Construction and Standardization of an Attitude Scale towards E-Learning for College Students of Sikkim

A Dissertation Submitted

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By

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CERTIFICATE

It is certified that the dissertation entitled **"Construction and Standardization of an Attitude Scale towards E-Learning for College Students of Sikkim"** being submitted by **Nabin Manger**, M.Phil. (Education) student, for his degree of *Master of Philosophy in Education* has been carried out under my supervision and guidance and has not been submitted elsewhere for any degree or diploma. It is fit for submission.

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CHAPTER 1
INTRODUCTION

Students learning in Higher education undergone tremendous transformation since the age of Information and Communication Technology have emerged and became advanced. The traditional method of teaching is now dominating by the modern method of technologies and it is becoming easy to access for the teacher as well as students also. This is the facilities we are benefiting is due to the modernization. E-learning comprises all forms of electronically supported learning and teaching. An abbreviation for electronic learning, signifies the use of computer and similar other devices to impact education. This type of learning mostly employs technology and internet to access educational material or sources, in contrary to traditional classroom methods (Kundu, 2015). E-learning in its literal meaning stands for the type of learning carried out, facilitated or supported by some or the other electronic gadgets, media or resources. The information and communication system, whether networked learning or not, serve a specific media to implement the learning process. E-learning became an important instrument in the new Higher Educational Environment in the digital age which creates student-centered learning and educational practice, offering new and more flexible learning methods (Shopova, n.d.). The use of Information and Communication Technologies (ICTs) for dissemination of education is believed to have huge potential for governments struggling to meet a growing demand for education while facing an escalating shortage of teachers (Andersson, 2008). It is quite a broader meaning of the term E-learning. E-learning, however, is not taken in such generalized sense. Although, in general, it may refer to all types of learning facilitated and

supported through the use of information and communication technology, yet in real practical sense, its use is limited and associated nowadays with the field of advanced learning technology. The term will still most likely be utilized to reference out-of-classroom and in-classroom educational experiences via e-learning is essentially the computer and network-enabled transfer of skills and knowledge. E-learning application and process include opportunities and digital collaboration. E-learning may be taken as an electronically carried out learning facilitated and supported by the use of advanced learning technology particularly calling for the services of computers, networking and multimedia. In this content is delivered via the internet, intranet/extranet, audio or video tape, satellite TV and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. E-learning is an innovative technique or a form of information and communication technology used in providing learning experiences to the students on-line through the use of internet services and web technology of the computers on the same lines as witnessed by us in the form of e-mail, e-banking, e-booking and e-commerce in our day-to-day life. E-learning is commonly referred to the intentional use of networked information and communications technology in teaching and learning. The term e-learning comprises a lot more than online learning, virtual learning, distributed learning, networked or web-based learning. as the letter “e” in e-learning stands for the word “electronic”, e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices. (Naidu, 2006, p.1). E-learning involves the use of a computer or electronic device (e.g. a

mobile phone) in some way to provide training, educational or learning material (Stockley, 2003).

1-1 History of E-learning

The term was introduced in 1995 when it was all called “Internet Based Training” (IBT), then “Web-Based Training” (WBT) to clarify that delivery could be on the Inter-or Intra-net, then “Online Learning” and finally e-learning adopting the in vogue use of “e” during the dot com boom (Fatma, 2013, pp. 1-10). The term e-learning has only been in existence since 1999, when the word was first utilized at a CBT systems seminar. Other words also began to spring up in search of an accurate description such as “online learning” and virtual learning”. Early forms of e-learning existed as far back as the 19th century. In the 1840’s Isaac Pitman taught his pupils shorthand via correspondence. This form of symbolic writing was designed to improve writing speed and was popular amongst secretaries, journalists, and other individuals who did a great deal of note taking or writing. Pitman, who was a qualified teacher, was sent completed assignments by his students via the mail system and he would then send them more work to be finished. In 1924, the first testing machine was invented. This device allowed students to tests themselves (Gogos, 2013).

1-2 Review of Related Literature

The literature review is an integral part of the research process and makes a valuable contribution to almost every operational step. The literature review can play an extremely important role in influencing the nature of the research problem thus conditioning our thinking about choosing our research problem. Literature review also helps inn improving our research methodology. It helps us to broadening our knowledge base in our research area.

1-2.1 Review of Related Literature on Attitude towards E-learning

Liaw (2008) conducted a study on the topic "Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system" He concluded that students only have a middle level positive attitudes toward e-learning usage, from perceived usefulness (M = 4.30) to interactive learning activities (M = 3.93). It seems that although learners believe that e-learning is a useful assisted learning tool, they are concern with system quality, especially interactivity. While using the Blackboard e-learning system, learners indicated that they needed more interactive and communicative functions and activities.

Bertea (2009) in her study entitled **"**Measuring Students' Attitude towards E-Learning: A Case Study" found that there is a connection between technical abilities and students' attitude towards e-learning. Attitude is also influenced by time dedicated to computer use, indicator of pc experience. There were found attitude differences in the case of hired students compared with the unemployed ones. No influences were registered due to specialty and year of study. We expected to find an influence coming from postgraduate studies, where over 60% of students have a job and attitude towards e-learning should have been according to specialists more favourable. An explanation can be the changes of the educational system and the introduction of Bologna cycle, students considering masters' studies as important as bachelors'.

Aixia and Wang (2011) in their study entitled "Factors Influencing Learner Attitudes Toward E-learning and Development of E-learning Environment Based on the Integrated E-learning Platform" found that the perception of e-learning is positively influenced by its flexibility in knowledge management, time management and widening access to

information. Moreover, an integrated E-learning platform, providing many web-based, multi-platform tools, is introduced based on knowledge management.

Liaw and Huang (2011) conducted a study on a topic entitled "A study of investigating learners attitudes toward e-learning" and concluded that there has no significant gender difference on computer experience. Regarding e-learning attitudes, the statistical results indicated that there was a significant gender difference on perceived self-efficacy of using e-learning, t (422) = 383.00. p = 0.035, a significant difference on perceived enjoyment of using e-learning, t (422) = 409.09. p = 0.049 and a significant difference on behavioral intention of using e-learning, t (422) = 404.87, p = 0.009. These results showed that those male students had more positive attitudes toward e-learning.

Mehra and Omidian (2011) conducted a study on a topic entitled "Examining Students' Attitudes Towards E-learning: A Case from India" and found that 76.0% Students were significantly positive towards e-learning. However 24% of students had negative attitude towards e-learning. About 82% students perceived e-learning useful. However, 16.8 % students in were undecided. Only 3% students disagreed that e-learning was useful. About 56.7% of students agreed that to adopt e-learning. On the other hand, 39% of students were undecided as 3.5% Indian students didn't intent to adapt e-learning.

Akimanimpaye (2012) conducted a study on the topic entitled "Attitudes of Undergraduate Nursing Students towards E- Learning at the University of the Western Cape" the results revealed that males and females differed significantly in terms of satisfaction levels. The findings also showed a significant difference between male and female satisfaction. In this regard, 4th year nursing students were proven to be less likely to be satisfied with e-learning than 2ndyear nursing students, whereas female nursing

students are more likely to be satisfied with e-learning than male nursing students. Generally, the study's findings demonstrate a favorable attitude towards e-learning among nursing students at University of the Western Cape.

Farooq (2012) conducted a study on "Attitude of Students towards E-learning: A Study of English Language Learners at Taif University English Language Centre" and concluded that the data reflected that majority of the respondents was aware of the fact that technology has become an essential part of the teaching-learning process and classroom. E-learning has opened up new avenues of learning within and outside the classroom. It has almost reshaped the learning environment by supplementing a variety of learning resources. The respondent acknowledged that e-learning not only reinforced their knowledge of language learning but also helped them to develop their understanding in an effective way.

Misra (2012) conducted a study on the topic entitled "An Empirical Study on Attitudes of B.Tech Students Towards E-Learning" and found that there is positive attitude of B. Tech students towards E-learning**.**

Rajasekar and Dineshan (2012) developed and standardized an attitude scale tool on the topic "Development and Standardization of an Attitude Scale to Measure B. Ed. Students' Attitude towards the use of ICT in Teaching (ATUIT)". The scale with 50 items has been administered to the sample of as many as 200 B.Ed. students studying in the B.Ed. colleges of Calicut District, Kerala in order to carry out the pilot study and for item analysis. As many as 37 items having the t-value greater than or equal to 1.75 have been chosen in order to form the final scale. 200 B.Ed. students studying in the colleges in Calicut District, Kerala, has been administered in order to establish the scoring procedure, validity and reliability of this scale. The scale has the Content Validity, as it has the universe of Content

and it also has Construct Validity as the items selected were having the t-values greater than or equal to 1.75. The Intrinsic Validity of the scale was found to be 0.97. The reliability of this scale was found to be 0.94 by using split-half technique followed by the use of Spearman-Brown Prophecy formula. The percentile norms and t-score and z-score have been calculated.

Gopal and Anandan (2013) conducted a study on the topic entitled **"**Attitude Towards E-Learning in Classroom Instruction among the B.Ed. Students at Colleges of Education" it is found that the Total Mean value is 53.03 out of maximum value of 100 which is found to be average. This implies that the B.Ed. Students are having lesser attitude towards e-learning for the Classroom Instruction. There was no significant difference between the mean scores of the attitude of B.Ed. students towards e-learning for classroom instruction with respect to Gender and Parental qualification. There is a significant difference between the scores of the attitude of B.Ed. students towards e-learning for classroom instruction with respect to their discipline of the Subject wise. From the findings, the Web component is higher than the other components.

Mehra and Far (2013) constructed and standardized an attitude scale on the topic "A scale to Measure University Teachers' Attitude towards ICT" the total sample was 100 university teachers "Pair T Test" for each of the 85 items, t-ratio was computed for the higher and the lower groups to find out discriminating power of each item. In this study face validity and content validity of the scale was ensured through consultation with faculty members from different departments of Punjab University, Computer Science, Correspondence Education, and English from the first draft up to the last draft of the scale of attitude towards ICT. The reliability of the scale University Teachers' Attitude towards

ICT by split-half technique followed by the use of Spearman-Brown prophecy formula is found to be 0.604. Norms are measure by the percentile norms and Z-score and T-scores have been calculated.

Ouma, Awuor and Kyambo (2013) conducted a study on the topic entitled **"**Evaluation of E-Learning Readiness in Secondary Schools in Kenya" and result found that With students' perceived usefulness of technology in class of average mean score of 4.568 it confirms that students are ready to go on with e-learning. Students believe that computer will improve their learning and make learning interesting hence most of the students would like to use computers in the classroom.

Raja, Prabhu and Revathi (2013) constructed and validated a tool on the topic "Construction and Validation of the Attitude towards Information and Communication Technology Scale (ATICTS)". The investigator decided to construct and validate a tool with the help of the Likert-type scale. In this Random sampling technique has been used in the process of data collection from the sample, the higher secondary school teachers and normative survey method has been used in the study. The attitude towards information and communication technology scale has construct validity as the items were selected having the "t" value of more than 1.75 (Edwards, 1957). Its intrinsic validity was found to be 0.79. The reliability of this scale by split half technique (consistency) followed by the use of Spearman Brown prophecy formula is found to be 0.63. Thus the attitude towards information and communication technology scale has validity and reliability. The percentile norms in respect to the entire sample have been computed for the attitude towards information and communication technology scores. The 'Z' scores and 'T' scores for entire sample have been computed. This scale has 31 positive statements and 19

negative statements in respect of attitude towards information and communication technology.

Ramesh and Prabu (2013) conducted a study on the topic entitled "Attitude of the B.Ed., Students towards E-Learning in Tiruchengode Town" and concluded that the B.Ed., students show highly favorable attitude towards e-learning. There is no significant difference in the attitude towards e-learning between the male and female B.Ed., students. There is no significant difference in the attitude towards e-learning between the B.Ed., students residing in the urban areas and in the rural areas. There is no significant difference in the attitude towards e-learning between the B.Ed., students who belongs to the arts group and to the science group in their major subject. There is no significant difference in the attitude towards e-learning between the under graduate and post graduate B.Ed., students.

Sabah (2013) conducted a study on the topic entitled "Students' Attitude and Motivation Towards e-learning" found that students give no high credit to time management, schedule flexibility and reducing costs. Meanwhile, student have a positive opinion about learning teaching efficiency of about 82.2% and 83% to face to- face and blending learning, respectively. Also, the results reveal a good correlation between attitude towards e-learning and technical abilities. However, students who use more often their computer (54% of the population are more likely to accept e-learning with a positive attitude of about 82.4%. Information technology, English and Accounting students have a positive opinion about the internet's impact on their educational experience of about 79%, 74.3% and 68.2%, respectively.

Al-Musawi (2014) developed and validated an attitude scale on the topic "Development and Validation of a Scale to Measure Student Attitudes towards E-learning". The

investigator undertook the following steps to build the Scale: Developing a preliminary draft of the Scale, Try-out of the Scale, Item analysis, Final draft of the Scale, and Defining reliability and validity estimates of the Scale. The Scale was administered to 200 students enrolled in e-learning courses at the Universities of Bahrain and Kuwait. The results of the study demonstrated high levels of validity and reliability of the developed measure.

