

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

Turkish Online Journal of Qualitative Inquiry (TOJQI)

Volume 12, Issue 8, July 2021: 890-908

**Preservice Teacher Trainees Attitudes towards E Learning and Satisfaction Factors
Prior and During Covid-19: A Comparative Study**

Dr. R.D.Padmavathy

Assistant Professor of Mathematics Education, Department of Education,
Tezpur University (A Central University), Assam, India,

Abstract

The present study aims to explore the attitudes about e-learning and its satisfaction factors (perceived interest, perceived usefulness, perceived ease of use, perceived confidence) among pre-service teacher trainees studied prior to Covid-19 and during the Covid -19 pandemic situation. The study also investigates whether there are any statistically significant differences among trainees' attitudes towards e-learning and its satisfaction factors concerning gender, habitat, stream, age, time spent (per day) in e-learning. In this present study, a sample of 174 trainees was selected using the convenience sampling technique. For collecting data Normative survey method and Dimpal Rani's Attitude towards E-learning scale" was used. Results revealed there was a statistically significant difference found in perceived e-learning usefulness, perceived e-learning ease of use, perceived e-learning confidence and e-learning attitude in both intervals, but such difference was not found in perceived e-learning interest factors. Gender wise analysis showed significant difference found in perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use in both the interval but statistically no difference found in the perceived e-learning confidence factor. Habitat and time spend in e-learning wise analysis revealed there was no significant difference in the attitude of trainees towards e-learning and its satisfaction factors studying in both the intervals. With regards to age and stream of study, a difference was found in the trainee's attitude and satisfaction factors studying prior to the Covid-19 interval, but no such difference was found during Covid-19.

Keywords: E-Learning, Perceived Usefulness, Perceived Interest, Perceived Ease, Perceived Confidence

1. Introduction

Teachers are crucial for strengthening the educational process. They are role models, inspirers the learner's minds, bring the changes in learners and lead the path to set goals for the learners to succeed in life. Such teacher preparation is a multifaceted task. Indian Education Commission (1964-66) acknowledged the effectiveness of teachers and their characteristics regarding the learning and achievement of the students. The related characteristics of the effective teachers are undoubtedly the most significant aspects which actually influence the effectiveness and quality of every teacher and thus also have large contributions to the quality development of education and to the national development. Many studies reported in teaching profession many

incompetent teachers who have been found to be not proficient enough in executing various teaching procedures. This poses a major threat in reality, as a teacher aptitude towards teaching is the force that propels excellence in a learner. A teacher's poor aptitude in teaching can be detrimental for the learners. In order to teach the teacher must possess aptitude to teach the student. The professional preparation of dynamic teachers with aptitude towards teaching by adopting innovativeness has been recognized to be crucial for the qualitative improvement of education. B. Ed course has its own importance. It is the pillar that helps an individual to impart quality education and practice innovative teaching techniques.

The spread of Covid-19 pandemic undoubtedly, affect the education sector but opens paths to the attainment of knowledge goes beyond the walls of institutions. The need raised due to Covid-19 spread situation played a vital role to identify new instructive methods, diversified forms of learning, new points of delivery, new patterns in approaches, devices need for the future advanced worldwide education. Among that facilitated forms of learning throughout the world to promote academics in this pandemic situation higher education made sudden shift from face-to-face method to online learning. This e-learning facilities brought a new form of learning which was a dream and not fully possible in the past. Today in 2021 both the higher education teachers and learners are fortunate to have so many apps in mobile for instant communication. Now the challenge is not with technology but with ideas that how to make the online teaching more useful. Therefore there was a need to evaluate the e-learning system effective use, implementation and satisfaction of the learners based on the student's perspective. At the same time the student's effectiveness should be compared with the students who have these facilities prior to understand the true position, preferences and learners satisfaction factors.

Keeping this as an aim of the present study researcher explore the attitudes towards e-learning and its satisfaction factors among pre-service teacher trainees studied prior Covid-19 and studying during Covid -19 pandemic situation. In addition to that this study also investigate the pre-service teacher trainees attitude towards perceived usefulness, perceived interest, perceived ease of use, perceived confidence and find whether there are any statistically significant differences among pre-service teacher trainees with respect to the gender, habitat, stream, age, time spent (per day) in e- learning prior and during covid-19.

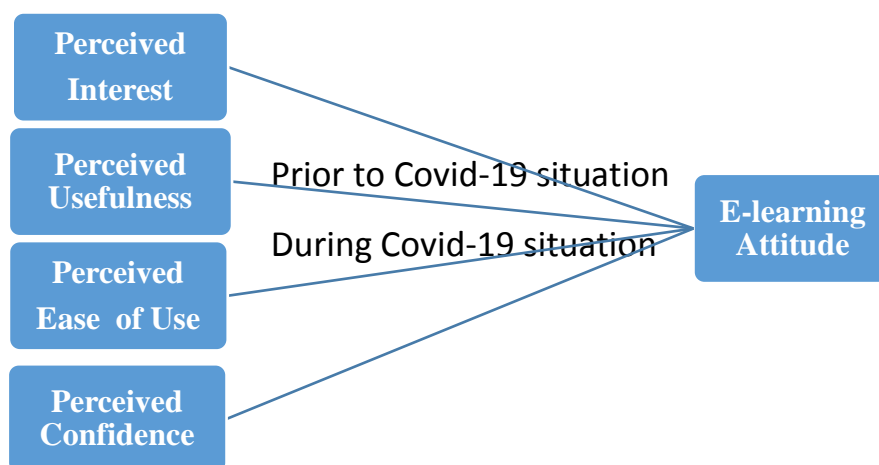
2. Theoretical Background of the study

To understand any consumer behaviour attitude plays a significant role, because it always has a strong link between attitude and behaviour. Psychologist claimed that attitude is forms directly through result of individual experience so they have certain degree of power to influence behaviour. Regards e-learning learners favourable attitude shows a greater possibility for adoption of new learning. Presently there are two models are adapted to measure attitude, one is Rosenberg (2001) model built upon perceived utility of object and value of importance. This model helps to understand the probable behaviour using utility perceived by the students. The second model given by Fishbein model of consumer behaviour (Theory of reasoned action) built upon consumer's beliefs about the object and evaluation. From that it is clear Rosenberg model perceived utility is same as given by Fischebein consumer belief. Teek Azjen's Theory of planned behaviour added another concept called perceived behaviour which means an individual's perceived ease of performing the particular behaviour.

