A Comparison of Satisfaction of Users towards E-Learning on the Basis of Demographic Variables

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Abstract

Paradigm shift from teacher – centered to learner-centered education is considered as one of the significant changes in the field of education. This evolutionary change has led to emergence of term e-learning. E-learning usage differs for different demographic variables. Studying demographic characteristics for users' satisfaction gives useful insights to E-learning providers. Therefore, the aim of this paper is to compare satisfaction of users towards E-learning on the basis of demographic variables. With the application of Independent Sample T-test for two groups of demographic variables and One-Way ANOVA for more than two groups of demographic variables, major findings concluded that satisfaction of youth towards E-learning is influenced by age and level of education; and there is no association of satisfaction with gender, region, area of education and family income. The study concludes that 15-17 age category has higher level of satisfaction with E-learning than 18-20 age category. Results also indicates that secondary level students are more satisfied with E-learning; followed by senior secondary students and then Bachelors. Diploma students have least level of satisfaction as compared to others. This study is useful for educational institutions like colleges, universities and other private organisations providing various E-learning platforms.

Keywords

E-learning, Satisfaction, T-test, ANOVA, Demographic Variables.

INTRODUCTION

Paradigm shift from teacher – centered to learner-centered education is

considered as one of the significant changes in the field of education (Lee, Yoon and Lee, 2009). This new shift in education has emphasized on the use of electronically mediated tools and internet and various E-learning platforms like Moodle, Blackboard, Sakai, other web 2.0 and 3.0 platforms (Piccoli *et al.*, 2001; Akeroyd, 2005).

This evolutionary change has led to emergence of term e-learning, also called electronic learning which refers to the use of information and communication technologies to enhance teaching and learning by facilitating access to resources. E-learning has drawn attention from business organizations, educational institutions, etc. due to its benefits like reduced education cost, flexible accessibility, convenience, timely content etc. (Cantoni, Cellario and Porta, 2004; Kelly and Bauer, 2004). It helps to share resources and promote collaborative learning providing greater benefits to both teachers and learners (Wheeler, 2001). E-learning cannot be considered as a substitute to traditional teaching but instead strengthen and expand the reach of e-learning (Islam and Azad, 2015).

E-learning has expanded its roots in every corner of the world. According to Technavio (2022), the market for online education is anticipated to rise by 148.22 billion US dollars between 2022 and 2027, with a CAGR of 9.49%. In K 12 online tutoring market, Statista (2020) projected an annual growth of 12% from 2020 to 2025. India too has experienced growth in E-learning market due to growing penetration of smartphones and internet throughout the country. According to the data of Market Research (2021), the market for online education was estimated to be worth INR 108.79 Billion in 2021 and by 2027, it is anticipated to have grown at a compound annual growth rate (CAGR) of around 22.26%, reaching INR 299.18 Billion. Therefore all these facts prove the importance of E-learning in today's world arousing a need to conduct a proper research on this topic.

E-learning usage differs for different demographic variables. Studying demographic characteristics for users' satisfaction gives useful insights to E-learning providers. There exist many studies which compared satisfaction of users of E-learning on the basis of different demographic variables. Since, no study could be found in this context in India; the aim of this paper is to compare satisfaction of users towards E-learning on the basis of demographic variables. This objective provides useful results for E-learning providers and users of India in the context of comparison of satisfaction on the basis of different demographic variables of Indians. This study is useful for educational institutions like colleges and universities and other private organisations providing various E-learning

platforms by considering the different demographic variables influencing satisfaction of users towards E-learning.

LITERATURE REVIEW

In the context of life satisfaction, Fernández-Ballesteros, Zamarrón and Ruiz (2001), attempted to analyze different socio-demographic factors and psycho social factors which contribute to life satisfaction and degree of the influence. With data collection through interviews, 507 persons were contacted in Spain. Results were extracted with application of various statistical tools like descriptive statistics, T-test, ANOVA, Exploratory factor analysis and SEM. It was concluded that life satisfaction among individuals is differentiated according to age, gender, income, education and marital status; with low level of satisfaction observed among older people, women, widowed and divorced, low educated and low income individuals than younger people, men, married, highly educated and high income people.

Considering demographic variables as moderators, Homburg and Giering (2001) examined moderation effect of demographic factors on the relationship between satisfaction and loyalty. To achieve this objective, questionnaire was randomly distributed to 3000 customers of German car manufacturer and multiple group causal analysis was done. found less influence of gender on the relationship between customer satisfaction and loyalty but strong influence of age, income and customers with variety seeking nature which further augment strength of relationship between customer satisfaction and loyalty. Finally, the limitations of this study like concentrating only on one industry and only on consumer durables were addressed which researchers suggested to overcome this in further researches.

Oyewole (2001), in research on consumers of airline services, examined whether demographic factors affect consumer satisfaction with airline services in the same manner as they do with other facets of consumer behavior. Structured questionnaire was used to collect data from 276 passengers of international flight; with further application of ANOVA and MANOVA. They observed significant effect of gender, education, occupation and marital status on customer satisfaction; whereas age and income don't have significant influence on the latter. This research will be helpful for airlines industry and its management to take various strategic decisions and suggested to consider demographic variables for all the marketing strategies framed for augmenting customer satisfaction. It was advised to replicate this study with different conditions like larger sample

size, higher flight duration passengers, price of the ticket, separate airline classes like studying passengers of business and economy class separately.