Anbarsi and Nellaiyappen (2014) constructed and standardized an attitude scale on the topic "A Tool Constructed and Standardization of Attitude towards E-learning for Higher Secondary School Students" to measure the attitude of students towards E-learning. In this tool has construct validity as the items were selected using 't' value. The face validity of the tool was found by experts in the field of computer science and educational technology. The reliability of the tool was found out with a sample of 100 higher secondary school students using test retest method and it was found to be 0.83. The percentile norms, Z-score and T-score have been calculated by the investigator for the norms.

Brumini, Spalj, Mavrinac, Biocina-Lukenda; Strujic and Brumini (2014) undertook a study on a topic entitled "Attitudes towards e-learning amongst dental students at the universities in Croatia" and found that Dental students have generally positive attitudes towards e-learning.

Kar, Saha and Mondal (2014) conducted a study on the topic "Attitude of University Students towards E-learning in West Bengal" and found that the mean of attitude scores for male and female University is found to be 190.81 (SD =24.02) and 192.47 (SD = 23.11) respectively. This indicate that both male and female student possess high attitude towards e-learning although female students have slightly higher attitude towards e-learning than their male counterpart. F-value for gender is found to be 0.01 which is not significant at

0.01 level. Moreover 't' value between male and female students is found to be 0.62 which is also not significant even at 0.05 level. In view of the above H_1 is accepted. The ANOVA analysis revealed that there is no statistically significant ($p < 0.01$) differences in attitude towards e-learning of University students according to the places they are born and brought up. Furthermore, 't' value ('t'= 0.52) also supports this findings. Thus, H_2 is also accepted. It is found that F- value [2.57 at df (1, 300)] is insignificant with respect to the stream they studied. Moreover, 't' value (t = 1.01) shows that the stream of study did not influence the attitude of the university students towards e-learning. Hence, H_3 is also accepted.

Kaur and Kaur (2015) constructed and standardized an attitude scale on the topic "Construction and Standardization of Attitude Towards web Based Course Scale" in this attitude scale final draft was carried out with the 't' value equal to or greater than 1.75 which indicates the average response of high and low groups to a statements differ significantly. On the basis of this, 20 items were retained having 't' value more than or equal to 1.75. The reliability co-efficient of the scale was determined by test –re-test method and came out to be 0.80. The validity of scale the content of the scale was thoroughly covered through literature consultation and experts' opinion, it was assumed that the scale measures what it is intended to measure.

Rhema and Miliszewska (2014) conducted a study on the topic entitled "Analysis of Student Attitudes towards E-learning: The Case of Engineering Students in Libya" and they found that all the participating students had positive attitudes towards ICT and e-learning; they felt confident in using computers, enjoyed using ICTs in their studies, believed in the benefits of e-learning, and would be interested in studying courses that used e-learning. Female and male students had positive attitudes towards technology. However,

in urban groups A and B, female students were more likely to hold positive attitudes than male students. Table 3 and Figure 1 also show that students in all groups had positive attitudes towards technology. However, students in the urban Group B reported slightly higher positive attitudes towards technology; rural Group C students reported lower levels of all. While the descriptive analysis shows that there were slight differences between female and male students and between urban and rural students in their attitudes towards the statements provided.

Suri, Navkiran, Kaur and Sharma (2014) conducted a study entitled "Gender influence in e-learning platforms: an Exploratory study of Punjabi University, Patiala, India" and concluded that the variances of group were found to be equal during test of homogeneity for Perceived usage of computers (.065>.05) and Computer/Technological fear (.605>.05) whereas for Attitude towards e-learning and Sentiments towards computer the value (.000) is less than .05 thus it has unequal variance. For the factor Perceived usage of computers, Sentiments towards computer and Computer/Technological fear at $p<0.05$ level the p-values are [t = -2.930, p = 0.055], [t = -1.211, p =.228] and [t = -.962, p = 0.337] respectively. The p-values here are greater than .05 thus the null hypothesis is accepted i.e. there is no significant gender difference in scale on computer and e-learning attitude. For Attitude towards e-learning the p-value (.003) is less than .05 thus the null hypothesis is rejected and there is a significant gender difference in their attitude towards e-learning.

Abdullah, Ziden, Aman and Mustafa (2015) conducted a study on a topic entitled "Students' Attitudes towards Information Technology and the Relationship with their Academic Achievement" found that the difference of the mean for Art students (M=49.51, SD=8.00), and the mean score for Science students (M=50.96, SD=6.81), was statistically

significant (t (65) = -2.537, p= 0.01), (p < 0.05). This means that both groups held a positive attitude toward IT, but there was a statistically significant difference between Art and Science students in favor of Science students.

Amma and Panicker (2015) conducted a study on "Attitude towards E-learning Technology - A study in Kerala" and concluded that the study did not find any difference of attitude towards e-learning across genders. The study did find a considerable impact of education on the attitude towards e-learning, specifically, the higher the education the more favorable is the attitude towards e-learning.

Pradhan (2015) conducted a study on the topic entitled "A Study on B.Ed. Student-Teachers Attitude towards E-Learning in Classroom Instruction" found that the percentage level of Mean score of attitude towards E-Learning in classroom instruction among B.Ed. student-teachers is 75.94%. The study reveals that the B.Ed. student-teachers have attitude towards e-learning in classroom instruction with higher percentage factor. It was found out that there is no significant difference between the Mean scores of the attitude of B.Ed. students towards e-learning with respect to gender.

Reddy and Srilatha (2015) conducted a study on the topic entitled "A Study on the Attitude of Students of Education towards E-Learning" and they found that in the total sample of 62 M.Ed. students 77% (mean 57.75, variance is 33.75) of M.Ed. students showed favorable attitude towards e-Learning. Caste, Management, Locality had strong influence on attitude of students towards e-Learning. Gender, Educational qualification of M.Ed. students had no influence on their attitude towards e-Learning.

Tripathi (2015) constructed and standardized an attitude scale on the topic "Construction of an Attitude Scale to Measure Attitude of MEd Students of Govt. IASE, Bikaner towards

Incorporation of E-learning in Teaching-Learning Process". The present study uses Thurston method of scaling in construction of the scale for measuring student's attitude towards the subject. In the scale investigator used 38 items showing both positive and negative effects of e-learning. Later reliability and validity of the scale was also established using split half method and through content validity method respectively. Reliability coefficient was found to be 0.80.

Summary of Reviews

Liaw (2008), Aixia and Wang (2011), Mehra and Omidian (2011), Akimanimpaye (2012), Farooq (2012), Misra (2012), Ouma, Awuor and Kyyambo (2013), Sabha (2013), Brumini, Spalj, Mavrinac, Biocina-Lukenda, Strujic and Brumini (2014), Rhema and Milisewska (2014), Abdullah, Ziden, Aman and Mustafa (2015), Amma and Panicker (2015), Pradhan (2015) and Reddy and Srilatha (2015) in their study they found that there is the positive attitude of the students towards e-learning. Whereas Gopal and Anandan (2013), found that the B.Ed. students are having lesser attitude towards e-learning. Further, Liaw and Huang (2011), Akimanimpaye (2012), Rhema and Miliszewska (2014) and Suri, Navkiran, Kaur and Sharma (2014) found that there is the gender difference in the attitude towards e-learning. On the other hand Gopal and Anandan (2013), Ramesh and Prabu (2013), Kar, Saha and Mondal (2014), Amma and Panicker (2015) and Suri, Havikaran, Kaur and Sharma (2014), Pradhan (2015) found that there is no gender difference in the attitude towards e-learning.

Abdullah, Ziden, Aman and Mustafa (2015), found that there is statistically significant difference between Arts and Science students towards e-learning. Ramesh and Prabu (2013) found that there is no significant difference in attitude of Arts and Science students towards e-learning.

Ramesh and Prabu (2013) and Kar, Saha and Mondal (2014) found that there is no significant difference in the attitude of rural and urban students and the place they born and brought up towards e-learning. Rhema and Miliszewska (2014) in the study found that there is the significant difference in the attitude of rural and urban students towards e-learning.

1-3 Need and Significance of the Study

Students learning in Higher education undergone tremendous transformation since the age of Information and Communication Technology have emerged and became advanced. The traditional method of teaching is now dominating by the modern method of technologies and it is becoming easy to access for the teacher as well as students also. This is the facilities we are benefiting is due to the modernization. We the people are seek only to have luxurious life style and modern technology in education is playing vital role to make the education system easy and fast accessible. Many higher education institutions in India are using e-learning system but in some places students are deprived of this system. This dissertation will help to address the students to know the attitude towards e-learning and to help them to opt the E-learning system in their education.

Students' attitude towards e-learning is influenced by its perceived advantages and disadvantages. The schedule flexibility is, without no doubt, an important advantage, the student having the opportunity to learn no matter his location, no matter the time as long as he has an Internet connection. Reducing costs is another benefit together with time saving, in case of students who are commuting. E-learning is a solution for students hired during their studies, allowing them to adapt their learning schedule to their job program. So, the student has the possibility to choose how he organizes his activities. This way he is

encouraged to take full responsibility for his future, being the only one responsible for assessing the knowledge and the abilities required for professional development. The research studies conducted by Liaw (2008), Aixia and Wang (2011), Mehra and Omidian (2011), Akimanimpaye (2012), Farooq (2012), Misra (2012), Ouma, Awuor and Kyyambo (2013), Sabha (2013), Brumini, Spalj, Mavrinac, Biocina-Lukenda, Strujic and Brumini (2014), Rhema and Milisewska (2014), Abdullah, Ziden, Aman and Mustafa (2015), Amma and Panicker (2015), Pradhan (2015) and Reddy and Srilatha (2015) found that there is a positive attitude of the students towards e-learning. But on the other hand Gopal and Anandan (2013) found that the students are having lesser attitude towards e-learning. Further, Liaw and Huang (2011), Akimanimpaye (2012), Rhema and Miliszewska (2014) and found that there is the gender difference in the attitude of students towards e-learning. But, Gopal and Anandan (2013), Ramesh and Prabu (2013), Kar, Saha and Mondal (2014), Amma and Panicker (2015) and Pradhan (2015) found that there is no gender difference in the attitude of students towards e-learning. Abdullah, Ziden, Aman and Mustafa (2015), found that there is statistically significant difference between Arts and Science students towards e-learning but, Ramesh and Prabu (2013) found that there is no significant difference in attitude of Arts and Science students towards e-learning. Ramesh and Prabu (2013) and Kar, Saha and Mondal (2014) found that there is no significant difference in the attitude of rural and urban students and the place they born and brought up towards e-learning. On the other hand, Rhema and Miliszewska (2014) in the study found that there is the significant difference in the attitude of rural and urban students towards e-learning.

E-learning has enough potential to provide solid assistance to all type of academic tasks in theoretical and practical, individual and collaborative classroom situations. It can provide

a valuable treasure of the knowledge and information to all subjects of the curriculum of schools and colleges. It fosters greater student interaction and collaboration and it accommodates multiple learning styles using a variety of delivery methods geared to different learning. E-learning is the more effective way of learning and teaching in large group of students. In the rapid moving world, we can sustain only by making ourselves capable of racing with the pace of the time and technological progress. E-learning is the demand of the time and we have to prepare our young students to tackle all the challenges they face in the modern technological life. Therefore, the investigator of the present study thought to study the attitude of college students towards E-learning particularly in Sikkim state. Further, no worthwhile endeavour has been made so far to investigate attitude towards e-learning of college students, especially in context of Sikkim. To fulfill this purpose and to add more knowledge to existing one the investigator selected the following problem for the study:

Construction and Standardization of an Attitude Scale towards E-Learning for College Students of Sikkim

1-4 Objectives of Study

The following objectives laid down for the present study:

1. To construct and standardize an attitude scale towards E-learning for college students.
2. To study the attitude of college students towards E-learning in Sikkim.

1-5 Delimitations of the Study

The present study was delimited in the following aspects:

1. The state of Sikkim has four districts. The study was be restricted to only three districts i.e. East, West and South district of the state because there is no college situated in North district of Sikkim State.
2. The study was be delimited to the college students only.
3. The study was delimited to the B.A./B.Com./B.Sc. third year (fifth Semester) students only.

1-6 Operational Definitions of Key Terms

The different key terms used in the title of the study and in the body of study are operationally defined as follows;

1. **Construction:** Construction of a scale means to construct the items for the scale. In the present study, construction means to write the original scale items for measuring the attitude towards e-learning among college students.
2. **Standardization:** In the present study standardization means preparing the uniform procedures in administering and scoring the scale and establishing its reliability, validity and norms.
3. **College Students**- It connotes the students both boys and girls studying in arts and science stream in colleges of Sikkim state.
4. **Attitude-** Attitude in the study connotes the way of thinking or feeling about E-learning by the students of college students.

5. **E-Learning**- It refers to the use of all the gadgets by the college students like DVD-CD, TV, Computers, Laptops, Projectors, Internet/Intranet, and Mobile Phone for the study purpose.

CHAPTER 2
METHOD AND PROCEDURE

The objective of the present investigation was to construct and standardized the attitude scale to study the attitude of college students of Sikkim state towards E-learning. To fulfil this purpose, it was required to draw an adequate sample of college students; construct a valid and reliable tool for measuring the characteristic under study; and collect the relevant data with the help of the constructed tool. The details regarding these aspects of the study are given as under.

2-1 Method

The aim of present investigation is to study the attitude of college students towards E-learning in Sikkim. In other words, the present study seeks to describe and interpret what conditions or relationship exist at present in case of college students with respect to the variables attitude towards E-learning. The further purpose of the study is to collect detailed description of existing phenomena with the intent of employing the same to justify current conditions and practices and to make intelligent plans for improving them.