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

Overseeing the models Davis (1989) proposed a Technology Acceptance Model (TAM) with two key determinants perceived usefulness (PU) and perceived ease of use (PEOU), both are referring the use of computer. The perceived usefulness is defined as “the extent to which a person believes that using a computer will determine an increase in performing a certain activity”. The perceived ease of use means “the degree in which a person believes that the use of a computer does not involve effort”. TAM is widely used to measure e-learning acceptance research. Numerous studies conducted in the past confirmed this two (PU and PEOU) are predictors for or affect the behaviour intention of the learners attitude. This model enables the researcher to understand about possible acceptance or rejection of a new technology by end users. Against this background it is needed to conduct research on how students perceived confidence and interest influence the effectiveness e-learning. In this proposed model researcher adopted perceived interest (PI), perceived usefulness (PU), perceived ease of use (PEOU), and perceived confidence (PC).

3. Research Model of the study



4. Review of Literature

A huge amount of empirical researches were conducted in the last two decades to investigate the influence of e-learning and compare e-learning with traditional methods. Studies concentration can be distinguished as student related factors, teacher related factors, course related factors and technology related acceptance and support factors that influence the adoption of e-learning. In the following sections researcher presented the recent researches relevant to pre-service teachers' individual factors affects attitude of e-learning and e learning satisfaction factors .

4.1 Studies conducted to examine the preservice teacher trainees views on e-learning implementation and challenges prior and during the COVID-19 pandemic were discussed below:

The work conducted by Malkawi et al.(2021) found there was no significant difference at the individual factors gender, residential background, location, college and CGPA but difference in students satisfaction level and attitude towards e-learning and virtual classes for educational level. The influence of e-learning effectiveness was the subject of investigation by Bahsir(2021) found students shows a positive attitude

and satisfaction about online learning during Covid -19 pandemic; technical issues and poor communication were main road block in the path of online learning. A study by Afroz et al.(2021) revealed that cost and time-effectiveness, safety, convenience, and improved participation were the most frequently cited positive aspects of the online learning experience, while distraction and reduced focus, heavy workload, problems with technology and the internet, lack of ICT knowledge, and poor network infrastructure, limited availability of educational resources, low attendance of learners, uncooperative learners and insufficient support from instructors and colleagues were the most recurrent negative aspects. A study by Mohalik et.al.(2020) found majority of the student teachers accept online as a better choice for learning in this pandemic situation, student teachers have e-readiness with digital device and financial support but lacking in good internet connectivity, adequate electricity and personal space at home, 35% proficient in digital skills ,students teachers are found to feel stressed isolated and poor confidence in online platform. Ghatak and Das(2021) explored maximum number of students have positive attitude towards e-learning and male student studying in science stream belong to rural areas have more positive attitude towards e-learning.

Further Obeidat(2020) found total score of results show statistically significant differences between Arts and Information Technology students' responses, in favour of the former group of students. The study showed no significant differences in students' responses to the four categories or aspects due to gender, residential area, and the type school they graduated from. Durukan and Sungur (2020) found preservice science teachers willingness to choose a program makes a difference in their attitude of their ICT integration experiences. Nachimuthu(2020) found normal classroom practice does not affect attitudes of students towards online learning and there is no significant difference between the male and female attitude scores of student teachers toward online learning practice in Covid-19. Doley (2020) found B.Ed. trainees have different levels of attitudes and there is no difference in attitudes gender, martial status but variation exist with respect to residence. Another study conducted Periaswamy (2019) found there is no significant difference in the mean scores of attitude towards e-learning among the various groups of B.Ed trainees with regards to gender, age group and educational qualification, but significant difference with regards to subject specialization, residence, year of study, type of family. Alam & Halder (2017)found results showed that there are significant mean differences among the trainee-teachers' attitude towards the use of information and communication technology in classroom in terms of their gender and service status. Moreover, Aarathi & Tamilselvi (2016) found student's attitudes towards e-learning did not significantly affected by gender, marital status, residence and the mean score of male attitude toward e-learning is higher than those of the female. Woodcock (2015) found that, preservice teachers' competency to learn and implement e-learning for students is dependent on four hierarchal conditions namely ease of use, psychologically safe environment, e-learning self-efficacy and competency.

4.2 Studies conducted to examine the perceived interest, perceived usefulness, perceived ease of use and perceived confidence prior and during the COVID-19 pandemic were discussed below:

There are several studies conducted on applications of technology acceptance model for e-learning. perceived usefulness and perceived ease of use has direct effect on learner's attitude towards e-learning. A study by Rizum and Strzelecki(2020) showed in his study the best predictor of students acceptance of shifting education is enjoyment, followed by self-efficacy. Both perceived ease of use and perceived usefulness predict

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

student's attitude towards using and intention to use technology. In line with this study findings Sholika and sutirman (2020) confirmed that ease of use and usefulness of electronic learning system have a strong positive effect on student's satisfaction and quality of service. When users' attitudes of the ease of use and the usefulness of the technology are positive, they will embrace new technology without any problems.

A comprehensive study by Ali (2020) addressed apart from digital resources, the infrastructural arrangements, learners' and teaching staffs' technological skills, motivation, confidence, interest, positive attitude for accepting sudden change are the important factors to work on for ensuring uninterrupted teaching and learning. According to Bandura (1986) Self efficacy is "ones confidence in their ability to accomplish the task". As for the findings of Landrum(2020); Rizum and Strzelecki(2020) studies students' confidence to learn online was the strongest positive predictor of satisfaction and usefulness of online classes. Moreover focusing on past research reviews of computer/internet self efficacy (ones confidence) and students satisfaction with online learning, majority of researchers found a strong positive relationship (Landrum,2020); weak positive relationship (Kuo and Belland,2016) and other found negative relationship (Jan, 2015); and there was a positive relationship with ease of use and usefulness (Chen et al.2019). Ones confidence to use a computer and the internet are related to satisfaction in online class's online class; experience might alter how self-efficacy and self-regulation strategies relate to both satisfaction and perceived usefulness of online learning. Among students with high and low online class experience, students' confidence and use of learning strategies might relate differently with perceived satisfaction and usefulness of online classes. According to Zimmerman et al. student's sense of agency is vital for success also self regulation learning strategies is tied to their perceived ability or confidence to adopt them Landrum(2020).