Lightner (2003), in context of e-commerce, examined the relation between preferences for several aspects of an online buying experience and demographic variables. Responses were collected from 488 persons from US and ANOVA was applied. They found that customer satisfaction with e-commerce is significantly influenced by age, family income and education level with an evidence of positive association between them. In an effort to improve their consumers' buying experiences, website designers may incorporate these findings into the layout of e-commerce sites.

In study on extension agents, Scott, Swortzel and Taylor (2005) sought to identify the demographic variables that were associated with their degree of work satisfaction. Using descriptive correlational strategy on the data collected from 195 Extension agents with 143 valid responses, the findings indicated strong correlations between work satisfaction and gender and racial demographics. They observed significant relation of race and gender on some constructs of job satisfaction whereas, no relation of age, education, marital status on their job satisfaction. Race factors are found to have low relationship with job satisfaction constructs of general satisfaction and satisfaction with supervision and gender with growth satisfaction, satisfaction with job security and satisfaction with pay.

Considering student satisfaction, Ilias *et al.* (2008) analyzed influence of demographic characteristics of an individual like gender, age, race and semester of studies. 200 questionaire were circulated to 200 students of two private higher education institutions and by making use of T-test and ANNOVA in SPSS, they deduced no effect of age, gender, race and semester of studies on satisfaction among students stating that satisfaction among students remain same irrespective of their semester of study or junior and senior students; and age whether they are mature, old or young. Researchers inferred that with this study, various important dimensions of satisfaction which students give priority can be identified and can be looked upon further by private higher education institutions. It was urged to do more research to compare public and private higher education institutions to see whether there are any disparities in service quality and student satisfaction.

In considering job satisfaction, among academic faculty of University, Bashir *et al.* (2011) gathered the information from 674 academic faculties at 23 Pakistani public institutions and found in their study that job satisfaction differ with age, rank and nature of job; with less satisfaction observed in

contract employees and lower ranks than regular employees and higher ranks; whereas no significant difference is observed in gender and thus suggested to policy makers and administration of Universities to frame such policies which could enhance both intrinsic and extrinsic satisfaction equally for the entire faculty.

Considering job satisfaction among academicians of university, Saif-ud-Din, Nawaz and Jan (2012) analyzed influence of demographic diversities as they emphasized the importance of demographic factors in understanding employee attitude in an organization. The findings of "stepwise multiple regression" are presented by the researcher in order to create the "best-fit models" for work satisfaction and its effects. In the results of the paper, they deduced gender to be important critical factor in determining their satisfaction and stated that satisfaction differ between male and female academicians. Type of institution was found to be second important factor followed by marital status in influencing job satisfaction with academicians of public institutions and married ones more satisfied than private institution and unmarried ones respectively. Researchers have therefore demonstrated the importance of demographic study in understanding employee attitudes.

Emphasizing on the increasing importance of human resource management in the organization, Uroševic and Milijic (2012) ascertained that significance of demographic characteristics of employees along with organizational constructs. In light of this, they investigated how specific demographic parameters, like age, professional background and number of years of work experience, impacted motivation and satisfaction of the people. The study focused on 328 workers in Serbia's telecoms industry. Results found no effect of age or effect to a small extent on employees satisfaction. They also concluded that years spent in the company is also not a significant factor which could influence job satisfaction among employees. But professional qualification of employees was seen to have significant influence on it stating level of education as an important factor which all the organizations should consider for achievement of their goals.

Ardahan and Mert (2013) investigated and clarified the effects and directions of some outdoor activities, such as cycling, trekking, mountaineering, and rock climbing, as well as the other determinants, such as emotional intelligence (EQ), age, gender, marital status, education, monthly income and occupation, on life satisfaction (LS) level in Turkey. After collecting data from 1719 persons through questionnaire, linear regression model was employed. The study found positive impact of being women, married ones, with high

monthly income, positive emotional management on life satisfaction and negative influence of being man, single and older on life satisfaction. Since women are generally occupied in their household chores and responsibilities, time stress and less time for one's self is common among them. When given an opportunity for some outdoor activities, this gives them some leisure and further enhancing life satisfaction; even more than men. Study also contributed that good marriage lead to high life satisfaction and further it was suggested that government should frequently organize outdoor activities to engage people in them.

Belias *et al.* (2013), in their study on Greek bank employees, determined the degree to which various demographic parameters have an impact on their work satisfaction. In further detail, it is examined how the elements of gender, age, educational attainment, years of experience in the particular institution, overall experience and position within the particular institution impact the sense of personal success of employees in Greek banking institutions. Using quantitative research method with 5-point likert scale, 258 workers of Greek banks and credit institutions made up the study's sample. They found significant impact of gender, age, education level and job position on their satisfaction level indicating that young employees experience lower job satisfaction due to high anxiety, low experience and high possibility of making mistakes; and employees with less experience tend to have negative attitudes towards their superior.

Graham *et al.* (2013), in their study, determined how much life satisfaction, work-related characteristics and important demographic variables can predict social worker satisfaction. Descriptive statistics and multiple regression was applied on the data received from 91 responses from Canadian social workers. observed that location - either urban or rural, age and gender did not influence any construct of satisfaction of social workers i.e. organizational, workload, associational or social work satisfaction but working in child welfare do influence significantly social work and workload satisfaction. The study was limited with smaller sample size; and future researches should be conducted on larger studies to reveal more reliable results.