Hence, it was decided to use Descriptive Method of research in the present case which is relevant and justified in view of the objectives of the study.

2-2 The Sample

For any scientific investigation sample is the basis and important. It is clear that in educational research neither practically expedient nor scientifically desirable to approach to the total population. Therefore, technique of sampling is employed in which instead every unit of population being tapped only a part of population is drawn and studied.

In the present study, the sample was draw from the college students. The sample for the present investigation was drawn by employing multistage sampling technique in the manner described below:

Firstly, a District i.e. East district of Sikkim was selected conveniently. From the selected District, 2 colleges were taken based on convenience. However, while choosing the colleges it was observed that they are well distributed in the District, and are situated at a considerable distance from each other. A sample of 100 (50 from each college) students were selected randomly for carrying out item analysis of preliminary draft of attitude scale towards E-learning. The detail distribution of the sample selected for carrying out item analysis of preliminary draft is given below in Table: 2.1:

Table No. 2.1: The distribution of the sample for carrying out item analysis of preliminary draft of Attitude scale towards E-learning

S. No.	Name of the College	Type of the Institution	Boys	Girls	Total
1	Sikkim Government College Rhenock, East Sikkim	Government	25	25	50
4	Sikkim Government College Tadong, East Sikkim	Government	25	25	50
Total			**50**	**50**	**100**

Secondly, a sample of 60 students were selected randomly for estimating test-retest reliability of the scale. The detail distribution of the sample selected for estimating the test-retest reliability of the scale is given below Table: 2.2:

Table No. 2.2: The distribution of the sample for estimating the test-retest reliability of Attitude scale towards E-learning

Si. No.	Name of the School	Boys	Girls	Total
1.	Sikkim Government College Tadong, East Sikkim	30	30	60

Thirdly, a sample of 60 students were selected randomly to compute split-half reliability of the scale. The detail distribution of the sample selected for computing the split-half reliability of the scale is given below Table: 2.3:

Table No. 2.3: The distribution of the sample for estimating the split-half reliability of Attitude scale towards E-learning

Si. No.	Name of the School	Boys	Girls	Total
1.	Sikkim Government College Tadong, East Sikkim	30	30	60

Fourthly, a sample of 450 (225 boys and 225 girls from three districts of Sikkim i.e. East, West, South) students were selected randomly for establishing norms for interpretation of scores obtained on scale attitude towards E-learning. The detail distribution of the sample selected for establishing norms is given below Table: 2.4:

Table No. 2.4: The distribution of the sample for establishing the norms of Attitude scale towards E-learning

Si. No.	Name of the College	District	Boys	Girls	Number of Students
1	Sikkim Government College, Burtuk	East	50	50	100
2	Sikkim Government College, Gyalshing	West	60	60	120
3	Sikkim Government College, Namchi	South	55	55	110
4	Sikkim Government College, Tadong	East	60	60	120
Total			**225**	**225**	**450**

At the last stage, a sample of 200 (100 boys and 100 girls) students were drawn randomly from three district of Sikkim that is East, West and South district to study the attitude of college students towards E-learning. The detail distribution of the selected sample is given below Table: 2.5:

Table 2.5: The distribution of the sample for studying the attitude towards E-learning

S. No.	Name of the School	Boys	Girls	Number of Students
1	Sikkim Government College, Burtuk, East Sikkim	25	25	50
2	Sikkim Government College, Gyalshing, West Sikkim	25	25	50
3	Sikkim Government College, Namchi, South Sikkim	25	25	50
4	Sikkim Government College, Tadong, East Sikkim	25	25	50
Total		**100**	**100**	**200**

2-3 Tool Used

Every scientific research is processed through certain well designed tools. Tools are nothing but the instrument that helps the researcher to gather data. To collect the requisite data for present study the investigator developed and standardized the Attitude Scale in English version for college students. The Attitude Scale consists of 51 items selected out of a total of 97 items consisting of positively (30) or negatively (21) phrased pertaining to the Accessibility and Flexibility, Satisfaction, Usefulness, Intention Parent and Teacher's Support areas. The instrument uses a 5-point scale i.e. 'Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. The maximum possible score for the present scale is 255, students were asked to read the statement carefully and asked to place tick mark (√) on respective place. The items are scored in such a manner that if the answer to a positive item is 'Strongly Agree (SA)', a score of 5 is given; for 'Agree (A)' option, a score of 4, for 'Undecided (U)' option, a score of 3, for 'Disagree (D)' option, a score of 2 and for 'Strongly Disagree (SD)' option, a score of 1 is awarded. On the other hand, in case of negative items 'Strongly Agree (SA)', a score of 1 is given; for 'Agree (A)' option, a score of 2, for 'Undecided (U)' option, a score of 3, for 'Disagree (D)' option, a score of 4 and for 'Strongly Disagree (SD)' option, a score of 5 is awarded. The test-retest and split-half reliability of the scale was found to be 0.71 and 0.63 respectively.

2-4 Procedure for Data Collection

Based on the objective of the present study the investigator had collected the relevant data with the prior permission of the Principal of the concerned institutions as mention in the table 2.1 to 2.5. Before administering the tool, the students were given all the necessary instructions. After ensuring that the students have responded to all the items, the sheets were collected back. After completing the administration of the

tool, the investigator thanked the Principal, teachers and the students for their whole hearted cooperation. The collected booklets scored and the data thus obtained were tabulated for further analysis.

CHAPTER 3
DEVELOPMENT OF RESEARCH TOOL

The objective of the present investigation was to construct and standardized the attitude scale to study the attitude of college students of Sikkim state towards E-learning. To serve this purpose, it was required to construct a suitable tool for measuring the characteristics under study; and collect the relevant data with the help of this tool. The details regarding construction and standardization of the tool is given as under.

3-1 Purpose of the Attitude Scale

The construction of 'Students' Attitude Scale towards E-learning was planned with the purpose of measuring attitude of college students towards E-learning. The construction of five point Likert type scale was carried out with the technical assistance and consultations with experts. The present scale was designed to measure the attitude of college students towards E-learning which may be operationally defined as under:

Attitude towards E-learning means an aggregated measure of a liking or disliking, personal dispositions, pre-conceived notions, point of view, outlook, perspective, reaction, stance, inclination, feelings, persuasion, ideas or inclinations towards different aspects of E-learning. It is a predisposition or a tendency to engage in or avoid activities, tendency to respond positively or negatively related to E-learning.

3-2 Technique Employed for Development of Attitude Scale

In this attitude scale the 'method of summated ratings' given by Likert (1932) has been employed for development of present attitude scale. Each statement of the scale was to be rated on five consecutive points i.e. Strongly Agree (SA), Agree (A), Undecided (U),

Disagree (D), and Strongly Disagree (SD). An individual student's score on the attitude scale was sum of the total of his/her ratings on all statements.

3-3 Aspects of Students' Attitude towards E-learning Scale

The information regarding different aspects of E-learning was obtained in consultations with field experts and discussions with Professors, Researchers and Teachers and it was analyzed carefully so as to classify students' attitude towards E-learning under different dimensions. The literature and empirical evidences in the area of E-learning were also reviewed for classification of students' attitude towards E-learning into various aspects. On the basis of this, it was finalized to have three aspects or dimensions of students' attitude towards E-learning which are briefly discussed here under:

(i) **Accessibility and Flexibility of E-learning:** This Dimension of Students Attitude includes statements which are related to making E-learning system accessible to all the students in the classroom or in their day to day life for their study. To make learning easy to access from any sources like internet, intranet, online journals, e-books, audio video aids etc. students get benefits to access from anywhere, anytime and in any situations with more flexibility through E-learning system for their learning. Whether students are agree or not towards the accessibility and flexibility of the e-learning systems.

(ii) **Satisfaction:** This dimension of E-learning comprised of statements showing students' tendency with respect to contentment, enjoyment and relish towards E-learning. Satisfaction regarding the performance of E-learning and as well as facilities provided by E-learning systems to his or her expectations of learning.

(iii) **Usefulness:** This dimension of E-learning comprised of the statements which shows the usability towards their learning. How much useful E-learning is for their education and is it really helpful or not is the concern in this dimension.

(iv) **Intention:** In this dimension concern statements related to find out whether students are intended to use E-learning for their study purpose or not and how much interested they are regarding the use of e-learning in education is tried to find out.

(v) **Parent and Teacher's Support:** This dimension is concern with the support from the parent as well as the teachers to use E-learning system for students in their study.

3-4 Development of Attitude Scale

For the development of Attitude Scale in order to measure Students' Attitude Towards E-learning, following steps were taken:

3-4.1 Collection of Statements for Initial Draft of Attitude Scale- A list of 131 statement/items were prepared which were intended to ascertain students' attitude towards five dimensions of E-learning. The item was prepared in English language. The items/statements were collected by reviewing the available literature and carrying out personal discussions with experts in the subject, researchers and professors of the institutions regarding the E-learning and its aspects. Five point rating scale was developed for each items and it was developed in the form of statements. With this instruction for respondents was developed and accordingly procedure of scoring was also developed.

3-4.2 Editing and Revising the Statements- After formulating initial draft of attitude scale encompassing of 131 statements, the items were edited and revised by seeking the

expert opinion. The initial list of 131 statements was given to 15 experts for rating each item on following rating scale:

0- Item not Acceptable.

1- Doubtful Item (may or may not be retained)

2- Acceptable Item.

On the basis of criticisms and comments offered by experts, only those items which received at least 80% approval of the experts was retained for try-out form of attitude scale towards E-learning. For the evaluation process all the judges was made aware and are requested to evaluate in terms of its technical and logical precision and under consideration and coverage of the content matter. Investigator was also discussed personally with the experts about all the items. In this, 34 items were weeded out from the initial draft and some items were modified in view of expert opinion. In addition to this, the help of language experts was sought in order to remove any sort of linguistic ambiguity contained in the items. Their suggestions were taken into consideration and necessary changes were made. Thus, preliminary draft of attitude scale was developed comprising of 97 items. In this 97 items, 14 items was under Accessibility and Flexibility, 27 items was under Satisfaction, 25 items was under Usefulness, 20 items was under Intension and remaining 11 was under Parent and Teachers' Support. Again 73 items was positive in nature and 24 was negative (favourable and unfavorable attitude respectively).

3-5 Item Analysis and Selection of Items for Final Draft

After the preliminary draft was done 97 items were then administered to a representative sample of 100 students 50 from each colleges with 50 boy and 50 girl students from 2 colleges of East District of Sikkim according to the convenience of the investigator. The 2 colleges were Sikkim Government College, Tadong and Sikkim Government College,

Rhenock. It was made clear to all the students that no omitted of the attitude scale and informed that there was no correct and incorrect response for any item. The students were encouraged to respond each statement in accordance with their own beliefs and individual dispositions. After the completion of the response the questionnaire was collected and scoring was done with 5 Likert type scale that is for positive items Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree carrying 5, 4, 3, 2, 1 respectively and for the negative items Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree carrying 1, 2, 3, 4, 5 respectively. 97 were the lowest and 487 were the highest score of an individual respondent showing highly unfavorable attitude to highly favorable attitude towards E-learning.

After completion of the scoring, scale was arranged in descending order. Top 27 percent from the highest score and 27 percent from the lowest score that is among 100 students 27 highest and 27 lowest score was separated which serve as two criterion groups in order to evaluate each individual item of the scale as given by Edwards 1957. Then after mean and Standard Deviation was calculated for individual item separately highest 27% and lowest 27% group of students. The discriminating value for each items was then computed by t-value to determine on the basis of responses of highest and lowest groups. Having t-value greater than 1.75 was only selected for the final draft of attitude scale. A ‘t-value’ which is greater than 1.75 indicates that the average response of the highest to lowest groups of students to a statement differs significantly. Thus, out of 97 statements 51 items with highest t-value having more than 1.75 (t-value) was selected for final draft of attitude scale.

Table 3.1

t-value in respect of 97 items of Preliminary Draft of Attitude Scale

Item No.	t-value	Item No.	t-value	Item No.	t-value	Item No.	t-value	Item No.	t-value
1	4.252	21	**0.957**	41	5.646	61	7.959	81	**0.814**
2	**1.378**	22	2.436	42	**1.699**	62	4.589	82	**1.581**
3	**1.374**	23	4.071	43	4.321	63	**1.541**	83	3.588
4	**1.505**	24	3.506	44	3.359	64	2.954	84	2.729
5	**1.07**	25	1.979	45	4.511	65	1.953	85	3.174
6	3.191	26	2.101	46	3.166	66	**0.434**	86	**1.104**
7	**1.083**	27	2.104	47	3.727	67	2.174	87	3.381
8	2.575	28	**1.166**	48	**0.293**	68	2.795	88	3.727
9	1.945	29	2.066	49	**1.339**	69	**1.165**	89	**0.545**
10	**1.511**	30	**0.929**	50	**1.161**	70	**1.606**	90	3.278
11	**0.376**	31	**1.66**	51	2.429	71	**1.318**	91	**0.26**
12	2.36	32	3.88	52	4.783	72	2.903	92	3.401
13	4.051	33	**1.247**	53	**0.852**	73	**1.175**	93	3.291
14	3.515	34	6.124	54	**0.908**	74	**0.569**	94	**1.299**
15	6.062	35	3.894	55	**0.908**	75	**1.67**	95	**0.687**
16	**1.699**	36	5.50	56	4.121	76	**1.343**	96	**1.675**
17	1.965	37	**1.55**	57	**1.31**	77	4.147	97	6.576
18	**0.145**	38	6.176	58	3.007	78	**0.44**		
19	**0.911**	39	**1.606**	59	**1.661**	79	3.319		
20	**1.019**	40	5.408	60	**1.575**	80	3.444		

After conducting item analysis and selecting the statements for final draft, the distribution of statements (both Positive and Negative) was carried out in five aspects of students attitude towards E-learning which is provided in Table 3.2.