It is evident and obvious from the explored research reviews, that majority of the studies conducted during this current situation showed both teachers and students showed online learning were ineffective and sudden shift made students to suffer a lot and faced obstacles starting from lack of technical abilities , lack of internet access, lack of socialization and lack of interaction etc. Amid this current crisis, there arise needs to assess the online efficacy to know whether the objectives of supporting students learning are achieved or not using online portal. One way to know the online efficacy is through understanding the student's perspectives. Very few studies were conducted in India to explore the perspectives of online learning among the pre-service teachers graduating at university level. Keeping this in mind researcher has decided to investigate the perspectives of pre-service teachers towards e-learning graduating at university level with respect to selected demographic variable. This study is a humble effort in this regard.

5. Research Objectives

Based on aims of the study following research objectives are formulated

- To ascertain preservice teacher trainee's attitude towards E-learning and satisfaction factors (perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use and perceived e-learning confidence) prior and during Covid-19.
- To find out the differences among preservice teacher trainees attitude towards E-learning and satisfaction factors with respect to the gender, habitat, stream, age, time spent (per day) in e- learning prior to and during Covid-19.

6. Research Hypotheses

Based on the objectives the following hypotheses are framed

- There will be no significant difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors (perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use and perceived e-learning confidence) prior and during Covid-19
- There will be no significant gender difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors prior and during Covid-19
- There will be no significant habitat difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors prior and during Covid-19
- There will be no significant time dedicated (per day) difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors prior and during Covid-19
- There will be no significant stream of study difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors prior and during Covid-19
- There will be no significant age difference among the preservice teacher trainees attitude towards e-learning and satisfaction factors prior and during Covid-19

7. Materials and Methods

In this present study Normative survey method was adopted to collect the primary data. Dimpal Rani's "Attitude towards e-learning scale" was used for collecting preservice teacher trainees attitude towards e-learning and satisfaction factors in addition to that personal data sheet was used to collect the demographic profile of the respondents. This tool comprised of 65 statements with four dimensions viz., e-learning interest, e-learning usefulness, ease of e-learning and e-learning confidence. Both physical paper pencil mode and online survey was used for collecting the data. All the students studying teacher training programme in the Tezpur University were considered as the population of this study. Respondents were invited to complete the survey on attitude towards e-learning. Totally 260 questionnaire were distributed and 178 responses were received in which four questionnaire were removed from analysis due to missing details. A sample of 174 students was selected using convenience sampling technique. All positive items were evaluated using a five point scale viz., 5 for strongly agree, 4 for agree, 3 for undecided, 2 for disagree and 1 for strongly disagree and for negative item the score vice versa. Score based on Dimpal Rani's Attitude scale towards e-learning the minimum score for the items was 65 and maximum score was 325 with higher score indicating the sample best e-learning attitude. The present study is confined to the university students studying in Tezpur University and restricted to the four dimensions of e-learning. After the completion of data gathering, all data were examined, coded and tabulated in the MS-Excel sheet for analysis. Quantitative research methods were applied and data analysis was done using SPSS 20 software programme.

8. Results

On the basis of the obtained data, analysis was done using SPSS 20.0. Summary of participants' demographic background is given in Table 1 below.

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

Table 1 : Participants' Distribution Based on the Variables

Variables	N	Sub category of Variables	Prior to Covid-19 Interval		During Covid-19 Interval	
			N	%	N	%
Gender	174	Male	27	31	40	46
		Female	60	69	47	54
Residence	174	Urban	15	17	31	36
		Rural	72	83	56	64
Age Group	174	above 19 – < 21	11	13	16	18
		above 21 – < 24	67	77	53	61
		above 24 – < 27	9	10	18	21
Stream of study	174	Arts	72	83	27	31
		Science	15	17	60	69
Time dedicated (per day)	174	>2hour - < 3 hours	13	15	40	46
		>2 hours – <5 hours	62	71	41	47
		> 5 hours	12	14	6	7

As apparent from Table 1, there were 174 respondents participated in the study. Out of these total respondents prior to Covid 19 interval, 31% are males and 69 % are females; 17% from urban and rest 83% from rural habitat. Further 13% trainees falls in age group of above 19 and less that 77% trainees falls in age group of above 21 and less that 24, and 10% trainees falls in age group of above 24 and less that 27. 83% belongs to arts stream and 17% belongs to science stream; considering about the time dedicated in e-learning (per day) for educational purpose 15% of trainees spends more than 2 hours and less than 3 hours, 71% spends more than 3 hours and less than 5 hours and 14% of trainees spends more than 5 hours. In same vein, trainees participated in during Covid 19 interval, 46% are males and 54% are females; 36% from urban and rest 84% from rural habitat. Further 18% trainees falls in age group of above 19 and less that 61% trainees falls in age group of above 21 and less that 24, and 21% trainees falls in age group of above 24 and less that 27. 31% belongs to arts stream and 69% belongs to science stream; considering about the time dedicated in e-learning (per day) for educational purpose 46% of trainees spends more than 2 hours and less than 3 hours, 47 % spends more than 3 hours and less than 5 hours and 7% of trainees spends more than 5 hours.

Preservice teacher trainee's included in this study falls in two category of Interval(prior and during COVID-19) gender, residence, stream of study and three category of age group. time dedicated in e-learning (per day). Thus the data were analysed using descriptive analysis, t-test and ANOVA.

H1: There will be no significant difference among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in attitude towards E-learning and satisfaction factors.