In the context of consumer satisfaction, Seiler, Rudolf and Krume (2013) conducted their study in private banking industry to examine how customer demographics affect service quality, client loyalty, and client satisfaction. SEM with PLS and ANNOVA were employed for data analysis by collecting data from 336 participants of banking consumers. They explained in their findings that consumer satisfaction is not significantly affected by age, gender, length of

customer relationship contrary to the viewpoint that long relationships with the customer can lead to more satisfaction. But employment status, type of bank and size of liquid assets are seen to significantly influence consumer satisfaction. They suggested managers of the banks to concentrate more on high and ultra net worth individuals as they are found to be more satisfied with the services rather than low net worth individuals; and different value propositions should be developed for different employment status of individuals as satisfaction differ among self employed, salaried and free lancers. They recommended at the end of the study to use other consumer related variables as moderators in future researches.

A Study on non academic faculty of University by Yapa *et al.* (2014) tried to determine effect of demographic factors on their job satisfaction taking top university of Sri Lanka i.e. Ruhana University in their study. Collecting the data through the questionnaire with one dependent variable and 9 other as independent variables, 354 responses were considered from three categories of non academic faculty i.e. clerical, technical and labourer. Using Pearson correlation and analysis of variance, it was concluded that gender and level of education do not influence job satisfaction but also stated that job satisfaction is affected by age, civil status and marital status. Young and unmarried employees were found to be more satisfied than old and married employees and all these results would help in making policies of higher education system. Study also clarified the kind and magnitude of demographic influences on non-academic employees' job satisfaction. Male workers reported being happier than female ones. This shows that males are more suited for labourer occupations than females in universities.

But in the field of life satisfaction, in the study by Kolesovs (2017), a model for predicting life happiness using a person's future orientation (FO) and demographic characteristics was investigated. Participants in the study ranged in age from 18 to 49, including 75 men and 130 women and data was collected through structured questionnaire. The study found that there is no correlation with age, gender, employment with life satisfaction whereas income, education and marital status have correlation with it. Among these demographic variables, income level is the most significant predictor with higher income leading to more satisfaction. In order to overcome limitation, researchers advised to add other demographic variables, personality characteristics and cognitive dispositions in future studies to make the research more effective.

Studying satisfaction among users of search engines and social media platforms, Mehrotra *et al.* (2017) analyzed satisfaction according to different

demographics in their case study by taking search engines. It was concluded that satisfaction does not vary between male and female users, but do differ significantly as per age; with younger users are found to have less satisfaction from search engines than older users. They also mentioned that advertisements by social media and digital platforms should consider demographic characteristics of their users.

Tarcan *et al.* (2017) examined the relationship between employees' perceptions of burnout and job satisfaction in two emergency departments of hospitals, examining the impact of additional factors on job satisfaction, including age, position, marital status, annual income, employment type, gender, patient encounters and household economic well-being. In this cross sectional study, data was collected from 250 participants through interviews. They found no significant effect of age, gender, education and marital status on job satisfaction but significant and positive effect of annual income and household economic-wellbeing. Employees position as found to have weak but negative association with intrinsic, extrinsic and overall satisfaction. With all the three constructs of satisfaction, age showed positive but weak correlation with them, whereas gender and education were the factors which did not show any correlation with them. Employees work shift designation was found to have weak and positive association with satisfaction but the effect was significant enough. Health care administrators can develop and use strategies to improve work satisfaction as a result of this study.

Milledzi, Amponsah and Asamani (2018) in their study on academic staff of universities, explored the impact of some demographic variables on job satisfaction with the use of T-test and ANNOVA. The 361 academic staff members, 287 of whom were men and 74 of whom were women, were selected using a proportionate stratified random sample and the descriptive survey methodology. They confirmed no evidence of influence of gender on faculty satisfaction towards their job but noticed that job satisfaction of academic faculty in universities is effected by age, rank and marital status with young employees less satisfied than older employees as young ones have less experience than older ones, whereas divorced or widowed employees are more satisfied than married employees as former can devote much time to university and on their research works and have no responsibility towards their spouses. Considering rank of faculty, senior lecturers were found to be more satisfied with their job followed by professors and then associate professors.

Nugroho, Setyorini and Novitasari (2019) explored the role of satisfaction on perceived value and continuance intention to use by

surveying lecturers implementing e-learning in their teaching. Using Partial Least Square (PLS) approach for data analysis, results showed that perceived value impact continuance intention, satisfaction is proven as full mediating variable in the relationship between perceived value and continuance intention.

Boe, Sandvik and Gulbrandsen (2020) developed a research model by integrating principal-agent theory and information system (IS) continuance model and applied SEM on the data collected from faculty members of Norwegian University. They concluded with the results that positive relationship between incentives and continuance intention got reduced by managerial goal congruence. It was also stated that extending IS model with principal-agent theory had better explained e-learning continuance and was more powerful than using IS model as alone.

In the study by Manyanga *et al.* (2022), the moderators of the relationship between customer happiness, experience, and intention to recommend a company are investigated. In Harare, Zimbabwe, information was gathered from bank clients using a cross-sectional survey and a structured questionnaire. It was discovered that customer contentment, word-of-mouth intent and customer experience all had a direct beneficial impact on loyalty. The influence of customer satisfaction on loyalty was shown to be moderated by age. However, the impact of customer satisfaction on loyalty was unaffected by gender, education, or wealth.

Ayodeji *et al.* (2023) research sought to understand the impact of self-service technology use and waiting time satisfaction on the long-term viability of consumer loyalty. Two international airports in Turkey gave out 750 structured surveys to passengers. The models were analysed using PLS-SEM. According to our research, maintaining client loyalty over the long run depends on their happiness with waiting times and their usage of self-service technology. Additionally, we found that the association between the utilisation of self-service technologies and enduring consumer loyalty is somewhat mediated by waiting time satisfaction.

