In the educational institutions should have multimedia teaching tools to students and teachers and utilize smart classroom equipments such as virtual classroom, digital board, digital content in the form of PPT, PDF and Word file, etc. and
- All educational institutions should focus on provide e-learning platforms for all courses and upload the recorded videos of class teachers on websites of their universities/institutions, it is helpful to the students to rewatch for clarify their doubts.

Recommendations for Teachers of Universities/Institutions

- HEI's teachers should make efforts to motivate students for use different digital technologies and provide Learning Management System (LMS) to students and
- The teachers of universities/institutions should be highly skilled so that they should give their best to help support innovative ideas in students and to make teaching-learning more effective.

Recommendations for Government regarding Universities/Institutions

- Budget should be sanctioned by Government to all universities/institutions for organize seminars and workshops for teachers and students regarding training of digital technologies, to develop digital classrooms by integrating education systems and technology, to boost their ICT facilities and other learning management systems,
- Government should make efforts on specialized courses so that educators can acquire enough knowledge on how to use various digital devices and platforms and Pedagogy courses to enable them to run online classes and assess learners in the modern way. Local platforms created must be easy for both the students and teachers and
- Last but not least, budget should be sanctioned to all HEI's regarding projects or case studies related to digital education.

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