Table 2 : Interval wise - preservice teacher trainees attitude towards E-learning and satisfaction factors

E-learning & satisfaction factors	Intervals (Prior/ During Covid-19)	N	Mean	S.D	t-value	df	sig.(2-tailed)
Perceived e-learning Interest	Prior	87	43.1	4.9	0.55	172	0.578
	During	87	42.71	4.33			
Perceived e-learning Usefulness	Prior	87	91.49	8.88	3.10	172	0.002
	During	87	87.23	9.24			
Perceived e-learning ease of use	Prior	87	51.55	6.53	8.19	172	0.001
	During	87	44.28	5.09			
Perceived e-learning confidence	Prior	87	40.8	4.28	7.76	172	0.001
	During	87	35.01	5.49			
E-learning attitude	Prior	87	226.39	18.24	5.78	172	0.001
	During	87	208.16	22.96			

As seen from Table 2, regarding the perceived e-learning interest factor there was an indication of statistically not significant difference among preservice teacher trainees attitude towards e-learning studied prior to Covid-19 (M=43.1;SD=4.9) and during Covid-19 (M=42.71;SD=4.33), where $t(172) = 0.55$, $p=0.578 > 0.05$, which was not significant at 0.05 levels.

It can be seen in Table 2, there was an indication of statistically significant difference among preservice teacher trainees attitude towards perceived e-learning usefulness factor studied prior to Covid-19 (M=91.49; SD= 8.88) and during Covid-19(M=42.71;SD=4.33), where $t(172)= 3.10$, $p=0.002 < 0.05$; for perceived e-learning ease of use factor attitude of preservice teachers studied prior to Covid-19 (M=51.55; SD= 6.53) and during Covid-19. (M=44.28;SD=5.09), where $t(172) = 8.19$, $p = 0.001 < 0.05$; for perceived e-learning confidence factor attitude of preservice teachers studied prior to Covid-19 (M=40.8; SD= 4.28) and during Covid -19 (M=35.01;SD=5.49) where $t(172) = 7.76$, $p = 0.001 < 0.05$; and for overall e-learning attitude of preservice teachers studied prior to Covid-19 (M=226.39 ; SD= 18.24) and during Covid-19 (M=208.16; SD=22.96), where $t(172) = 5.78$, $p = 0.001 < 0.05$; which were significant at 0.05 levels. Thus the null hypothesis that there will be no statistically significant differences among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in attitude towards e-learning and satisfaction factors was partially rejected. So it can be concluded that there was no significant difference in perceived e-learning interest factors among the trainees in both the interval but statistically significant difference found among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in perceived e-learning usefulness, perceived e-learning ease of use; perceived e-learning confidence factor and e-learning attitude. Further it may said that comparing mean scores shows preservice teacher trainees learned prior to Covid-19 posses more favourable attitude towards e-learning and its satisfaction factors than trainees studying during Covid-19.

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

H2: There will be no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and satisfaction factors with respect to gender.

Table 3 :Depicts the gender wise - Mean, S.D, t-value for preservice teacher trainee’s attitude towards e-learning satisfaction factors

E-learning & Satisfaction factors	Intervals (Prior/ During Covid-19)	Gender	N	Mean	S.D	t-value (df=85)	sig.(2-tailed)
Perceived e-learning Interest	Prior	Male	27	45.04	4.76	2.54	0.013
		Female	60	42.23	4.75		
	During	Male	40	43.88	4.26	2.36	0.020
		Female	47	41.72	4.19		
Perceived e-learning Usefulness	Prior	Male	27	95.22	7.31	2.72	0.004
		Female	60	89.82	9.06		
	During	Male	40	88.28	10.12	0.97	0.003
		Female	47	86.34	8.43		
Perceived e-learning ease of use	Prior	Male	27	52.96	9.37	1.35	0.010
		Female	60	50.92	4.70		
	During	Male	40	45.78	4.84	2.62	0.001
		Female	47	43.00	4.98		
Perceived e-learning confidence	Prior	Male	27	42.15	3.67	1.99	0.409
		Female	60	40.20	4.42		
	During	Male	40	35.55	5.96	0.84	0.402
		Female	47	34.55	5.07		
E-learning attitude	Prior	Male	27	235.37	17.86	3.24	0.002
		Female	60	222.35	17.05		
	During	Male	40	211.25	27.01	1.14	0.256
		Female	47	205.62	18.75		

As indicated from Table 3, regarding the attitude on e-learning and its satisfaction factors with respect to gender that the calculated t - value for perceived e-learning interest factor prior to Covid-19 in $t(85) = 2.54$, $p=0.013$ and during Covid-19 $t(85) = 2.36$, $p= 0.02$; which was statistically significant at 0.05 levels. Regarding the perceived e-learning usefulness factor prior to Covid-19 was $t(85) = 2.77$, $p=0.04$; and during Covid-19 was $t(85) =0.93$, $p= 0.003$; which was statistically significant at 0.05 levels. In respect of the perceived e-learning ease of use factor prior to Covid-19 was $t(85) = 1.35$, $p= 0.01$; and during Covid-19 was $t(85) = 2.62$, $p=0.001$; which was statistically significant at 0.05 levels. Concerning the perceived e-learning confidence factor prior to Covid-19 was $t(85) = 1.99$, $p=0.409$; and during Covid-19 was $t(85) = 0.84$, $p=0.402$; which was not statistically significant at 0.05 levels. Regarding overall E-learning attitude prior to Covid-19 was $t(85) =3.24$, $p=0.002$; which was statistically significant at 0.05 levels and during Covid-19 was $t(85) = 1.14$, $p=0.256$ which was not statistically significant at 0.05 levels. Thus the null hypothesis there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards

E-learning and satisfaction factors with respect to gender is partially being rejected. So it can be concluded that there was a significant gender difference among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in perceived e-learning interest factor, perceived e-learning usefulness and perceived e-learning ease of use.

But a significant gender difference was found in perceived e-learning confidence factor in both the intervals among the preservice teacher trainees. Moreover preservice teacher trainees attitude towards e-learning differ significantly gender wise prior to Covid-19 and no difference found during Covid-19.