RESEARCH METHODOLOGY

This study is based on descriptive research design where descriptive research design attempts to describe characteristics of certain groups and to determine relationships between variables. This research is based on cross sectional study rather than longitudinal study as it is one time measurement i.e. characteristics of sample members are measured only once at a single point of

time. Youth of the age group of 15-24 of North India who have either completed or are pursuing any paid e-learning course of minimum length of 3 months like test preparation, online tutoring, higher Education, other certified courses, etc. are the target population of the study. Snow-ball sampling, also called referral sampling, is used to contact respondents of the study. Using Cochran formula, researcher has taken 600 respondents which would be appropriate sample size suitable to represent the population.

A structured and close ended questionnaire is used for the purpose of data collection from respondents. A Questionnaire is framed on the basis of literature survey and in consultation with experts in the field of education and E-learning. Their comments were considered and modifications were made accordingly. Questionnaire was initiated with basic introduction to the meaning of E-learning to make respondents aware of the topic of the questionnaire. Along with this, there was filter question for the study for the selection of respondent whether the respondent is using E-learning platform for minimum 3 months or not. Only those respondents were made to fill the questionnaire who answered yes to the filter question. Questionnaire included items of satisfaction adapted from Sanchez-Franco (2009) and demographic variables – gender, age, region, family income, level of education, area of education. Independent T-test and ANOVA is used for the purpose of data analysis of this study. Following Hypothesis are framed for this research -

H_1 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of gender.

H_2 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of age.

H_3 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of region.

H_4 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of area of education.

H_5 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of educational qualification.

H_6 : There exists significant comparison of satisfaction of youth towards e-learning on the basis of family income.

RESULTS

Independent Sample T-Test

Independent sample T-test can be used to examine the association

between variables. Only when comparing the means of two separate groups with a dependent variable can the T-test be employed. One categorical independent variable with two distinct groups and one continuous dependent factor are needed for the T-test. Satisfaction of youth towards E-learning serves as dependent variables in the current study and was assessed using a Likertscale agreement of 1 to 5. Among all the demographic variables of the study, only gender has two groups. All other demographic variables have more than two groups. Therefore for gender comparison, independent T-test is applied; whereas for all other demographic variables, one way ANOVA is applied. Gender is the independent categorical variable in the study, with categories for men and women.

Assumptions of Independent T-test

To apply every statistical tool, researchers have mentioned some conditions or assumptions which need to be fulfilled for application of that tool. Likewise, to apply independent T-test, two major assumptions needs to be met which are test of normality and test of homogeneity.

(a) Test of Normality

Each group's dependent variables for the independent T-test must have a normal distribution. Nevertheless, the T-test can only be employed if the sample is sufficiently large (Field, 2009; Ostertag *et al.*, 2014). As the sample size for the current research is big (598), it is not necessary to evaluate the sample's normality.

(b) Test of Homogeneity of Variance

The variance between the two different groups is tested under the hypothesis of homogeneity of variance. The independent T-test makes the assumption that two unrelated groups have identical variances. The Levene's Test can be used to determine whether the variances are equal. Table 1 mentions about the Levene's test related to gender. The results state that significance value is 0.757 which is more than 0.05, which signifies that variance for the two groups is same for satisfaction of youth towards E-learning (Pallant, 2011). Therefore, assumption of identical variance between males and females is met, fulfilling the assumption of test of homogeneity of variance.

Table 1
Test of Homogeneity of Variance

		Levene's Test		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SAT	Equal Variances Assumed	.096	.757	.726	596	.468	.07883	.10856
	Equal Variances Not Assumed			.726	459.786	.468	.07883	.10864

Results of Independent T-test

The group statistics of the dependent and independent variables used to investigate their connection are included in the T-test findings. The data for the means, standard deviations and standard error means of the gender categories of male and females for satisfaction as a dependent variable are shown in Table 2. The mean scores denote their level of satisfaction for E-learning. Male have a mean score for 3.04 whereas female have a mean score of 2.9 which indicates that males have slightly higher level of satisfaction towards E-learning as compared to females.

The results of T-test state that there is no significant difference between males and females with respect to their satisfaction towards E-learning (Table 1). Since p level is 0.468 which is more than significance level of 0.05. This forces to reject alternate hypothesis that satisfaction of youth towards E-learning does not vary between males and females. Therefore Hypothesis H1 is rejected. There is no association of level of satisfaction with gender of users.

Table 2
Group Statistics

Gender		N	Mean	Std. Deviation	Std. Error Mean
SAT	Male	221	3.04	1.28371	.08635
	Female	377	2.90	1.27999	.06592

One-Way Anova

To ascertain the statistical difference between three or more means, analysis of variance (ANOVA) is utilised. When there is just one independent

variable, the term "one-way" is employed. Several independent factors may be taken into account when using ANOVA, which enables the analyst to evaluate both their individual and combined impacts on the dependent variable. ANOVA demands the dependent variable to be metric i.e. scale of the dependent variable must be either interval or ratio. The independent variable must be categorical i.e. nominal or ordinal scale, which is a second criteria for the data. Both the criteria were met when one way ANOVA was applied in the study. In this objective, except gender, every other demographic variable's comparison with satisfaction like of age, region, education, family income, etc. is assessed through one-way ANOVA as those variables consists of more than two unrelated groups.