TABLE 3.2: Distribution of Statements (both Positive and Negative) over five Aspects/Dimensions of Attitude towards E-learning

Sr. No.	Dimension	Nature of Item	Items No.	Items	Total
1	Accessibility and Flexibility	**Positive**	**2,3,4,12,15,21**	**6**	**8**
		Negative	13,27	2	
2	Satisfaction	**Positive**	**1,6,7,17,24,25,26,28,39**	**9**	**17**
		Negative	5,8,10,14,16,36,37,48	8	
3	Usefulness	**Positive**	**9,11,20,29,46,49**	**6**	**12**
		Negative	18,19,30,35,38,50	6	
4	Intention	**Positive**	**32,33,34,47,51**	**5**	**8**
		Negative	22,23,31	3	
5	Parent and Teacher's Support	**Positive**	**40,41,42,45**	**4**	**6**
		Negative	43,44	2	
			Total Positive Items= 6+9+6+5+4	**30**	**51**
			Total Negative Items= 2+8+6+3+2	21	

3-6 Scoring Procedure

The scale is a self-administering and self-reporting five-point scale. Items of the scale are in statement from requiring response for each item on either of the five options on a continuum as follows; Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The items are scored in such a manner that if the answer to a positive item is 'Strongly Agree', a score of 5 is given; for 'Agree' option, a score of 4, for 'Undecided' option, a score of 3, for 'Disagree' option, a score of 2 and for 'Strongly Disagree' option, a score

of 1 is awarded. On the other hand, in case of negative items, the above scoring procedure is completely reversed.

Items	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

The sum of scores on all statements of the scale is considered as respondent's total attitude score. The score on the scale can range from 51 to 255. The higher total score on the scale will reflect positive attitude and vice-versa.

3-7 Reliability

'A test must be reliable, that is, it must have the ability to consistently yield the same results when repeated measurements are taken f the same individuals under the same conditions' (Koul, 2009). 'If a research tool is consistent and stable, hence predictable and accurate, it is said to be reliable. The greater the degree of consistency and stability in an instrument, the greater its reliability' (Kumar 2014, p. 215). 'I prefer to regard reliability as a property of the whole process of data gathering, rather than a property solely of the results' (Opie 2004, p. 66). 'Reliability is the degree of which a test consistently measures whatever it is measuring' (Gay, Mills and Airasian 2009, p. 158). The attitude towards E-learning among college students tool has constructed reliability by using test-retest method with the sample of 60 college students and split half method was found out with a sample of 60 college students using t-test. The test-retest and split-half reliability of the scale was found to be 0.79 and 0.63 respectively.

3-8 Validity

'The test, as a data collection tool, must produce information that is not only relevant but free from systematic errors; that is, it must produce valid information. In general, a test is valid if it measures what it claims to measure' (Koul, 2009). 'In terms of measurement procedures, therefore, validity is the ability of an instrument to measure what it is designed to measure' (Kumar, 2014, p.213). Validity refers to the degree to which a test measures what it is supposed to measure and, consequently, permits appropriate interpretation of scores (Gay, Mills and Airasian 2009, p. 151). 'Validity is defined as the degree to which the researcher has measured what he has set out to measure' (Smith 1991, p. 106) 'Validity is a goal rather than a product; it is never something that can be proven or taken for granted' (Luttrell, 2010, p. 279). The content validity of the scale was established by carrying out critical discussions with the field experts at the time of development of preliminary draft of attitude scale. Face validity of the attitude of college students towards E-learning tool was fairly high as established by consulting subjects in the study. Item validity of the scale can also be considered enough because only those items were retained in the final form of the scale which were having t-value greater than 1.75.

After experimental tryout, the final draft of the scale was administered on a sample of 100 college students in order to compute the cross validity. The obtained scores were correlated with scores of the same 100 students obtained through an Attitude Scale towards e-learning developed by Anbarsi, V. L. And Nellaiyappen, N. O. The co-efficient of correlation was found to be 0.61 by Pearson's product moment correlation.

3-9 Norms

The scale was administered on a sample of 450 (225 boys and 225 girls from three districts of Sikkim i.e. East, West, South) students for establishing norms for interpretation of scores

obtained on scale attitude towards E-learning. z-score norms have been developed for male and female college students separately and the same are given in Table 3.3 and Table 3.4 respectively.

Table No. 3.3. z-score norms for male college students
Mean:, 180.53, S.D.: 14.25, N= 225

Raw Score	z-Score	Raw Score	z-Score	Raw Score	z-Score	Raw Score	z-Score	Raw Score	z-Score
138	-2.98	**154**	-1.86	**170**	-0.74	**186**	+0.38	**202**	+1.51
139	-2.91	**155**	-1.79	**171**	-0.67	**187**	+0.45	**203**	+1.58
140	-2.84	**156**	-1.72	**172**	-0.60	**188**	+0.52	**204**	+1.65
141	-2.77	**157**	-1.65	**173**	-0.53	**189**	+0.59	**205**	+1.72
142	-2.70	**158**	-1.58	**174**	-0.46	**190**	+0.66	**206**	+1.79
143	-2.63	**159**	-1.51	**175**	-0.39	**191**	+0.73	**207**	+1.85
144	-2.56	**160**	-1.44	**176**	-0.32	**192**	+0.80	**208**	+1.93
145	-2.49	**161**	-1.37	**177**	-0.25	**193**	+0.87	**209**	+2.00
146	-2.42	**162**	-1.30	**178**	-0.18	**194**	+0.95	**210**	+2.07
147	-2.35	**163**	-1.23	**179**	-0.11	**195**	+1.02	**211**	+2.11
148	-2.28	**164**	-1.16	**180**	-0.04	**196**	+1.09	**212**	+2.21
149	-2.21	**165**	-1.09	**181**	+0.03	**197**	+1.16	**213**	+2.28
150	-2.14	**166**	-1.02	**182**	+0.10	**198**	+1.23	**214**	+2.35
151	-2.07	**167**	-0.95	**183**	+0.17	**199**	+1.30	**215**	+2.42
152	-2.00	**168**	-0.88	**184**	+0.24	**200**	+1.37	**216**	+2.49
153	-1.93	**169**	-0.81	**185**	+0.31	**201**	+1.44	**217**	+2.56

Table No. 3.4. z-score norms for female college students

Mean:, 180.11, S.D.: 13.55, N= 225

Raw Score	Z-Score	Raw Score	Z-Score	Raw Score	Z-Score	Raw Score	Z-Score	Raw Score	Z-Score
138	-3.11	**155**	-1.85	**172**	-0.60	**189**	+0.66	**206**	+1.91
139	-3.03	**156**	-1.78	**173**	-0.52	**190**	+0.73	**207**	+1.98
140	-2.96	**157**	-1.71	**174**	-0.45	**191**	+0.80	**208**	+2.06
141	-2.89	**158**	-1.63	**175**	-0.38	**192**	+0.88	**209**	+2.13
142	-2.81	**159**	-1.56	**176**	-0.30	**193**	+0.95	**210**	+2.21
143	-2.74	**160**	-1.48	**177**	-0.23	**194**	+1.03	**211**	+2.28
144	-2.66	**161**	-1.41	**178**	-0.16	**195**	+1.10	**212**	+2.35
145	-2.59	**162**	-1.34	**179**	-0.08	**196**	+1.17	**213**	+2.43
146	-2.52	**163**	-1.26	**180**	-0.01	**197**	+1.25	**214**	+2.50
147	-2.44	**164**	-1.19	**181**	+0.07	**198**	+1.32	**215**	+2.57
148	-2.37	**165**	-1.12	**182**	+0.14	**199**	+1.39	**216**	+2.65
149	-2.30	**166**	-1.04	**183**	+0.21	**200**	+1.47	**217**	+2.72
150	-2.22	**167**	-0.97	**184**	+0.29	**201**	+1.54	**218**	+2.80
151	-2.15	**168**	-0.89	**185**	+0.36	**202**	+1.62	**219**	+2.87
152	-2.07	**169**	-0.82	**186**	+0.43	**203**	+1.69	**220**	+2.94
153	-2.00	**170**	-0.75	**187**	+0.51	**204**	+1.76	**221**	+3.02
154	-1.93	**171**	-0.67	**188**	+0.58	**205**	+1.84	**222**	+3.09

Table 3.5

Norms for Interpretation of Level of college student's attitude towards E-learning (For both male and female college students)

S. No.	Range of z-scores	Level of college student's attitude
1	**+2.01 and above**	**Extremely Favourable**
2	+1.26 to +2.00	Highly Favourable
3	**+0.51 to +1.25**	**Above Average Favourable**
4	-0.50 to +0.50	Average/Moderate Favourable
5	**-0.51 to -1.25**	**Below Average Favourable**
6	-1.26 to -2.00	Highly Unfavourable
7	**-2.01 and Below**	**Extremely Unfavourable**

3-10 Usefulness

The scale is fairly reliable and valid to measure the attitude of college students towards E-learning. This scale can safely be used to measure the attitude of college students irrespective of level of education and types of institutions.

CHAPTER 4
ANALYSIS AND INTERPRETATION OF DATA

Analysis and interpretation of the data is the heart of the research report. The raw-score fails to reveal any result unless they are critically analysed and scientifically interpreted. The whole work is based on the data collected from the proposed sample. The present chapter gives the detailed description of analysis and interpretation of data.

4-1 Students Attitude towards E-learning

The attitude towards E-learning among students was assessed by means of administering student's attitude towards E-learning scale. As such, the attitude towards E-learning among students is analysed with respect to the different items included in it.

Item No. 1: E-learning allows me to have all the information I need for my studies and projects.

The data pertaining to this item has been presented in table -4.1.

Table – 4.1: Percentage wise analysis of item no. 1

Category	N	SA%	A%	U%	D%	SD%
Boys	100	27.00%	66.00%	2.00%	3.00%	2.00%
Girls	100	27.00%	67.00%	1.00%	5.00%	0.00%
Total	200	27.00%	66.50%	1.50%	4.00%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 27.00% responded to strongly agree, 66.00% responded to agree, 2.00% responded to Undecided, 3.00% responded to disagree and

2.00% of students responded to strongly disagree. From this it is clear that 93.00% of Boy students favour the statement that E-learning allows me to have all the information I need for my studies and projects.

Out of 100 girl students 27.00% responded to strongly agree, 67.00% responded to agree, 1.00% responded to undecided, 5.00% responded to disagree, and 0.00% students responded to strongly disagree. From this it is clear that 94.00% of girl students favour the statement that E-learning allows me to have all the information I need for my studies and projects.

Out of total 200 students 27.00% responded to strongly agree, 66.50% responded to agree, 1.50% responded to undecided, 4.00% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 93.50% of students favour the statement that E-learning allows me to have all the information I need for my studies and projects.

Item No. 2: E-learning gives facilities to efficiently manage our time, effort and energy.

The data pertaining to this item has been presented in table -4.2.

Table – 4.2. Percentage wise analysis of item no. 2

Category	N	SA%	A%	U%	D%	SD%
Boys	100	15.00%	64.00%	13.00%	5.00%	3.00%
Girls	100	21.00%	48.00%	12.00%	16.00%	3.00%
Total	200	18.00%	56.00%	12.50%	10.50%	3.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 15.00% responded to strongly agree, 64.00% responded to agree, 13.00% responded to Undecided, 5.00% responded to disagree and 3.00% of students responded to strongly disagree. From this it is clear that

79.00% of Boy students favour the statement that E-learning gives facilities to efficiently manage our time, effort and energy.

Out of 100 girl students 21.00% responded to strongly agree, 48.00% responded to agree, 12.00% responded to undecided, 16% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 69.00% of girl students favour the statement that E-learning gives facilities to efficiently manage our time, effort and energy.

Out of total 200 students 18.00% responded to strongly agree, 56.00% responded to agree, 12.50% responded to undecided, 10.50% responded to disagree, and 3.00% of students responded to strongly disagree. From this it is clear that 74.00% of students favour the statement that E-learning gives facilities to efficiently manage our time, effort and energy.

Item No. 3: E-learning helps learning in an independent way without any hindrance.

The data pertaining to this item has been presented in table -4.3.

Table-4.3. Percentage wise analysis of item no. 3

Category	N	SA%	A%	U%	D%	SD%
Boys	100	21.00%	54.00%	17.00%	7.00%	1.00%
Girls	100	19.00%	58.00%	20.00%	2.00%	1.00%
Total	200	20.00%	56.00%	18.50%	4.50%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 21.00% responded to strongly agree, 54.00% responded to agree, 17.00% responded to Undecided, 7.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that

75.00% of Boy students favour the statement that E-learning helps learning in an independent way without any hindrance.

Out of 100 girl students 19.00% responded to strongly agree, 58.00% responded to agree, 20.00% responded to undecided, 2.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 77% of girl students favour the statement that E-learning helps learning in an independent way without any hindrance.