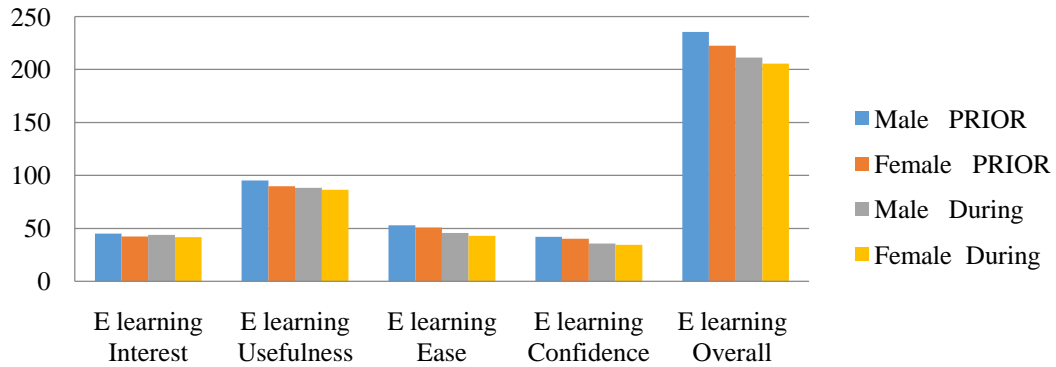


Figure 1: Depicts the pre-service teacher trainee’s attitude towards e-learning satisfaction factors with respect to gender.

Further the Table-2 and Figure-1 depicts that the comparing mean scores shows male preservice teacher trainees learned prior to Covid-19 and during Covid-19 possess more favourable attitude towards e-learning and found satisfaction towards e-learning (perceived e-learning interest, usefulness, ease of use, confidence) than female preservice teacher trainees studying prior to Covid-19 and during Covid-19. It is understood from the results that there was a significant difference in attitude of preservice teacher trainees towards e-learning and its satisfaction factors learned prior to Covid-19 and during Covid-19. Hence the framed null hypothesis is partially accepted.

H3: There will be no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and satisfaction factors with respect to habitat.

Table 4: Depicts the habitat wise- Mean, S.D, t-value for preservice teacher trainee’s attitude towards e-learning and its satisfaction factors

E-learning & satisfaction factors	Intervals (Prior/ During Covid-19)	Habitat	N	Mean	S.D	t-value (df=85)	sig.(2 tailed)
Perceived e-learning Interest	Prior	Urban	15	43.15	4.190	0.149	0.882
		Rural	72	42.87	5.068		
	During	Urban	31	42.81	5.056	0.204	0.839
		Rural	56	41.66	3.933		
Perceived	Prior	Urban	15	93.13	7.652	0.722	0.473

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

e-learning usefulness		Rural	72	91.15	9.128		
	During	Urban	31	88.19	8.604	0.784	0.436
Rural		56	87.70	9.612			
Perceived e-learning Ease of use	Prior	Urban	15	55.33	10.41	0.069	0.946
		Rural	72	50.76	5.164		
	During	Urban	31	44.23	6.281	2.541	0.213
		Rural	56	43.30	4.356		
Perceived e-learning Confidence	Prior	Urban	15	41.40	6.033	0.636	0.527
		Rural	72	40.68	3.863		
	During	Urban	31	35.52	5.597	0.590	0.557
		Rural	56	34.73	5.462		
E-learning attitude	Prior	Urban	15	231.07	18.41	0.764	0.447
		Rural	72	225.42	18.18		
	During	Urban	31	210.74	21.17	1.093	0.278
		Rural	56	209.80	23.96		

As indicated from Table 4, regarding the attitude on e-learning and its satisfaction factors with respect to habitat that the calculated t - value prior to Covid-19 in perceived e-learning interest factors $t(85) = 0.149$, $p=0.882$; perceived e-learning usefulness satisfaction factors $t(85)= 0.732$, $p=0.473$; perceived e-learning ease of use factors $t(85) = 0.069$, $p= 0.946$; perceived e-learning confidence factors $t(85) = 0.636$, $p=0.527$; perceived e-learning attitude $t(85) =0.764$, $p=0.447$ and while the calculated t - value of pre-service teacher trainees during Covid-19 in perceived e-learning interest factors; is $t(85) = 0.204$, $p= 0.839$; perceived e-learning usefulness factors is $t(85) =0.784$, $p= 0.436$; perceived e-learning ease $t(85) =0.541$, $p =0.213$; perceived e-learning confidence $t(85) = 0.63$, $p= 0.557$; perceived e-learning attitude $t(85) = 1.09$, $p = 0.278$ which were not statistically significant at 0.05 level. Thus the null hypothesis there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and its satisfaction factors with respect to habitat is accepted. Further it may said that comparing mean scores shows urban preservice teacher trainees studied prior to covid-19 showed more satisfaction to perceived e-learning interest, usefulness, ease of use confidence and favorable attitude than their rural counterparts. It is clear from the results students studying in the pandemic situation do not found e-learning effective and not satisfied.

H4: There will be no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and its satisfaction factors with respect to time dedicated in e-learning (per day).

Table 5 : Depicts the time spent per day(hours)wise – mean,S.D, f-value for preservice teacher trainee’s attitude towards e-learning and its satisfaction factors

E-learning & satisfaction factors	Intervals (Prior/ During Covid-19)	Time (in hours)	N	Mean	S.D	f-value with df= 2,84	sig. (2-tailed)
Perceived e-learning Interest	Prior	> 2 - < 3	13	44.46	6.38	0.671	0.514
		> 3 - <5	62	43.76	4.80		
		> 5 hours	12	43.42	3.55		
	During	> 2 - < 3	40	42.35	4.35	0.254	0.776
		> 3 - <5	41	42.62	4.62		
		> 5 hours	6	42.00	1.41		
Perceived e-learning usefulness	Prior	> 2 - < 3	13	90.31	5.20	0.189	0.828
		> 3 - <5	62	91.85	9.56		
		> 5 hours	12	90.92	8.77		
	During	> 2 - < 3	40	87.90	9.01	0.549	0.579
		> 3 - <5	41	87.10	9.76		
		> 5 hours	6	83.67	7.25		
Perceived e-learning Ease	Prior	> 2 - < 3	13	50.08	5.56	1.021	0.365
		> 3 - <5	62	51.44	5.010		
		> 5 hours	12	53.75	12.367		
	During	> 2 - < 3	40	45.33	5.337	1.623	0.203
		> 3 - <5	41	43.32	4.977		
		> 5 hours	6	43.83	2.927		
Perceived e-learning Confidence	Prior	> 2 - < 3	13	40.54	2.961	0.811	0.448
		> 3 - <5	62	41.15	4.398		
		> 5 hours	12	40.42	4.870		
	During	> 2 - < 3	40	35.30	6.390	0.118	0.889
		> 3 - <5	41	34.71	4.854		
		> 5 hours	6	35.17	3.189		
E-learning attitude	Prior	> 2 - < 3	13	224.15	12.799	0.136	0.873
		> 3 - <5	62	226.58	17.977		
		> 5 hours	12	227.83	24.947		
	During	> 2 - < 3	40	211.13	20.902	0.592	0.555
		> 3 - <5	41	205.73	26.080		
		> 5 hours	6	205.67	9.647		