Assumptions of One-way ANOVA

To apply every statistical tool, researchers have mentioned some conditions or assumptions which need to be fulfilled for application of that tool. Likewise, to apply One-way ANOVA, two major assumptions needs to be met which are test of normality and test of homogeneity.

(a) Test of Normality

Each group's dependent variables for the independent T-test must have a normal distribution. Nevertheless, One-way ANOVA can only be employed if the sample is sufficiently large (Field, 2009; Ostertag *et al.*, 2014). As the sample size for the current research is big (598), it is not necessary to evaluate the sample's normality.

(b) Test of Homogeneity of Variance

The variance among three or more different groups is tested under the hypothesis of homogeneity of variance. One-way ANOVA test makes an assumption that all the unrelated groups have identical variances. The Levene's Test can be used to determine whether the variances are equal. Table 3 mentions about the levene's test related to all the demographic variables except gender. The results states that significance value of all the demographic variables in the Table 3 is more than 0.05, which signifies that variance for all the groups of different demographic variables is same for satisfaction of youth towards E-learning (Pallant, 2011). Therefore, assumption of identical variance among different age category, different region, different educational stream, different education level and different family income is met, fulfilling the assumption of test of homogeneity of variance.

Table 3
Test of Homogeneity of Variance

Demographic Variables	Levene Statistic	df1	df2	Sig.
Age	.696	2	595	.499
Region	.011	2	595	.989
Area of Education	2.536	3	594	.056
Level of Education	1.613	4	593	.169
Family Income	.204	3	594	.894

Age and Satisfaction Towards E-learning

The descriptive statistics of the dependent and independent variables that were used to analyse their connection are included in the ANOVA result. For each dependent variable, Table 4 shows the total number of respondents in each age category, as well as their mean, standard deviation and standard error mean. Mean scores of different age categories represents their level of satisfaction towards E-learning. As mentioned in Table 4, 15-17 age category has the mean score of 3.23; 18-20 age category has the mean score of 2.9; and 21-24 age category has the mean score of 2.98. This shows that 15-17 age group has the highest level of satisfaction for E-learning as compared to other age groups. And other two age groups i.e. 18-20 and 21-24 have almost same level of satisfaction towards E-learning.

Table 4
Group Statistics for Age

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
15-17	105	3.23	1.25	0.12	2.99	3.48	1.00	5.00
18-20	319	2.90	1.29	0.07	2.76	3.05	1.00	5.00
21-24	174	2.98	1.26	0.10	2.80	3.17	1.00	5.00
Total	598	2.99	1.28	0.05	2.88	3.09	1.00	5.00

The results of one-way ANOVA test reveals whether satisfaction significantly differs among different age categories. With Significance value of 0.074, results state that alternate hypothesis H2 is accepted at the significance

value of 10 percent since p value of 0.074 is less than 0.1. This concludes that there is significant association of satisfaction towards E-learning with different age groups (Table 5).

Table 5
One Way ANOVA for Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.548	2	4.274	2.619	.074
Within Groups	970.886	595	1.632		
Total	979.434	597			

Post-Hoc Analysis

Since one-way ANOVA results just depicts whether there exists statistically mean difference among different groups or not. The above results of age comparison show that there exists significant difference among different age groups for satisfaction towards E-learning. To know exactly which groups statistically differ, post hoc analysis is performed which is also called Multiple Comparison. Post hoc analysis concludes which group is significantly different from the other group.

The results in the Table 6 signify that difference in the level of satisfaction exists only in the category of 15-17 and 18-20 (p < 0.05). Therefore, among the three age categories, level of satisfaction towards E-learning is significantly different between the categories 15-17 and 18-20. Where results indicate that 15-17 age category have higher level of satisfaction with E-learning than 18-20 age category.

Table 6
Post Hoc Analysis Results for Age

(I) Age		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15-17	18-20	.32894*	.14372	.022	.0467	.6112
	21-24	.24914	.15786	.115	-.0609	.5592
18-20	15-17	-.32894*	.14372	.022	-.6112	-.0467
	21-24	-.07981	.12039	.508	-.3162	.1566
21-24	15-17	-.24914	.15786	.115	-.5592	.0609
	18-20	.07981	.12039	.508	-.1566	.3162

Region and Satisfaction Towards E-learning

The descriptive statistics of the dependent and independent variables that were used to analyse their connection are included in the ANOVA result. For each dependent variable, Table 7 shows the total number of respondents in each category of region, as well as their mean, standard deviation and standard error mean. Mean scores of different regions represent their level of satisfaction towards E-learning. As mentioned in Table 7, rural respondents have the mean score of 2.88; semi-urban respondents have the mean score of 2.99; and urban respondents have the mean score of 3.03. This shows that all the respondents have almost same level of satisfaction irrespective of the region to which they belong.

Table 7
Group Statistics for Region

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini-mum	Maxi-mum
					Lower Bound	Upper Bound		
Rural	136	2.88	1.31	0.11	2.66	3.10	1.00	5.00
Semi-urban	113	2.99	1.29	0.12	2.75	3.23	1.00	5.00
Urban	349	3.03	1.27	0.07	2.89	3.16	1.00	5.00
Total	598	2.99	1.28	0.05	2.88	3.09	1.00	5.00

The results of one-way ANOVA test reveals whether satisfaction significantly differs among respondents of different regions. Results in the Table 8 concludes that there is no significant association of satisfaction towards E-learning with different categories of region ($p > 0.05$). This leads to rejection of alternate hypothesis H3. Rural, semi-urban or Urban region does not make any difference in the satisfaction of youth towards E-learning.