Out of total 200 students 20.00% responded to strongly agree, 56.00% responded to agree, 18.50% responded to undecided, 4.50% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 76.00% of students favour the statement that E-learning helps learning in an independent way without any hindrance.

Item No. 4: E-learning helps us to learn according to interest, capability and capacity of the learner.

The data pertaining to this item has been presented in table -4.4.

Table- 4.4. Percentage wise analysis of item no. 4

Category	N	SA%	A%	U%	D%	SD%
Boys	100	25.00%	48.00%	14.00%	11.00%	2.00%
Girls	100	27.00%	56.00%	9.00%	5.00%	3.00%
Total	200	26.00%	52.00%	11.50%	8.00%	2.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 25.00% responded to strongly agree, 48.00% responded to agree, 14.00% responded to undecided, 11.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that

73.00% of Boy students favour the statement that E-learning helps us to learn according to interest, capability and capacity of the learner.

Out of 100 girl students 27.00% responded to strongly agree, 56.00% responded to agree, 9.00% responded to undecided, 5.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 83.00% of girl students favour the statement that E-learning helps us to learn according to interest, capability and capacity of the learner.

Out of total 200 students 26.00% responded to strongly agree, 52.00% responded to agree, 11.50% responded to undecided, 8.00% responded to disagree, and 2.50% of students responded to strongly disagree. From this it is clear that 78.00% of students favour the statement that E-learning helps us to learn according to interest, capability and capacity of the learner.

Item No. 5 E-learning is better than other teaching learning aids and materials.

The data pertaining to this item has been presented in table -4.5.

Table-4.5. Percentage wise analysis of item no. 5

Category	N	SA%	A%	U%	D%	SD%
Boys	100	14.00%	25.00%	30.00%	28.00%	3.00%
Girls	100	13.00%	34.00%	24.00%	25.00%	4.00%
Total	200	13.50%	29.50%	27.00%	26.50%	3.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 14.00% responded to strongly agree, 25.00% responded to agree, 30.00% responded to Undecided, 28.00% responded to disagree and 3.00% of students responded to strongly disagree. From this it is clear that 31.00% of Boy students are not in favour of the statement that E-learning is better than other teaching learning aids and materials.

Out of 100 girl students 13.00% responded to strongly agree, 34.00% responded to agree, 24.00% responded to undecided, 25.00% responded to disagree, and 4.00% students responded to strongly disagree. From this it is clear that 29.00% of girl students are not in favour of the statement that E-learning is better than other teaching learning aids and materials.

Out of total 200 students 13.50% responded to strongly agree, 29.50% responded to agree, 27.00% responded to undecided, 26.50% responded to disagree, and 3.50% of students responded to strongly disagree. From this it is clear that 30.00% of students are not in favour of the statement that E-learning is better than other teaching learning aids and materials.

Item No. 6: E-learning is helpful for quality learning in short time span with limited resources.

The data pertaining to this item has been presented in table -4.6.

Table-4.6. Percentage wise analysis of item no. 6

Category	N	SA%	A%	U%	D%	SD%
Boys	100	23.00%	61.00%	13.00%	3.00%	0.00%
Girls	100	28.00%	53.00%	15.00%	3.00%	1.00%
Total	200	25.50%	57.00%	14.00%	3.00%	0.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 23.00% responded to strongly agree, 61.00% responded to agree, 13.00% responded to Undecided, 3.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 84.00% of Boy students favour the statement that E-learning is helpful for quality learning in short time span with limited resources.

Out of 100 girl students 28.00% responded to strongly agree, 53.00% responded to agree, 15.00% responded to undecided, 3.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 81.00% of girl students favour the statement that E-learning is helpful for quality learning in short time span with limited resources.

Out of total 200 students 25.50% responded to strongly agree, 57.00% responded to agree, 14.00% responded to undecided, 3.00% responded to disagree, and 0.50% of students responded to strongly disagree. From this it is clear that 82.50% of students favour the statement that E-learning is helpful for quality learning in short time span with limited resources.

Item No. 7: E-learning is more interesting and self-motivating than any other study materials.

The data pertaining to this item has been presented in table -4.7.

Table-4.7 Percentage wise analysis of item no. 7

Category	N	SA%	A%	U%	D%	SD%
Boys	100	14.00%	34.00%	28.00%	19.00%	5.00%
Girls	100	20.00%	41.00%	24.00%	13.00%	2.00%
Total	200	17.00%	37.50%	26.00%	16.00%	3.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 14.00% responded to strongly agree, 34.00% responded to agree, 28.00% responded to Undecided, 19.00% responded to disagree and 5.00% of students responded to strongly disagree. From this it is clear that 48.00% of Boy students favour the statement that E-learning is more interesting and self-motivating than any other study materials.

Out of 100 girl students 20.00% responded to strongly agree, 41.00% responded to agree, 24.00% responded to undecided, 13.00% responded to disagree, and 2.00%

students responded to strongly disagree. From this it is clear that 61.00% of girl students favour the statement that E-learning is more interesting and self-motivating than any other study materials.

Out of total 200 students 17.00% responded to strongly agree, 37.50% responded to agree, 26.00% responded to undecided, 16.00% responded to disagree, and 3.50% of students responded to strongly disagree. From this it is clear that 54.50% of students favour the statement that E-learning is more interesting and self-motivating than any other study materials.

Item No. 8 E-learning is much more comfortable than any other sources.

The data pertaining to this item has been presented in table -4.8.

Table-4.8 Percentage wise analysis of item no. 8

Category	N	SA%	A%	U%	D%	SD%
Boys	100	18.00%	44.00%	16.00%	21.00%	1.00%
Girls	100	19.00%	45.00%	13.00%	20.00%	3.00%
Total	200	18.50%	44.50%	14.50%	20.50%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 18.00% responded to strongly agree, 44.00% responded to agree, 16.00% responded to Undecided, 21.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that 22.00% of Boy students are not in favour of the statement that E-learning is much more comfortable than any other sources.

Out of 100 girl students 19.00% responded to strongly agree, 45.00% responded to agree, 13.00% responded to undecided, 20.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 23.00% of girl students are not in favour of the statement that E-learning is much more comfortable than any other sources.

Out of total 200 students 18.50% responded to strongly agree, 44.50% responded to agree, 14.50% responded to undecided, 20.50% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 22.50% of students are not in favour of the statement that E-learning is much more comfortable than any other sources.

Item No. 9: E-learning is the best means to solve any of the educational queries and problems.

The data pertaining to this item has been presented in table -4.9.

Table-4.9. Percentage wise analysis of item no. 9

Category	N	SA%	A%	U%	D%	SD%
Boys	100	15.00%	48.00%	19.00%	16.00%	2.00%
Girls	100	19.00%	57.00%	11.00%	11.00%	2.00%
Total	200	17.00%	52.50%	15.00%	13.50%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 15.00% responded to strongly agree, 48.00% responded to agree, 19.00% responded to Undecided, 16.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 63.00% of Boy students favour the statement that E-learning is the best means to solve any of the educational queries and problems.

Out of 100 girl students 19.00% responded to strongly agree, 57.00% responded to agree, 11.00% responded to undecided, 11.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 76.00% of girl students favour the statement that E-learning is the best means to solve any of the educational queries and problems.

Out of total 200 students 17.00% responded to strongly agree, 52.50% responded to agree, 15.00% responded to undecided, 13.50% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 69.50% of students favour the statement that E-learning is the best means to solve any of the educational queries and problems.

Item No. 10: E-learning materials are not attractive and are usually monotonous and mechanical.

The data pertaining to this item has been presented in table -4.10.

Table-4.10. Percentage wise analysis of item no. 10

Category	N	SA%	A%	U%	D%	SD%
Boys	100	3.00%	15.00%.00%	34.00%	41.00%	7.00%
Girls	100	6.00%	17.00%	25.00%	43.00%	9.00%
Total	200	4.50%	16.00%	29.50%	42.00%	8.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 3.00% responded to strongly agree, 15.00% responded to agree, 34.00% responded to Undecided, 41.00% responded to disagree and 7.00% of students responded to strongly disagree. From this it is clear that 48.00% of Boy students are not in favour of the statement that E-learning materials are not attractive and are usually monotonous and mechanical.

Out of 100 girl students 6.00% responded to strongly agree, 17.00% responded to agree, 25.00% responded to undecided, 43.00% responded to disagree, and 9.00% students responded to strongly disagree. From this it is clear that 52.00% of girl students are not in favour of the statement that E-learning materials are not attractive and are usually monotonous and mechanical.

Out of total 200 students 4.50% responded to strongly agree, 16.00% responded to agree, 29.50% responded to undecided, 42.00% responded to disagree, and 8.00% of students responded to strongly disagree. From this it is clear that 50.00% of students are not in favour of the statement that E-learning materials are not attractive and are usually monotonous and mechanical.

Item No. 11 E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

The data pertaining to this item has been presented in table -4.11.

Table-4.11 Percentage wise analysis of item no.11

Category	N	SA%	A%	U%	D%	SD%
Boys	100	27.00%	53.00%	16.00%	4.00%	0.00%
Girls	100	25.00%	58.00%	14.00%	2.00%	1.00%
Total	200	26.00%	55.50%	15.00%	3.00%	0.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 27.00% responded to strongly agree, 53.00% responded to agree, 16.00% responded to Undecided, 4.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 80.00% of Boy students favour the statement that E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

Out of 100 girl students 25.00% responded to strongly agree, 58.00% responded to agree, 14.00% responded to undecided, 2.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 83.00% of girl students favour the statement that E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

Out of total 200 students 26.00% responded to strongly agree, 55.50% responded to agree, 15.00% responded to undecided, 3.00% responded to disagree, and 0.50% of students responded to strongly disagree. From this it is clear that 81.50% of students favour the statement that E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

Item No. 12: E-learning provides mutual interaction with teachers and friends.

The data pertaining to this item has been presented in table -4.12.

Table-4.12. Percentage wise analysis of item no. 12

Category	N	SA%	A%	U%	D%	SD%
Boys	100	13.00%	42.00%	19.00%	22.00%	4.00%
Girls	100	19.00%	50.00%	10.00%	16.00%	5.00%
Total	200	16.00%	46.00%	14.50%	19.00%	4.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 13.00% responded to strongly agree, 42.00% responded to agree, 19.00% responded to Undecided, 22.00% responded to disagree and 4.00% of students responded to strongly disagree. From this it is clear that 55.00% of Boy students favour the statement that E-learning provides mutual interaction with teachers and friends.

Out of 100 girl students 19.00% responded to strongly agree, 50.00% responded to agree, 10.00% responded to undecided, 16.00% responded to disagree, and 5.00% students responded to strongly disagree. From this it is clear that 69.00% of girl students favour the statement that E-learning provides mutual interaction with teachers and friends.

Out of total 200 students 16.00% responded to strongly agree, 46.00% responded to agree, 14.50% responded to undecided, 19.00% responded to disagree, and 4.50% of

students responded to strongly disagree. From this it is clear that 62.00% of students favour the statement that E-learning provides mutual interaction with teachers and friends.

Item No. 13 E-learning increases students overall educational cost.

The data pertaining to this item has been presented in table -4.13.

Table-4.13 Percentage wise analysis of item no. 13

Category	N	SA%	A%	U%	D%	SD%
Boys	100	10.00%	42.00%	21.00%	23.00%	4.00%
Girls	100	10.00%	42.00%	19.00%	24.00%	5.00%
Total	200	10.00%	42.00%	20.00%	23.50%	4.5.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 10.00% responded to strongly agree, 42.00% responded to agree, 21.00% responded to Undecided, 23.00% responded to disagree and 4.00% of students responded to strongly disagree. From this it is clear that 27.00% of Boy students are not in favour of the statement that E-learning increases students overall educational cost.

Out of 100 girl students 10.00% responded to strongly agree, 42.00% responded to agree, 19.00% responded to undecided, 24.00% responded to disagree, and 5.00% students responded to strongly disagree. From this it is clear that 29.00% of girl students are not in favour of the statement that E-learning increases students overall educational cost.

Out of total 200 students 10.00% responded to strongly agree, 42.00% responded to agree, 20.00% responded to undecided, 23.50% responded to disagree, and 4.50% of students responded to strongly disagree. From this it is clear that 28.00% of students

are not in favour of the statement that E-learning increases students overall educational cost.

Item No. 14: E-learning reduces the interest and interaction of students in the daily educational activities.

The data pertaining to this item has been presented in table -4.14.

Table-4.14 Percentage wise analysis of item no. 14

Category	N	SA%	A%	U%	D%	SD%
Boys	100	10.00%	42.00%	18.00%	22.00%	8.00%
Girls	100	15.00%	38.00%	11.00%	29.00%	7.00%
Total	200	12.50%	40.00%	14.50%	25.50%	7.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 10.00% responded to strongly agree, 42.00% responded to agree, 18.00% responded to Undecided, 22.00% responded to disagree and 8.00% of students responded to strongly disagree. From this it is clear that 30.00% of Boy students are not in favour of the statement that E-learning reduces the interest and interaction of students in the daily educational activities.

Out of 100 girl students 15.00% responded to strongly agree, 38.00% responded to agree, 11.00% responded to undecided, 29.00% responded to disagree, and 7.00% students responded to strongly disagree. From this it is clear that 36.00% of girl students are not in favour of the statement that E-learning reduces the interest and interaction of students in the daily educational activities.