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

As evident from Table 5 regarding the attitude on e-learning and its satisfaction factors with respect to time spent on e-learning that the calculated f - value prior to Covid-19 in perceived e-learning interest factors $f(85) = 0.671, p=0.514$; perceived e-learning usefulness factor $f(85)= 0.189, p=0.828$; perceived e-learning ease of use factor $f(85) = 1.021, p= 0.365$; perceived e-learning confidence factors $f(85) = 0.811, p=0.448$; overall e-learning attitude $f(85) =0.136, p=0.873$ and while the calculated f-value of pre-service teacher trainees during Covid-19 in perceived e-learning interest factor was $f(85) = 0.254, p= 0.776$; perceived e-learning usefulness factor was $f(85) =0.549, p= 0.579$; perceived e-learning ease of use $f(85) =1.623, p =0.203$; perceived e-learning confidence was $f(85) = 0.118, p= 0.889$; and e-learning attitude $f(85) = 0.592, p = 0.555$ which are not statistically significant at 0.05 level. Thus the null hypothesis there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards e-learning and its satisfaction factors with respect to time dedicated in e-learning per day is accepted.

Comparing mean scores shows pre service teachers who spend more than 2 hours and less than 3 hours prior to Covid-19 have more satisfaction towards e-learning interest than other counterparts. Regards to perceived e-learning usefulness pre service teacher trainees who spend more than 3 hours and less than 5 hours prior to Covid-19 have more satisfaction towards e-learning than other counterparts and in during Covid-19 preservice teacher trainees who spend more than 2 hours and less than 3 hours showed more satisfaction towards e-learning. Regards to perceived e-learning ease of use pre-service teachers who spend more than 5 hours prior to Covid-19 have more satisfaction towards e-learning than other counterparts and in during Covid-19 preservice teachers who spend more than 2 hours and less than 3 hours showed more satisfaction towards e-learning. In same vein pre service teachers who spend more than 3 hours and less than 5 hours prior to Covid-19 have more satisfaction towards e-learning than other counterparts and in during Covid-19 preservice teachers of all categories showed a same extent of attitude towards e-learning. In other words, pre service teacher trainees prior to Covid-19 have more satisfaction towards e-learning with respect to all categories of time dedicated in e-learning (per day) than other counterparts.

H5: There will be no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and its satisfaction factors with respect to stream of study.

Table 6: Depicts the stream of studywise-Mean, S.D, t-value for preservice teacher trainee’s attitude towards e-learning and its satisfaction factors

E-learning & satisfaction factors	Intervals (Prior/ During Covid-19)	Stream	N	Mean	S.D	t-value (df=85)	sig. (2 tailed)
Perceived e-learning Interest	Prior	Arts	72	43.56	4.68	2.34	0.022
		Science	15	45.73	5.25		
	During	Arts	27	42.26	2.76	0.65	0.516
		Science	60	41.92	4.89		
Perceived e-learning usefulness	Prior	Arts	72	90.28	8.88	2.91	0.004
		Science	15	97.33	6.29		
		Arts	27	87.11	5.27	0.08	0.936

	During	Science	60	89.28	10.59		
Perceived e-learning Ease of use	Prior	Arts	72	51.04	4.74	1.16	0.011
		Science	15	54.00	11.85		
	During	Arts	27	43.56	4.54	0.88	0.378
		Science	60	44.60	5.32		
Perceived e-learning Confidence	Prior	Arts	72	40.57	4.28	1.11	0.024
		Science	15	41.93	4.21		
	During	Arts	27	34.04	4.28	1.11	0.269
		Science	60	35.45	5.93		
E-learning attitude	Prior	Arts	72	223.76	16.87	3.08	0.003
		Science	15	239.00	19.84		
	During	Arts	27	206.96	11.33	0.33	0.737
		Science	60	208.77	26.66		

As indicated from Table 6 regarding the attitude on e-learning and its satisfaction factors with respect to stream of study that the calculated t - value prior to Covid-19 in perceived e-learning interest factors $t(85) = 2.34, p=0.022$; perceived e-learning usefulness satisfaction factors $t(85)= 2.91, p=0.004$; perceived e-learning ease factors $t(85) = 1.16, p= 0.011$; perceived e-learning confidence factors $t(85) = 1.11, p=0.024$; E-learning attitude $t(85) = 3.08, p = 0.003$ which were statistically significant at 0.05 level. While the calculated t - value of pre-service teacher trainees during Covid-19 in perceived e-learning interest factors; is $t(85) = 0.65, p= 0.516$; perceived e-learning usefulness factors is $t(85) =0.08, p= 0.936$; perceived e-learning ease $t(85) =0.88, p =0.378$; perceived e-learning confidence $t(85) =1.11, p= 0.26$; perceived e-learning attitude $t(85) = 0.33, p = 0.737$ which were not statistically significant at 0.05 level. Thus the null hypothesis there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and its satisfaction factors with respect to steam of study is partially rejected. It is understood from the results that there was a significant difference in attitude of preservice teacher trainees towards e-learning and its satisfaction factors learned prior to Covid-19 with respect to stream of study. but no significant difference seen among preservice teacher trainees during to Covid-19 with respect to stream of study

Further it may said that comparing mean scores shows preservice teacher trainees belong to science stream studied both prior and during covid-19 showed more satisfaction to perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use, perceived e-learning confidence and favourable attitude to e-learning than the arts stream counterparts. From that it can be conclude that science stream students studied in both the intervals showed high satisfaction towards e-learning. In other words pre service teacher trainees belong to science stream studied prior to Covid-19 showed more satisfaction towards e-learning than other counterparts.

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

H6: There will be no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards E-learning and its satisfaction factors with respect to age.