Table 8
The Results of One-way ANOVA for Region

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.139	2	1.069	.651	.522
Within Groups	977.296	595	1.643		
Total	979.434	597			

Area of Education and Satisfaction Towards E-learning

The descriptive statistics of the dependent and independent variables that were used to analyse their connection are included in the ANOVA result. For each dependent variable, Table 9 shows the total number of respondents in different area of education, as well as their mean, standard deviation and standard error mean. Mean scores of different age categories represents their level of satisfaction towards E-learning. As mentioned in Table 9, Arts students have the mean score of 2.94; Commerce students have the mean score of 2.95; Medical students have the mean score of 3.02; and Engineering students has the mean score of 3.15. This shows that there is not much difference in the level of satisfaction among students of different area of education. Still, Engineering students are slightly more satisfied with E-learning as compared to other categories; followed by Medical students. Arts and commerce students' satisfaction level with E-learning platforms is almost the same.

Table 9
Group Statistics for Area of Education

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini-mum	Maxi-mum
					Lower Bound	Upper Bound		
Arts	269	2.94	1.32	0.08	2.78	3.10	1.00	5.00
Commerce	158	2.95	1.30	0.10	2.75	3.16	1.00	5.00
Medical	87	3.02	1.29	0.14	2.74	3.29	1.00	5.00
Engineering	84	3.15	1.11	0.12	2.91	3.39	1.00	5.00
Total	598	2.99	1.28	0.05	2.88	3.09	1.00	5.00

The results of one-way ANOVA test reveals whether satisfaction significantly differs among youth of different area of education. Results in the Table 10 conclude that there is no significant association of satisfaction towards E-learning with different areas of education ($p > 0.05$). This leads to rejection of alternate hypothesis H4. Therefore, satisfaction does not differ significantly for area of education of E-learners.

Table 10

One Way ANOVA for Area of Education

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.984	3	.995	.605	.612
Within Groups	976.451	594	1.644		3
Total	979.434	597			

Education Level and Satisfaction Towards E-learning

The descriptive statistics of the dependent and independent variables that were used to analyse their connection are included in the ANOVA result. For each dependent variable, Table 11 shows the total number of respondents in different education level, as well as their mean, standard deviation and standard error mean. Mean scores of different categories of education level represents their level of satisfaction towards E-learning. As mentioned in Table 11, students with secondary level of education has the mean score of 3.34; senior secondary students has the mean score of 3.0; Bachelor students has the mean score of 2.93; Students with Masters degree has the mean score of 3.01; and Diploma students has the mean score of 2.72. This states that secondary level students have highest level of satisfaction among all the categories of level of education. Senior secondary students and Master degree students have almost same level of satisfaction; but after secondary students. Diploma students are less satisfied with E-learning as compared to students of other level of education.

Table 11

Group Statistics for Level of Education

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini-mum	Maxi-mum
					Lower Bound	Upper Bound		
Secondary	54	3.34	1.29	0.18	2.99	3.69	1.00	5.00
Senior Sec.	189	3.00	1.19	0.09	2.83	3.17	1.00	5.00
Bachelor	223	2.93	1.33	0.09	2.75	3.10	1.00	5.00
Master	88	3.01	1.36	0.15	2.72	3.29	1.00	5.00
Diploma	44	2.72	1.19	0.18	2.36	3.08	1.00	5.00
Total	598	2.99	1.28	0.05	2.88	3.09	1.00	5.00

The results of one-way ANOVA test reveals whether satisfaction significantly differs among different level of education. Results state that satisfaction towards E-learning has significant association with the level of education (Table 12). This ensures that satisfaction towards E-learning significantly differs for users with different level of education leading to acceptance of alternate hypothesis H5 ($p<0.1$).

Table 12
The Results of One-Way ANOVA for Level of Education

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.567	4	2.642	1.617	.099
Within Groups	968.868	593	1.634		
Total	979.434	597			

Post-Hoc Analysis

Since one-way ANOVA results just depicts whether there exists statistically mean difference among different groups or not. The above results of education level comparison show that there exists significant difference among different education level for satisfaction towards E-learning. To know exactly which groups statistically differ, post hoc analysis is performed which is also called Multiple Comparison. Post hoc analysis concludes which group is significantly different from the other group.

The results in the Table 13 signify that difference in the level of satisfaction exists only among secondary students, senior secondary students, Bachelors and Diploma students. This concludes that level of satisfaction differs among all level of education except Masters. Secondary level students are more satisfied with E-learning; followed by senior secondary students and then Bachelors. Diploma students have least level of satisfaction as compared to others.

Table 13
Post-Hoc Analysis for Level of Education

(I) Qualification		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Secondary	Senior Sec.	.33532	.19723	.090	-.0520	.7227
	Bachelor	.40859*	.19386	.035	.0278	.7893
	Master	.33228	.22096	.133	-.1017	.7662
	Diploma	.61637*	.25959	.018	.1065	1.1262
Senior Sec.	Secondary	-.33532	.19723	.090	-.7227	.0520
	Bachelor	.07327	.12638	.562	-.1749	.3215
	Master	-.00304	.16496	.985	-.3270	.3209
	Diploma	.28105	.21396	.189	-.1392	.7013
Bachelor	Secondary	-.40859*	.19386	.035	-.7893	-.0278
	Senior Sec.	-.07327	.12638	.562	-.3215	.1749
	Master	-.07631	.16091	.636	-.3923	.2397
	Diploma	.20778	.21085	.325	-.2063	.6219
Master	Secondary	-.33228	.22096	.133	-.7662	.1017
	Senior Sec.	.00304	.16496	.985	-.3209	.3270
	Bachelor	.07631	.16091	.636	-.2397	.3923
	Diploma	.28409	.23601	.229	-.1794	.7476
Diploma	Seconadary	-.61637*	.25959	.018	-1.1262	-.1065
	Senior Sec.	-.28105	.21396	.189	-.7013	.1392
	Bachelor	-.20778	.21085	.325	-.6219	.2063
	Master	-.28409	.23601	.229	-.7476	.1794