Out of total 200 students 12.50% responded to strongly agree, 40.00% responded to agree, 14.50% responded to undecided, 25.50% responded to disagree, and 7.50% of students responded to strongly disagree. From this it is clear that 33.00% of students are not in favour of the statement that E-learning reduces the interest and interaction of students in the daily educational activities.

Item No. 15: E-learning sources allows me to have access to infinite information about my courses in global perspectives.

The data pertaining to this item has been presented in table -4.15.

Table-4.15. Percentage wise analysis of item no. 15

Category	N	SA%	A%	U%	D%	SD%
Boys	100	18.00%	55.00%	19.00%	6.00%	2.00%
Girls	100	9.00%	54.00%	22.00%	13.00%	2.00%
Total	200	13.50%	54.50%	20.50%	9.50%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 18.00% responded to strongly agree, 55.00% responded to agree, 19.00% responded to Undecided, 6.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 73.00% of Boy students favour the statement that E-learning sources allows me to have access to infinite information about my courses in global perspectives.

Out of 100 girl students 9.00% responded to strongly agree, 54.00% responded to agree, 22.00% responded to undecided, 13.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 63.00% of girl students favour the statement that E-learning sources allows me to have access to infinite information about my courses in global perspectives.

Out of total 200 students 13.50% responded to strongly agree, 54.50% responded to agree, 20.50% responded to undecided, 9.50% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 68.00% of students favour the statement that E-learning sources allows me to have access to infinite information about my courses in global perspectives.

Item No. 16: E-learning reduces my interest in co-curricular activities.

The data pertaining to this item has been presented in table -4.16.

Table-4.16. Percentage wise analysis of item no. 16

Category	N	SA%	A%	U%	D%	SD%
Boys	100	12.00%	32.00%	16.00%	24.00%	16.00%
Girls	100	12.00%	28.00%	14.00%	36.00%	10.00%
Total	200	12.00%	30.00%	15.00%	30.00%	13.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 12.00% responded to strongly agree, 32.00% responded to agree, 16.00% responded to Undecided, 24.00% responded to disagree and 16.00% of students responded to strongly disagree. From this it is clear that 40.00% of Boy students are not in favour of the statement that E-learning reduces my interest in co-curricular activities.

Out of 100 girl students 12.00% responded to strongly agree, 28.00% responded to agree, 14.00% responded to undecided, 36.00% responded to disagree, and 10.00% students responded to strongly disagree. From this it is clear that 46.00% of girl students are not in favour of the statement that E-learning reduces my interest in co-curricular activities.

Out of total 200 students 12.00% responded to strongly agree, 30.00% responded to agree, 15.00% responded to undecided, 30.00% responded to disagree, and 13.00% of students responded to strongly disagree. From this it is clear that 43.00% of students are not in favour of the statement that E-learning reduces my interest in co-curricular activities.

Item No. 17: I am satisfied with E-learning contents.

The data pertaining to this item has been presented in table -4.17.

Table-4.17 Percentage wise analysis of item no. 17

Category	N	SA%	A%	U%	D%	SD%
Boys	100	24.00%	44.00%	21.00%	11.00%	0.00%
Girls	100	19.00%	53.00%	18.00%	9.00%	1.00%
Total	200	21.50%	48.50%	19.50%	10.00%	0.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 24.00% responded to strongly agree, 44.00% responded to agree, 21.00% responded to Undecided, 11.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 68.00% of Boy students favour the statement that I am satisfied with E-learning contents.

Out of 100 girl students 19.00% responded to strongly agree, 53.00% responded to agree, 18.00% responded to undecided, 9.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 72.00% of girl students favour the statement that I am satisfied with E-learning contents.

Out of total 200 students 21.50% responded to strongly agree, 48.50% responded to agree, 19.50% responded to undecided, 10.00% responded to disagree, and 0.50% of students responded to strongly disagree. From this it is clear that 70.00% of students favour the statement that I am satisfied with E-learning contents.

Item No. 18: I believe E-learning contents are valid, reliable and practical.

The data pertaining to this item has been presented in table -4.18.

Table-4.18 Percentage wise analysis of item no. 18

Category	N	SA%	A%	U%	D%	SD%
Boys	100	10.00%	44.00%	23.00%	21.00%	2.00%
Girls	100	14.00%	51.00%	27.00%	7.00%	1.00%
Total	200	12.00%	47.50%	25.00%	14.00%	1.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 10.00% responded to strongly agree, 44.00% responded to agree, 23.00% responded to Undecided, 21.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 23.00% of Boy students are not in favour of the statement that I believe E-learning contents are valid, reliable and practical.

Out of 100 girl students 14.00% responded to strongly agree, 51.00% responded to agree, 27.00% responded to undecided, 7.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 8.00% of girl students are not in favour of the statement that I believe E-learning contents are valid, reliable and practical.

Out of total 200 students 12.00% responded to strongly agree, 47.50% responded to agree, 25.00% responded to undecided, 14.00% responded to disagree, and 1.50% of students responded to strongly disagree. From this it is clear that 15.50% of students are not in favour of the statement that I believe E-learning contents are valid, reliable and practical.

Item No. 19: I believe E-learning is not a useful learning tool in providing distance and mass education.

The data pertaining to this item has been presented in table -4.19.

Table-4.19. Percentage wise analysis of item no. 19

Category	N	SA%	A%	U%	D%	SD%
Boys	100	3.00%	18.00%	16.00%	48.00%	15.00%
Girls	100	7.00%	18.00%	21.00%	45.00%	9.00%
Total	200	5.00%	18.00%	18.50%	46.50%	12.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 3.00% responded to strongly agree, 18.00% responded to agree, 16.00% responded to Undecided, 48.00% responded to disagree and 15.00% of students responded to strongly disagree. From this it is clear that 63.00% of Boy students are not in favour of the statement that I believe E-learning is not a useful learning tool in providing distance and mass education.

Out of 100 girl students 7.00% responded to strongly agree, 18.00% responded to agree, 21.00% responded to undecided, 45.00% responded to disagree, and 9.00% students responded to strongly disagree. From this it is clear that 54.00% of girl students are not in favour of the statement that I believe E-learning is not a useful learning tool in providing distance and mass education.

Out of total 200 students 5.00% responded to strongly agree, 18.00% responded to agree, 18.50% responded to undecided, 46.50% responded to disagree, and 12.00% of students responded to strongly disagree. From this it is clear that 58.50% of students are not in favour of the statement that I believe E-learning is not a useful learning tool in providing distance and mass education.

Item No. 20: I believe that E-learning gives me opportunities to learn new things from a new perspective.

The data pertaining to this item has been presented in table -4.20.

Table-4.20 Percentage wise analysis of item no. 20

Category	N	SA%	A%	U%	D%	SD%
Boys	100	36.00%	57.00%	3.00%	2.00%	2.00%
Girls	100	48.00%	49.00%	1.00%	1.00%	1.00%
Total	200	42.00%	53.00%	2.00%	1.50%	1.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 36.00% responded to strongly agree, 57.00% responded to agree, 3.00% responded to Undecided, 2.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 93.00% of Boy students favour the statement that I believe that E-learning gives me opportunities to learn new things from a new perspective.

Out of 100 girl students 48.00% responded to strongly agree, 49.00% responded to agree, 1.00% responded to undecided, 1.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 97.00% of girl students favour the statement that I believe that E-learning gives me opportunities to learn new things from a new perspective.

Out of total 200 students 42.00% responded to strongly agree, 53.00% responded to agree, 2.00% responded to undecided, 1.50% responded to disagree, and 1.50% of students responded to strongly disagree. From this it is clear that 95.00% of students favour the statement that I believe that E-learning gives me opportunities to learn new things from a new perspective.

Item No. 21: I can learn through E-learning sources anytime and anywhere.

The data pertaining to this item has been presented in table -4.21.

Table-4.21 Percentage wise analysis of item no. 21

Category	N	SA%	A%	U%	D%	SD%
Boys	100	29.00%	60.00%	4.00%	6.00%	1.00%
Girls	100	36.00%	46.00%	9.00%	6.00%	3.00%
Total	200	32.50%	53.00%	6.50%	6.00%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 29.00% responded to strongly agree, 60.00% responded to agree, 4.00% responded to Undecided, 6.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that 89.00% of Boy students favour the statement that I can learn through E-learning sources anytime and anywhere.

Out of 100 girl students 36.00% responded to strongly agree, 46.00% responded to agree, 9.00% responded to undecided, 6.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 82.00% of girl students favour the statement that I can learn through E-learning sources anytime and anywhere.

Out of total 200 students 32.50% responded to strongly agree, 53.00% responded to agree, 6.50% responded to undecided, 6.00% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 85.50% of students favour the statement that I can learn through E-learning sources anytime and anywhere.

Item No. 22 I don’t like to work with machine/computers.

The data pertaining to this item has been presented in table -4.22.

Table-4.22. Percentage wise analysis of item no. 22

Category	N	SA%	A%	U%	D%	SD%
Boys	100	1.00%	8.00%	9.00%	52.00%	30.00%
Girls	100	2.00%	9.00%	7.00%	55.00%	27.00%
Total	200	1.50%	8.50%	8.00%	53.50%	28.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 1.00% responded to strongly agree, 8.00% responded to agree, 9.00% responded to Undecided, 52.00% responded to disagree and 30.00% of students responded to strongly disagree. From this it is clear that 82.00% of Boy students are not in favour of the statement that I don’t like to work with machine/computers.

Out of 100 girl students 2.00% responded to strongly agree, 9.00% responded to agree, 7.00% responded to undecided, 55.00% responded to disagree, and 27.00% students responded to strongly disagree. From this it is clear that 82.00% of girl students are not in favour of the statement that I don’t like to work with machine/computers.

Out of total 200 students 1.50% responded to strongly agree, 8.50% responded to agree, 8.00% responded to undecided, 53.50% responded to disagree, and 28.50% of students responded to strongly disagree. From this it is clear that 82.00% of students are not in favour of the statement that I don’t like to work with machine/computers.

Item No. 23: I don't want to use E-learning contents to enhance my learning.

The data pertaining to this item has been presented in table -4.23.

Table-4.23 Percentage wise analysis of item no. 23

Category	N	SA%	A%	U%	D%	SD%
Boys	100	1.00%	8.00%	13.00%	62.00%	16.00%
Girls	100	1.00%	8.00%	12.00%	60.00%	19.00%
Total	200	1.00%	8.00%	12.50%	61.00%	17.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 1.00% responded to strongly agree, 8.00% responded to agree, 13.00% responded to Undecided, 62.00% responded to disagree and 16.00% of students responded to strongly disagree. From this it is clear that 78.00% of Boy students are not in favour of the statement that I don't want to use E-learning contents to enhance my learning.

Out of 100 girl students 1.00% responded to strongly agree, 8.00% responded to agree, 12.00% responded to undecided, 60.00% responded to disagree, and 19.00% students responded to strongly disagree. From this it is clear that 79.00% of girl students are not in favour of the statement that I don't want to use E-learning contents to enhance my learning.

Out of total 200 students 1.00% responded to strongly agree, 8.00% responded to agree, 12.50% responded to undecided, 61.00% responded to disagree, and 17.50% of students responded to strongly disagree. From this it is clear that 78.50% of students are not in favour of the statement that I don't want to use E-learning contents to enhance my learning.

Item No. 24: I enjoy instructions given through multimedia.

The data pertaining to this item has been presented in table -4.24.

Table-4.24 Percentage wise analysis of item no. 24

Category	N	SA%	A%	U%	D%	SD%
Boys	100	12.00%	63.00%	12.00%	12.00%	1.00%
Girls	100	23.00%	55.00%	16.00%	4.00%	2.00%
Total	200	17.50%	59.00%	14.00%	8.00%	1.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 12.00% responded to strongly agree, 63.00% responded to agree, 12.00% responded to Undecided, 12.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that 75.00% of Boy students favour the statement that I enjoy instructions given through multimedia.

Out of 100 girl students 23.00% responded to strongly agree, 55.00% responded to agree, 16.00% responded to undecided, 4.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 78.00% of girl students favour the statement that I enjoy instructions given through multimedia.

Out of total 200 students 17.50% responded to strongly agree, 59.00% responded to agree, 14.00% responded to undecided, 8.00% responded to disagree, and 1.50% of students responded to strongly disagree. From this it is clear that 76.50% of students favour the statement that I enjoy instructions given through multimedia.

Item No. 25: I enjoy interactive videos and educational documentaries over the internet.

The data pertaining to this item has been presented in table -4.25.

Table-4.25 Percentage wise analysis of item no. 25

Category	N	SA%	A%	U%	D%	SD%
Boys	100	32.00%	64.00%	4.00%	0.00%	0.00%
Girls	100	33.00%	57.00%	2.00%	5.00%	3.00%
Total	200	32.50%	60.50%	3.00%	2.50%	1.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 32.00% responded to strongly agree, 64.00% responded to agree, 4.00% responded to Undecided, 0.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 96.00% of Boy students favour the statement that I enjoy interactive videos and educational documentaries over the internet.

Out of 100 girl students 33.00% responded to strongly agree, 57.00% responded to agree, 2.00% responded to undecided, 5.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 90.00% of girl students favour the statement that I enjoy interactive videos and educational documentaries over the internet.