Table 7: Depicts the data of mean scores, f-value for preservice teacher trainee's attitude towards e-learning and its satisfaction factors with respect to age

E-learning & satisfaction factors	Intervals (Prior/ During Covid-19)	Age range	N	Mean	S.D	f-value with df= 2,84	sig. (2-tailed)
Perceived e-learning Interest	Prior	19 - < 21	11	45.73	4.92	1.84	0.016
		21 - <24	67	44.70	4.73		
		24 - < 27	9	43.89	5.68		
	During	19 - < 21	16	43.13	4.08	1.06	0.351
		21 - <24	53	43.04	3.79		
		24 - < 27	18	41.39	5.83		
Perceived e-learning usefulness	Prior	19 - < 21	11	98.09	6.17	3.73	0.028
		21 - <24	67	90.64	9.13		
		24 - < 27	9	89.78	6.57		
	During	19 - < 21	16	89.50	7.67	0.77	0.453
		21 - <24	53	87.11	8.70		
		24 - < 27	18	85.56	11.84		
Perceived e-learning Ease of Use	Prior	19 - < 21	11	57.45	12.00	5.79	0.004
		21 - <24	67	50.81	4.94		
		24 - < 27	9	49.89	4.62		
	During	19 - < 21	16	45.81	5.81	0.33	0.714
		21 - <24	53	44.40	4.55		
		24 - < 27	18	43.44	6.05		
Perceived e-learning Confidence	Prior	19 - < 21	11	41.09	3.98	0.42	0.003
		21 - <24	67	40.93	4.34		
		24 - < 27	9	39.56	4.39		
	During	19 - < 21	16	36.31	4.96	0.54	0.581
		21 - <24	53	34.70	5.54		
		24 - < 27	18	34.78	5.88		
E-learning attitude	Prior	19 - < 21	11	242.36	17.11	5.41	0.004
		21 - <24	67	224.39	17.31		
		24 - < 27	9	221.78	18.13		
	During	19 - < 21	16	213.75	19.01	0.63	0.530
		21 - <24	53	207.57	23.08		
		24 - < 27	18	205.17	26.04		

As indicated from Table 7 regarding the attitude on e-learning and its satisfaction factors with respect to age that the calculated f- value for pre-service teacher trainee's attitude prior to Covid-19 in perceived e-learning interest factor $f(85) = 1.84$, $p=0.016$; perceived e-learning usefulness factor $f(85) = 3.734$, $p=0.028$; perceived e-learning ease of use factor $f(85) = 5.79$, $p= 0.004$; perceived e-learning confidence factors $f(85) = 0.428$, $p=0.003$; and e-learning attitude $f(85) = 5.412$, $p = 0.004$ which were statistically significant at 0.05 levels. In regards with pre-service teacher trainee's attitude during Covid-19 that the calculated f- value for perceived e-learning interest factor $f(85) = 1.06$, $p=0.351$; in perceived e-learning usefulness factor was $f(85) = 0.778$, $p= 0.453$; perceived e-learning ease $f(85) = 0.338$, $p = 0.714$; perceived e-learning Confidence $f(85) = 0.546$, $p = 0.581$; and E-learning attitude $f(85) = 0.637.11$, $p= 0.530$ which were not statistically significant at 0.05 levels. Thus the null hypothesis there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards e-learning and its satisfaction factors with respect to age is partially rejected. Thus attitude towards e-learning and its satisfaction factors preservice teacher trainees learned prior to Covid-19 showed a significant difference with respect to age and but no such differences seen among the preservice teacher trainees learning during Covid-19 interval.

Further it may said that comparing mean scores shows preservice teacher trainees belong to ages between 19 and less than 21 studied both prior and during covid-19 showed more satisfaction to perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use, perceived e-learning confidence and favourable attitude to e-learning than the other age counterparts. From that it can be conclude that preservice teacher trainees who ages range between 19 and less than 21 studied in both the intervals showed high satisfaction towards e-learning than the other counterparts.

9. Discussion

This Covid-19 spread influence the education system and leads a shift of implementing e-learning in the teaching learning sector to overcome the obstacle. Past researchers showed e-learning as a new and innovative facilitator enhance the education sector in future. Studies also demonstrated e-learning use was associated with the academic performance of the learners. This present study examined the preservice teacher trainee's attitudes towards E-learning and satisfaction factors prior and during Covid-19. It also examine whether there were statistically significant differences in e-learning and satisfaction factors with respect to gender, habitat, stream of study, age and time spent (per day).

With reference to the first research hypotheses, the present study revealed that there was no significant difference in perceived e-learning interest factors among the preservice teacher trainees in both the interval but statistically significant difference found among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in perceived e-learning usefulness, perceived e-learning ease of use; perceived e-learning confidence factor and e-learning attitude. A comparative analysis of the mean scores shows preservice teacher trainees learned prior to Covid-19 posses more favourable attitude towards e-learning and its satisfaction factors than trainees studying during Covid-19.

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

With reference to the second research hypotheses, there was a significant gender difference among preservice teacher trainees learned prior to Covid-19 and during Covid-19 in perceived e-learning interest factor, perceived e-learning usefulness and perceived e-learning ease of use. But a significant gender difference was found in perceived e-learning confidence factor in both the intervals among the trainees. Moreover, preservice teacher trainees attitude towards e-learning differ significantly gender wise prior to Covid-19 and no difference found during Covid-19. This result was consistent with the findings of (Malkawi 2021, Ghatak & Das 2021, Nachimuthu 2020, Obeidat 2020, Doley, 2020, Periaswamy, 2019) and inconsistent with the similar findings of Arthi & Tamilselvi, 2016. A comparative analysis of the mean scores showed male preservice teacher trainees learned prior to Covid-19 and during Covid-19 possess more favourable attitude towards e-learning and have high satisfaction factors than female preservice teacher trainees studying prior to Covid-19 and during Covid-19. This result is coherent with what was found in the previous studies (Ghatak & Das 2021, Nachimuthu 2020) and contradicts with the findings of Aarthi & Tamilselvi (2016).

With reference to the third and fourth research hypotheses, the result revealed with respect to habitat and time dedicated in e-learning per day there was no significant difference among preservice teacher trainees learned prior and during Covid-19 in attitude towards e-learning and its satisfaction factors (perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use and perceived e-learning confidence) but no such difference found in the preservice teacher trainees studying during Covid-19 interval. This finding consonance with the findings of (Ghatak and Das, 2021; Obeidat, 2020; Doley, 2020 and Periaswamy, 2019). Further result showed urban preservice teacher trainees showed more satisfaction to perceived e-learning interest, usefulness, ease of use, confidence and favourable attitude to e-learning than the rural counterparts.