Family Income and Satisfaction Towards E-learning

The descriptive statistics of the dependent and independent variables that were used to analyse their connection are included in the ANOVA result. For each dependent variable, Table 14 shows the total number of respondents in each family income category, as well as their mean, standard deviation and standard error mean. Mean scores of different categories of family income represents their level of satisfaction towards E-learning. As mentioned in Table 14, less than 5 lakhs income category has the mean score of 2.94; 5-10 lakhs income category has the mean score of 3.11; 10-15 lakhs income category has

the mean score of 2.71; and more than 15 lakhs income category has the mean score of 3.3. This shows that more than 15 lakhs income category has higher level of satisfaction towards E-learning; followed by 5-10 lakhs income category; then 10-15 lakhs income category. Family income category of less than 5 lakhs has the lowest level of satisfaction as compared to other categories.

Table 14
Group Statistics for Family Income

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Mini-mum	Maxi-mum
					Lower Bound	Upper Bound		
Less than five lakhs	389	2.94	1.27	0.06	2.81	3.06	1.00	5.00
5-10 lakhs	137	3.11	1.31	0.11	2.88	3.33	1.00	5.00
10-15 lakhs	35	2.71	1.30	0.22	2.27	3.16	1.00	5.00
More than 15 lakhs	37	3.30	1.23	0.20	2.89	3.71	1.00	5.00
Total	598	2.99	1.28	0.05	2.88	3.09	1.00	5.00

The results of one-way ANOVA test reveals whether satisfaction significantly differs among different categories of family income. Results in the Table 15 conclude that there is no significant association of satisfaction towards E-learning with different level of family income ($p>0.05$). This leads to rejection of alternate hypothesis H6. Therefore, satisfaction does not differ significantly for different family income. Therefore, there is no significant association between satisfaction of youth and their family income.

Table 15
One Way ANOVA for Family Income

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.046	3	3.015	1.846	.138
Within Groups	970.389	594	1.634		
Total	979.434	597			

DISCUSSION

This part deals with discussion related to impact of demographics on satisfaction of youth towards E-learning. With the application of Independent Sample T-test for two groups of demographic variables and One-Way ANOVA for more than two groups of demographic variables, major findings concluded that satisfaction of youth towards E-learning is influenced by age and level of education; and there is no association of satisfaction with gender, region, area of education and family income.

Gender

Independent T-test on Gender concludes that there is no significant difference between males and females with respect to their satisfaction towards E-learning ensuring that satisfaction of youth towards E-learning is not influenced by gender of user. Supporting these findings, Milledzi, Amponsah and Asamani (2018) found no evidence of influence of gender on faculty satisfaction towards their job. In considering job satisfaction among academic faculty of University, Bashir, Jianqiao, Zhao, Ghazanfar and Khan (2011) also found in their study that job satisfaction has no association with gender. Few other previous studies in different contexts also validated these results (Yapa *et al.*, 2014; Graham *et al.*, 2013; Ilias, Hasan, Rahman and Yasoa, 2008). Contrary to these research findings, Saif-ud-Din, Nawaz and Jan (2012), considering job satisfaction among academicians of university, found gender to be important critical factor in determining their satisfaction. Fernández-Ballesteros *et al.* (2001) concluded that life satisfaction among individuals is differentiated according to gender; with low level of satisfaction observed among women than men. Few other studies supported these findings of non-significance of gender with satisfaction (Belias *et al.*, 2013; Biner, Summers, Dean, Bink, Anderson and Gelder, 1996). But this study concluded no significant association of gender with satisfaction of users towards E-learning. This may be due to the fact that in today's modern technological world, both males and females are technology savvy and are fully involved in latest technologies and innovations. Both groups may equally accept E-learning technology due to which satisfaction don't significantly vary between both.

Age

The results of one-way ANOVA test on age of respondents and their satisfaction with E-learning concludes that there is significant association of satisfaction towards E-learning with different age groups. And post-hoc analysis

signifies that difference in the level of satisfaction exists only in the category of 15-17 and 18-20. Therefore, among the three age categories, level of satisfaction towards E-learning is significantly different between the categories 15-17 and 18-20. Where results indicate that 15-17 age category has higher level of satisfaction with E-learning than 18-20 age category. This depicts that younger age group if less than 18 age is more satisfied with E-learning as compared to adults of more than 18 age. There exists many previous studies in different contexts which are consistent with the findings of this study (Belias *et al.*, 2013). Lightner (2003), in context of e-commerce, found customer satisfaction with e-commerce is significantly influenced by age, with an evidence of positive association between them. Fernández-Ballesteros *et al.* (2001) concluded that life satisfaction among individuals is differentiated according to gender; with low level of satisfaction observed among older people than younger people. Studying satisfaction among users of search engines and social media platforms, Mehrotra *et al.* (2017) concluded that satisfaction do differ significantly as per age; with younger users are found to have less satisfaction from search engines than older users. In contrast to these studies and findings of this study, Uroševic, and Milijic (2012) found no effect of age on employees satisfaction. Seiler, Rudolf and Krume (2013) conducted their study in private banking industry and explained in their findings that consumer satisfaction is not significantly affected by age. These results of non-significance is age with satisfaction is validated by previous studies in different contexts like in job satisfaction (Tarcan *et al.*, 2017); in the context of consumer satisfaction (Oyewole, 2001); in context of student satisfaction (Ilias, *et al.*, 2008).