Out of total 200 students 32.50% responded to strongly agree, 60.50% responded to agree, 3.00% responded to undecided, 2.50% responded to disagree, and 1.50% of students responded to strongly disagree. From this it is clear that 93.00% of students favour the statement that I enjoy interactive videos and educational documentaries over the internet.

Item No. 26: I enjoy using E-learning as a learning facilitating tool and technique.

The data pertaining to this item has been presented in table -4.26.

Table-4.26 Percentage wise analysis of item no. 26

Category	N	SA%	A%	U%	D%	SD%
Boys	100	23.00%	66.00%	5.00%	4.00%	2.00%
Girls	100	28.00%	62.00%	7.00%	2.00%	1.00%
Total	200	25.50%	64.00%	6.00%	3.00%	1.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 23.00% responded to strongly agree, 66.00% responded to agree, 5.00% responded to Undecided, 4.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 89.00% of Boy students favour the statement that I enjoy using E-learning as a learning facilitating tool and technique.

Out of 100 girl students 28.00% responded to strongly agree, 62.00% responded to agree, 7.00% responded to undecided, 2.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 90.00% of girl students favour the statement that I enjoy using E-learning as a learning facilitating tool and technique.

Out of total 200 students 25.50% responded to strongly agree, 64.00% responded to agree, 6.00% responded to undecided, 3.00% responded to disagree, and 1.50% of students responded to strongly disagree. From this it is clear that 89.50% of students favour the statement that I enjoy using E-learning as a learning facilitating tool and technique.

Item No. 27: I face many problems while using internet.

The data pertaining to this item has been presented in table -4.27.

Table-4.27 Percentage wise analysis of item no. 27

Category	N	SA%	A%	U%	D%	SD%
Boys	100	7.00%	32.00%	16.00%	35.00%	10.00%
Girls	100	12.00%	28.00%	18.00%	35.00%	7.00%
Total	200	9.50%	30.00%	17.00%	35.00%	8.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 7.00% responded to strongly agree, 32.00% responded to agree, 16.00% responded to Undecided, 35.00% responded to disagree and 10.00% of students responded to strongly disagree. From this it is clear that 45.00% of Boy students are not in favour of the statement that I face many problems while using internet.

Out of 100 girl students 12.00% responded to strongly agree, 28.00% responded to agree, 18.00% responded to undecided, 35.00% responded to disagree, and 10.00% students responded to strongly disagree. From this it is clear that 42.00% of girl students are not in favour of the statement that I face many problems while using internet.

Out of total 200 students 9.50% responded to strongly agree, 30.00% responded to agree, 17.00% responded to undecided, 35.00% responded to disagree, and 7.00% of students responded to strongly disagree. From this it is clear that 43.50% of students are not in favour of the statement that I face many problems while using internet.

Item No. 28: I feel confident using E-learning material.

The data pertaining to this item has been presented in table -4.28.

Table-4.28 Percentage wise analysis of item no. 28

Category	N	SA%	A%	U%	D%	SD%
Boys	100	7.00%	57.00%	24.00%	12.00%	0.00%
Girls	100	21.00%	40.00%	27.00%	10.00%	2.00%
Total	200	14.00%	48.50%	25.50%	11.00%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 7.00% responded to strongly agree, 57.00% responded to agree, 24.00% responded to Undecided, 12.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 64.00% of Boy students favour the statement that I feel confident using E-learning material.

Out of 100 girl students 21.00% responded to strongly agree, 40.00% responded to agree, 27.00% responded to undecided, 10.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 61.00% of girl students favour the statement that I feel confident using E-learning material.

Out of total 200 students 14.00% responded to strongly agree, 48.50% responded to agree, 25.50% responded to undecided, 11.00% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 62.50% of students favour the statement that I feel confident using E-learning material.

Item No. 29: I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

The data pertaining to this item has been presented in table -4.29.

Table-4.29 Percentage wise analysis of item no. 29

Category	N	SA%	A%	U%	D%	SD%
Boys	100	19.00%	59.00%	14.00%	6.00%	2.00%
Girls	100	25.00%	48.00%	12.00%	11.00%	4.00%
Total	200	22.00%	53.50%	13.00%	8.50%	3.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 19.00% responded to strongly agree, 59.00% responded to agree, 14.00% responded to Undecided, 6.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 78.00% of Boy students favour the statement that I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

Out of 100 girl students 25.00% responded to strongly agree, 48.00% responded to agree, 12.00% responded to undecided, 11.00% responded to disagree, and 4.00% students responded to strongly disagree. From this it is clear that 73.00% of girl students favour the statement that I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

Out of total 200 students 22.00% responded to strongly agree, 53.50% responded to agree, 13.00% responded to undecided, 8.50% responded to disagree, and 3.00% of students responded to strongly disagree. From this it is clear that 75.50% of students favour the statement that I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

Item No. 30: I feel that E-learning resources are not useful for my study.

The data pertaining to this item has been presented in table -4.30.

Table-4.30 Percentage wise analysis of item no. 30

Category	N	SA%	A%	U%	D%	SD%
Boys	100	1.00%	9.00%	12.00%	55.00%	23.00%
Girls	100	4.00%	10.00%	13.00%	48.00%	25.00%
Total	200	2.50%	9.50%	12.50%	51.50%	24.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 1.00% responded to strongly agree, 9.00% responded to agree, 12.00% responded to Undecided, 55.00% responded to disagree and 23.00% of students responded to strongly disagree. From this it is clear that 78.00% of Boy students are not in favour of the statement that I feel that E-learning resources are not useful for my study.

Out of 100 girl students 4.00% responded to strongly agree, 10.00% responded to agree, 13.00% responded to undecided, 48.00% responded to disagree, and 25.00% students responded to strongly disagree. From this it is clear that 73.00% of girl students are not in favour of the statement that I feel that E-learning resources are not useful for my study.

Out of total 200 students 2.50% responded to strongly agree, 9.50% responded to agree, 12.50% responded to undecided, 51.50% responded to disagree, and 24.00% of students responded to strongly disagree. From this it is clear that 75.50% of students are not in favour of the statement that I feel that E-learning resources are not useful for my study.

Item No. 31: I do not like to share my E-learning experiences with my peers, teachers and others.

The data pertaining to this item has been presented in table -4.31.

Table-4.31 Percentage wise analysis of item no. 31

Category	N	SA%	A%	U%	D%	SD%
Boys	100	2.00%	13.00%	17.00%	51.00%	17.00%
Girls	100	6.00%	12.00%	15.00%	46.00%	21.00%
Total	200	4.00%	12.50%	16.00%	48.50%	19.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 2.00% responded to strongly agree, 13.00% responded to agree, 17.00% responded to Undecided, 51.00% responded to disagree and 17.00% of students responded to strongly disagree. From this it is clear that 68.00% of Boy students are not in favour of the statement that I do not like to share my E-learning experiences with my peers, teachers and others.

Out of 100 girl students 6.00% responded to strongly agree, 12.00% responded to agree, 15.00% responded to undecided, 46.00% responded to disagree, and 21.00% students responded to strongly disagree. From this it is clear that 67.00% of girl students are not in favour of the statement that I do not like to share my E-learning experiences with my peers, teachers and others.

Out of total 200 students 4.00% responded to strongly agree, 12.50% responded to agree, 16.00% responded to undecided, 48.50% responded to disagree, and 19.00% of students responded to strongly disagree. From this it is clear that 67.50% of students are not in favour of the statement that I do not like to share my E-learning experiences with my peers, teachers and others.

Item No. 32: I prefer to learn my course work and do assignments through E-learning.

The data pertaining to this item has been presented in table -4.32.

Table-4.32 Percentage wise analysis of item no. 32

Category	N	SA%	A%	U%	D%	SD%
Boys	100	18.00%	62.00%	16.00%	3.00%	1.00%
Girls	100	22.00%	52.00%	11.00%	12.00%	3.00%
Total	200	20.00%	57.00%	13.50%	7.50%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 18.00% responded to strongly agree, 62.00% responded to agree, 16.00% responded to Undecided, 3.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that 80.00% of Boy students favour the statement that I prefer to learn my course work and do assignments through E-learning.

Out of 100 girl students 22.00% responded to strongly agree, 52.00% responded to agree, 11.00% responded to undecided, 12.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 74.00% of girl students favour the statement that I prefer to learn my course work and do assignments through E-learning.

Out of total 200 students 20.00% responded to strongly agree, 57.00% responded to agree, 13.50% responded to undecided, 7.50% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 77.00% of students favour the statement that I prefer to learn my course work and do assignments through E-learning.

Item No. 33: I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

The data pertaining to this item has been presented in table -4.33.

Table-4.33 Percentage wise analysis of item no. 33

Category	N	SA%	A%	U%	D%	SD%
Boys	100	16.00%	58.00%	16.00%	7.00%	3.00%
Girls	100	19.00%	50.00%	22.00%	7.00%	2.00%
Total	200	17.5.00%	54.00%	19.00%	7.00%	2.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 16.00% responded to strongly agree, 58.00% responded to agree, 16.00% responded to Undecided, 7.00% responded to disagree and 3.00% of students responded to strongly disagree. From this it is clear that 74.00% of Boy students favour the statement that I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

Out of 100 girl students 19.00% responded to strongly agree, 50.00% responded to agree, 22.00% responded to undecided, 7.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 69.00% of girl students favour the statement that I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

Out of total 200 students 17.50% responded to strongly agree, 54.00% responded to agree, 19.00% responded to undecided, 7.00% responded to disagree, and 2.50% of students responded to strongly disagree. From this it is clear that 71.50% of students favour the statement that I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

Item No. 34: I strongly prefer E-learning as the best tool and technique of education in present time.

The data pertaining to this item has been presented in table -4.34.

Table-4.34 Percentage wise analysis of item no. 34

Category	N	SA%	A%	U%	D%	SD%
Boys	100	31.00%	48.00%	15.00%	5.00%	1.00%
Girls	100	32.00%	54.00%	8.00%	6.00%	0.00%
Total	200	31.50%	51.00%	11.50%	5.50%	0.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 31.00% responded to strongly agree, 48.00% responded to agree, 15.00% responded to Undecided, 5.00% responded to disagree and 1.00% of students responded to strongly disagree. From this it is clear that 79.00% of Boy students favour the statement that I strongly prefer E-learning as the best tool and technique of education in present time.

Out of 100 girl students 32.00% responded to strongly agree, 54.00% responded to agree, 8.00% responded to undecided, 6.00% responded to disagree, and 0.00% students responded to strongly disagree. From this it is clear that 86.00% of girl students favour the statement that I strongly prefer E-learning as the best tool and technique of education in present time.

Out of total 200 students 31.50% responded to strongly agree, 51.00% responded to agree, 11.50% responded to undecided, 5.50% responded to disagree, and 0.50% of students responded to strongly disagree. From this it is clear that 82.50% of students favour the statement that I strongly prefer E-learning as the best tool and technique of education in present time.

Item No. 35: I think E-learning is better than books.

The data pertaining to this item has been presented in table -4.35.

Table-4.35 Percentage wise analysis of item no. 35

Category	N	SA%	A%	U%	D%	SD%
Boys	100	11.00%	19.00%	26.00%	29.00%	15.00%
Girls	100	11.00%	22.00%	35.00%	26.00%	6.00%
Total	200	11.00%	20.50%	30.50%	27.50%	10.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 11.00% responded to strongly agree, 19.00% responded to agree, 26.00% responded to Undecided, 29.00% responded to disagree and 15.00% of students responded to strongly disagree. From this it is clear that 44.00% of Boy students are not in favour of the statement that I think E-learning is better than books.

Out of 100 girl students 11.00% responded to strongly agree, 22.00% responded to agree, 35.00% responded to undecided, 26.00% responded to disagree, and 6.00% students responded to strongly disagree. From this it is clear that 32.00% of girl students are not in favour of the statement that I think E-learning is better than books.

Out of total 200 students 11.00% responded to strongly agree, 20.50% responded to agree, 30.50% responded to undecided, 27.50% responded to disagree, and 10.50% of students responded to strongly disagree. From this it is clear that 38.00% of students are not in favour of the statement that I think E-learning is better than books.

Item No. 36: I think it is very difficult to use computer application.

The data pertaining to this item has been presented in table -4.36.

Table-4.36 Percentage wise analysis of item no. 36

Category	N	SA%	A%	U%	D%	SD%
Boys	100	2.00%	11.00%	18.00%	60.00%	9.00%
Girls	100	3.00%	22.00%	26.00%	43.00%	6.00%
Total	200	2.50%	16.50%	22.00%	51.50%	7.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 2.00% responded to strongly agree, 11.00% responded to agree, 18.00% responded to Undecided, 60.00% responded to disagree and 9.00% of students responded to strongly disagree. From this it is clear that 69.00% of Boy students are not in favour of the statement that I think it is very difficult to use computer application.

Out of 100 girl students 3.00% responded to strongly agree, 22.00% responded to agree, 26.00% responded to undecided, 43.00% responded to disagree, and 6.00% students responded to strongly disagree. From this it is clear that 49.00% of girl students are not in favour of the statement that I think it is very difficult to use computer application.

Out of total 200 students 2.50% responded to strongly agree, 16.50% responded to agree, 22.00% responded to undecided, 51.50% responded to disagree, and 7.50% of students responded to strongly disagree. From this it is clear that 59.00% of students are not in favour of the statement that I think it is very difficult to use computer application.