With reference to the fifth and sixth research hypotheses, the results showed that stream of study and age of preservice teacher trainees learned prior to Covid-19 showed a significant difference in attitude towards E-learning and its satisfaction factors (perceived e-learning interest, perceived e-learning usefulness, perceived e-learning ease of use and perceived e-learning confidence) and but no such differences seen during Covid-19 interval. The results of this study consonance with the findings of (Ghatak and das, 2021; Nachimuthu, 2020 and Obeidat, 2020) but inconsistent with the findings of Periaswamy, (2019).

10. Conclusion

Undoubtedly, technology integration and e-learning platforms promotes the learners to reshape their skills and competencies and open a new door to explore the knowledge of individuals' interest and needs. The sudden adoption of e-learning due to raised pandemic situation caused problems in education. Pre-service teacher's continuing education at tertiary level must be equipped with dynamic, commitment, open mind to accept the new innovations and ready to act according to the needs of the society. Such preservice teacher trainees must need proper training and aware about the modern technological innovations. Though many institutes started including technology in curriculum the implementation part is still behind and pre-service teacher trainees are still inclining towards traditional teachings the methods adopted. It is very necessary policy

makers, institution heads and stake holders should take necessary action to improve the online teaching quality and practice. Based on the findings of the comparative present study of pre-service teacher trainees attitude prior and during Covid-19 towards e-learning and satisfaction factors may enlighten policy makers, university administration and members the need of considerable demands for improvement in the levels of online service to the students in this pandemic situation.

References

- [1] Aarthi, S. & Tamilselvi,B. (2016). A study of the attitude towards ICT among B.Ed. student teachers in Namakkal District. *International Journal of Multidisciplinary Research and Development*, 3(8), 81-84.
- [2] Afroz, R., Islam, N & Rahman, S.(2021). Students' and teachers' attitude towards online classes during Covid-19 pandemic. *International Journal of Research in Business and Social Science*, 10(3), 462–476.
- [3] Alam, K. & Halder, U.K.(2017). Attitude towards the use of ict in classroom among trainee-teachers. *Journal of Education and Development*, 7(3), 253-261.
- [4] Ali, W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. *Higher Education*,10(3). 16-25.
- [5] Alqurashi, E. (2016). Self-efficacy in online learning environments: A literature review. *Contemporary Issues in Education Research*, 9(1), 45–51.
- [6] Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, 4(3), 359–373.
- [7] Bashir, F.(2021). Online Learning Among College Students In Jammu And Kashmir During Covid -19 Pandemic: Student Satisfaction And Challenges. *International Journal of Grid and Distributed Computing*, 14(1), 225-230.
- [8] Chen, H., Islam, A. Y. M. A., Gu, X., Teo, T., & Peng, Z. (2019). Technology-enhanced learning and research using databases in higher education: The application of the ODAS model. *Educational Psychology*. 40(9),1056-1075.
- [9] Durukan,A., & Sungur, S.(2020). Pre-service science teachers' perceptions about their technology integration experiences in the science education program: Does willingness to choose the program matter? .Paper presented at the VII th International Eurasian Educational Research Congress, Kitabi, Turkey.
- [10] Doley. P.P. (2020). A study on B.Ed. trainee's attitude towards e-learning. *Journal of Research in Humanities and Social Science*,8(12),.25-29.
- [11] Ghatak, D., & Das, P . (2021) .Attitude of College & University Students towards E-learning in Kolkata and North 24 Parganas Districts. *International Journal of Research*,7(1), 81-91.
- [12] Jan, S. K. (2015). The relationships between academic self-efficacy, computer self-efficacy, prior experience, and satisfaction with online learning. *American Journal of Distance Education*, 29(1), 30–40.
- [13] Kuo, Y. C., & Belland, B. R. (2016). An exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Educational Technology Research and Development*, 64(4), 661–680.
- [14] Landrum, B. (2020). Examining students' confidence to learn online, self-regulation skills and perceptions of satisfaction and usefulness of online classes. *Online Learning*, 24(3), 128-146.
- [15] Malkawi,E., Bawaneh,A.K & Bawa,E.(2021). Campus Off, Education On: UAEU Students' Satisfaction and Attitudes Towards E-learning and Virtual Classes During COVID-19 Pandemic. *Contemporary Educational Technology*, 13(1), 1-14.
- [16] Mohalik, R., (2020). Digital Literacy and its Use by Teacher Trainees at Secondary Level in Odisha. *Trends in Technical & Scientific Research, Juniper Publishers Inc.*, 4(2),30-36.
- [17] Nachimuthu, K.(2020). Student teacher's attitude towards online learning during COVID-19. *International Journal of Advanced Science and Technology*. 29(6), 8745-8749.
- [18] Obeidat, M.M.(2020). Undergraduate Students' Perspective About Online Learning: A Case Study of Hashemite University Students In Jordan. *European Journal of Molecular & Clinical Medicine*. 7(8),4054-4071.
- [19] Periaswamy, R. (2019). Attitude Towards E-learning Among The B. Ed. Trainees, *International Journal of Information and Computing Science*, 6(12),54-64. .

Preservice Teacher trainees attitudes towards E learning and satisfaction factors prior and during Covid-19: A Comparative Study

- [20] Rizum and Strzelecki(2020) . Students' Acceptance of the COVID-19 Impact on Shifting Higher Education to Distance Learning in Poland. *International Journal of Environmental Research and Public Health*,17(1),1-19
- [21] Rosenberg, M. J. (2001). *E- learning: strategies for delivering knowledge in the digital age* (Vol. 9). New York, NY: McGraw-Hill
- [22] Sholikah,M., & Sutirman, S.(2020). How Technology Acceptance Model (TAM) -Factors of Electronic Learning Influence Education Service Quality through Students' Satisfaction. *TEM Journal*, 9(3), 1221- 1226.
- [23] Woodcock,S., Sisco, A & Eady,M. (2015). The Learning Experience: Training Teachers Using Online Synchronous Environments. *Journal of Educational Research and Practice*, 5(1), 21-24.