Region

Results with One-way ANOVA of region and satisfaction concludes that there is no significant association of satisfaction towards E-learning with different categories of region. Therefore, Rural, semi-urban or Urban region does not make any difference in the satisfaction of youth towards E-learning. These findings are consistent with the results of Graham *et al.* (2013) who observed that location- either urban or rural did not influence any construct of satisfaction of social workers. The results are consistent with the findings of Terpstra and Honoree (2004); Ellison and Gay (1990). Since, smartphones, internet connectivity, literacy rate and importance to education in increasing in rural areas in India and drop out rates of students in education sector is reducing, youth may have started to give importance to education and E-learning too. This could be the reason of no significance of region with satisfaction of youth towards E-learning.

Area of Education

Results of One-Way ANOVA of comparing area of education with satisfaction towards E-learning conclude that there is no significant association of satisfaction towards E-learning with different areas of education. Therefore, satisfaction does not differ significantly for area of education of E-learners like Arts, Commerce, Engineering or Medical. Since E-learning usage is increasing drastically in all the educational fields and all types of education is enhancing the usage of E-learning tools, satisfaction level may not have differed for area of education. The findings are in line with the results of previous studies who also found no significant impact of area of education of satisfaction (Ansar *et al.*, 2020; Naseem and Munaf, 2017).

Level of Education

With the application of One-Way ANOVA on examining the impact of level of education on satisfaction towards E-learning, results state that satisfaction towards E-learning has significant association with the level of education. Satisfaction differs with level of education of users. And Post-hoc results signify that difference in the level of satisfaction exists only among Secondary students, Senior secondary students, Bachelors and Diploma students. This concludes that level of satisfaction differs among all level of education except Masters. Secondary level students are more satisfied with E-learning; followed by senior secondary students and then Bachelors. Diploma students have least level of satisfaction as compared to others. These findings are in line with the results of previous researches (Oyewole, 2001; Lightner, 2003; Fernández-Ballesteros, 2001). Belias *et al.* (2013), in their study on Green bank employees, found significant impact of education level on job position on their satisfaction level. But some studies were opposite to these findings and stated that level of education has no association with the satisfaction (Tarcan *et al.*, 2017). Uroševic and Milijic (2012) stated that professional qualification of employees was seen to have significant influence on it stating level of education as an important factor which all the organizations should consider for achievement of their goals.

Family Income

One-Way ANOVA results comparing satisfaction for E-learning with family income concluded that there is no significant association of satisfaction towards E-learning with different level of family income. Therefore, level of satisfaction does not differ significantly for different family income. In an online

market in India of Edtech companies, all types of E-learning courses of different price range are available. This makes E-learning courses affordable for all level of family income which may be the reason of non-significance of income level with satisfaction. These results supported the findings of previous studies. Oyewole (2001), in their research on consumers of airline services, observed no significant effect of income on satisfaction. Evaluating student satisfaction with telecourses, Biner *et al.* (1996) also observed no evidence for influence of personal income on satisfaction of an individual. But few studies in different contexts contradicts the findings of this construct stating that income significantly impact satisfaction of users; in job satisfaction (Tarcan *et al.*, 2017); in e-commerce (Lightner, 2003), in life satisfaction (Kolesovs, 2017; Ardahan and Mert, 2013; Fernández-Ballesteros *et al.*, 2001).

IMPLICATIONS OF THE STUDY

Theoretical Implications

This study has done major contribution in the literature of E-learning. Since E-learning is in initial phase of implementation in India, research was needed at this hour. This study contributed in the literature by analyzing comparison of satisfaction of the users towards E-learning on the basis of demographic factors. Since no previous study has considered this before, especially in the context of India, this study adds to the literature of E-learning as significant contribution.

Practical Implications

Study concluded that satisfaction of youth towards E-learning is influenced by age and level of education; and there is no association of satisfaction with gender, region, area of education and family income. Based on the above results, following recommendations could be followed by E-learning providers. The study concludes that 15-17 age category has higher level of satisfaction with E-learning than 18-20 age category, For e-learning providers to increase their level of satisfaction, they should concentrate on the 18–20 age group. The 18–20 age group should receive more attention than the 15–17 age group since the former group is less pleased. Results indicate that secondary level students are more satisfied with E-learning; followed by senior secondary students and then Bachelors. Diploma students have least level of satisfaction as compared to others. This suggests that users who have earned a diploma or a bachelor's degree should receive more attention from e-learning providers since they are less content than users with other levels of education.

LIMITATIONS AND FUTURE RESEARCH

This study has certain limitations. About 63% of the respondents were female in this study and about 58% respondents belonged to urban area. So gender distribution and region distribution was not symmetric between men and women and between rural and urban areas. This could have caused discrepancies in the results of the study. Accordingly, future research could be conducted with symmetric distribution of the respondents for the validation of the results. Given the limitations of cross-sectional research, longitudinal studies should be carried out in the future to test the suggested model and reassess the causal relationships between the studied variables. Third, the study is limited to few demographic variables, future research could make use of other demographic variables.

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