Item No. 37: I think the teacher's application of E-learning in teaching learning process is a waste of time.

The data pertaining to this item has been presented in table -4.37.

Table-4.37 Percentage wise analysis of item no. 37

Category	N	SA%	A%	U%	D%	SD%
Boys	100	2.00%	8.00%	29.00%	44.00%	17.00%
Girls	100	0.00%	8.00%	28.00%	49.00%	15.00%
Total	200	1.00%	8.00%	28.50%	46.50%	16.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 2.00% responded to strongly agree, 8.00% responded to agree, 29.00% responded to Undecided, 44.00% responded to disagree and 17.00% of students responded to strongly disagree. From this it is clear that 61.00% of Boy students are not in favour of the statement that I think the teacher's application of E-learning in teaching learning process is a waste of time.

Out of 100 girl students 0.00% responded to strongly agree, 8.00% responded to agree, 28.00% responded to undecided, 49.00% responded to disagree, and 15.00% students responded to strongly disagree. From this it is clear that 64.00% of girl students are not in favour of the statement that I think the teacher's application of E-learning in teaching learning process is a waste of time.

Out of total 200 students 1.00% responded to strongly agree, 8.00% responded to agree, 28.50% responded to undecided, 46.50% responded to disagree, and 16.00% of students responded to strongly disagree. From this it is clear that 62.50% of students are not in favour of the statement that I think the teacher's application of E-learning in teaching learning process is a waste of time.

Item No. 38: I feel E-learning hinders my self-study.

The data pertaining to this item has been presented in table -4.38.

Table-4.38 Percentage wise analysis of item no. 38

Category	N	SA%	A%	U%	D%	SD%
Boys	100	7.00%	21.00%	30.00%	32.00%	10.00%
Girls	100	6.00%	31.00%	30.00%	29.00%	4.00%
Total	200	6.50%	26.00%	30.00%	30.50%	7.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 7.00% responded to strongly agree, 21.00% responded to agree, 30.00% responded to Undecided, 32.00% responded to disagree and 10.00% of students responded to strongly disagree. From this it is clear that 42.00% of Boy students are not in favour of the statement that I feel E-learning hinders my self-study.

Out of 100 girl students 6.00% responded to strongly agree, 31.00% responded to agree, 30.00% responded to undecided, 29.00% responded to disagree, and 4.00% students responded to strongly disagree. From this it is clear that 33.00% of girl students are not in favour of the statement that I feel E-learning hinders my self-study.

Out of total 200 students 6.50% responded to strongly agree, 26.00% responded to agree, 30.00% responded to undecided, 30.50% responded to disagree, and 7.00% of students responded to strongly disagree. From this it is clear that 37.50% of students are not in favour of the statement that I feel E-learning hinders my self-study.

Item No. 39: I use social media as a medium of collaborative learning.

The data pertaining to this item has been presented in table -4.39.

Table-4.39 Percentage wise analysis of item no. 39

Category	N	SA%	A%	U%	D%	SD%
Boys	100	9.00%	52.00%	29.00%	10.00%	0.00%
Girls	100	10.00%	50.00%	29.00%	9.00%	2.00%
Total	200	9.50%	51.00%	29.00%	9.50%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 9.00% responded to strongly agree, 52.00% responded to agree, 29.00% responded to Undecided, 10.00% responded to disagree and 0.00% of students responded to strongly disagree. From this it is clear that 61.00% of Boy students favour the statement that I use social media as a medium of collaborative learning.

Out of 100 girl students 10.00% responded to strongly agree, 50.00% responded to agree, 29.00% responded to undecided, 9.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 60.00% of girl students favour the statement that I use social media as a medium of collaborative learning.

Out of total 200 students 9.50% responded to strongly agree, 51.00% responded to agree, 29.00% responded to undecided, 9.50% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 60.50% of students favour the statement that I use social media as a medium of collaborative learning.

Item No. 40: In my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

The data pertaining to this item has been presented in table -4.40.

Table-4.40 Percentage wise analysis of item no. 40

Category	N	SA%	A%	U%	D%	SD%
Boys	100	13.00%	57.00%	13.00%	11.00%	6.00%
Girls	100	19.00%	57.00%	13.00%	8.00%	3.00%
Total	200	16.00%	57.00%	13.00%	9.50%	4.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 13.00% responded to strongly agree, 57.00% responded to agree, 13.00% responded to Undecided, 11.00% responded to disagree and 6.00% of students responded to strongly disagree. From this it is clear that 70.00% of Boy students favour the statement that in my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

Out of 100 girl students 19.00% responded to strongly agree, 57.00% responded to agree, 13.00% responded to undecided, 8.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 76.00% of girl students favour the statement that in my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

Out of total 200 students 16.00% responded to strongly agree, 57.00% responded to agree, 13.00% responded to undecided, 9.50% responded to disagree, and 4.50% of students responded to strongly disagree. From this it is clear that 73.00% of students favour the statement that in my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

Item No. 41: My parents encourages me to utilize E-learning for my academic activities.

The data pertaining to this item has been presented in table -4.41.

Table-4.41 Percentage wise analysis of item no. 41

Category	N	SA%	A%	U%	D%	SD%
Boys	100	10.00%	49.00%	18.00%	16.00%	7.00%
Girls	100	13.00%	56.00%	18.00%	10.00%	3.00%
Total	200	11.50%	52.50%	18.00%	13.00%	5.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 10.00% responded to strongly agree, 49.00% responded to agree, 18.00% responded to Undecided, 16.00% responded to disagree and 7.00% of students responded to strongly disagree. From this it is clear that 59.00% of Boy students favour the statement that my parents encourages me to utilize E-learning for my academic activities.

Out of 100 girl students 13.00% responded to strongly agree, 56.00% responded to agree, 18.00% responded to undecided, 10.00% responded to disagree, and 3.00% students responded to strongly disagree. From this it is clear that 69.00% of girl students favour the statement that my parents encourages me to utilize E-learning for my academic activities.

Out of total 200 students 11.50% responded to strongly agree, 52.50% responded to agree, 18.00% responded to undecided, 13.00% responded to disagree, and 5.00% of students responded to strongly disagree. From this it is clear that 64.00% of students favour the statement that my parents encourages me to utilize E-learning for my academic activities.

Item No. 42: Teachers in my college are very motivated to use E-learning on a wider scale.

The data pertaining to this item has been presented in table -4.42.

Table-4.42 Percentage wise analysis of item no. 42

Category	N	SA%	A%	U%	D%	SD%
Boys	100	9.00%	46.00%	22.00%	18.00%	5.00%
Girls	100	19.00%	36.00%	31.00%	14.00%	0.00%
Total	200	14.00%	41.00%	26.50%	16.00%	2.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 9.00% responded to strongly agree, 46.00% responded to agree, 22.00% responded to Undecided, 18.00% responded to disagree and 5.00% of students responded to strongly disagree. From this it is clear that 55.00% of Boy students favour the statement that teachers in my college are very motivated to use E-learning on a wider scale.

Out of 100 girl students 19.00% responded to strongly agree, 36.00% responded to agree, 31.00% responded to undecided, 14.00% responded to disagree, and 0.00% students responded to strongly disagree. From this it is clear that 55.00% of girl students favour the statement that teachers in my college are very motivated to use E-learning on a wider scale.

Out of total 200 students 14.00% responded to strongly agree, 41.00% responded to agree, 26.50% responded to undecided, 16.00% responded to disagree, and 2.50% of students responded to strongly disagree. From this it is clear that 55.00% of students favour the statement that teachers in my college are very motivated to use E-learning on a wider scale.

Item No. 43: Teachers in my college still using traditional ways for teaching.

The data pertaining to this item has been presented in table -4.43.

Table-4.43 Percentage wise analysis of item no. 43

Category	N	SA%	A%	U%	D%	SD%
Boys	100	15.00%	27.00%	17.00%	31.00%	10.00%
Girls	100	9.00%	24.00%	24.00%	37.00%	6.00%
Total	200	12.00%	25.50%	20.50%	34.00%	8.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 15.00% responded to strongly agree, 27.00% responded to agree, 17.00% responded to Undecided, 31.00% responded to disagree and 10.00% of students responded to strongly disagree. From this it is clear that 41.00% of Boy students are not in favour of the statement that teachers in my college still using traditional ways for teaching.

Out of 100 girl students 9.00% responded to strongly agree, 24.00% responded to agree, 24.00% responded to undecided, 37.00% responded to disagree, and 6.00% students responded to strongly disagree. From this it is clear that 43.00% of girl students are not in favour of the statement that teachers in my college still using traditional ways for teaching.

Out of total 200 students 12.00% responded to strongly agree, 25.50% responded to agree, 20.50% responded to undecided, 34.00% responded to disagree, and 8.00% of students responded to strongly disagree. From this it is clear that 42.00% of students are not in favour of the statement that teachers in my college still using traditional ways for teaching.

Item No. 44: Teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

The data pertaining to this item has been presented in table -4.44.

Table-4.44 Percentage wise analysis of item no. 44

Category	N	SA%	A%	U%	D%	SD%
Boys	100	17.00%	33.00%	13.00%	31.00%	6.00%
Girls	100	12.00%	26.00%	17.00%	32.00%	13.00%
Total	200	14.50%	29.50%	15.00%	31.50%	9.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 15.00% responded to strongly agree, 33.00% responded to agree, 13.00% responded to Undecided, 31.00% responded to disagree and 6.00% of students responded to strongly disagree. From this it is clear that 37.00% of Boy students are not in favour of the statement that teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

Out of 100 girl students 12.00% responded to strongly agree, 26.00% responded to agree, 17.00% responded to undecided, 32.00% responded to disagree, and 13.00% students responded to strongly disagree. From this it is clear that 45.00% of girl students are not in favour of the statement that teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

Out of total 200 students 14.50% responded to strongly agree, 29.50% responded to agree, 15.00% responded to undecided, 31.50% responded to disagree, and 9.50% of students responded to strongly disagree. From this it is clear that 41.00% of students

are not in favour of the statement that teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

Item No. 45: Teachers in my college wants me to use E-learning as much as possible.

The data pertaining to this item has been presented in table -4.45.

Table-4.45 Percentage wise analysis of item no. 45

Category	N	SA%	A%	U%	D%	SD%
Boys	100	6.00%	47.00%	30.00%	11.00%	6.00%
Girls	100	15.00%	42.00%	28.00%	14.00%	1.00%
Total	200	10.50%	44.50%	29.00%	12.50%	3.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 6.00% responded to strongly agree, 47.00% responded to agree, 30.00% responded to Undecided, 11.00% responded to disagree and 6.00% of students responded to strongly disagree. From this it is clear that 53.00% of Boy students favour the statement that teachers in my college wants me to use E-learning as much as possible.

Out of 100 girl students 15.00% responded to strongly agree, 42.00% responded to agree, 28.00% responded to undecided, 14.00% responded to disagree, and 1.00% students responded to strongly disagree. From this it is clear that 57.00% of girl students favour the statement that teachers in my college wants me to use E-learning as much as possible.

Out of total 200 students 10.50% responded to strongly agree, 44.50% responded to agree, 29.00% responded to undecided, 12.50% responded to disagree, and 3.50% of students responded to strongly disagree. From this it is clear that 55.00% of students

favour the statement that teachers in my college wants me to use E-learning as much as possible.

Item No. 46: Teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

The data pertaining to this item has been presented in table -4.46.

Table-4.46 Percentage wise analysis of item no. 46

Category	N	SA%	A%	U%	D%	SD%
Boys	100	13.00%	54.00%	19.00%	12.00%	2.00%
Girls	100	28.00%	33.00%	20.00%	15.00%	4.00%
Total	200	20.50%	43.50%	19.50%	13.50%	3.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 13.00% responded to strongly agree, 54.00% responded to agree, 19.00% responded to Undecided, 12.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 67.00% of Boy students favour the statement that teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

Out of 100 girl students 28.00% responded to strongly agree, 33.00% responded to agree, 20.00% responded to undecided, 15.00% responded to disagree, and 4.00% students responded to strongly disagree. From this it is clear that 61.00% of girl students favour the statement that teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

Out of total 200 students 20.50% responded to strongly agree, 43.50% responded to agree, 19.50% responded to undecided, 13.50% responded to disagree, and 3.00% of students responded to strongly disagree. From this it is clear that 64.00% of students favour the statement that teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

Item No. 47: The use of educational technologies influences student's participation in the overall educational process in a positive way.

The data pertaining to this item has been presented in table -4.47.

Table-4.47 Percentage wise analysis of item no. 47

Category	N	SA%	A%	U%	D%	SD%
Boys	100	16.00%	54.00%	23.00%	5.00%	2.00%
Girls	100	17.00%	55.00%	22.00%	6.00%	0.00%
Total	200	16.50%	54.50%	22.50%	5.50%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 16.00% responded to strongly agree, 54.00% responded to agree, 23.00% responded to Undecided, 5.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 70.00% of Boy students favour the statement that the use of educational technologies influences student's participation in the overall educational process in a positive way.

Out of 100 girl students 17.00% responded to strongly agree, 55.00% responded to agree, 22.00% responded to undecided, 6.00% responded to disagree, and 0.00% students responded to strongly disagree. From this it is clear that 72.00% of girl students favour the statement that the use of educational technologies influences student's participation in the overall educational process in a positive way.

Out of total 200 students 16.50% responded to strongly agree, 54.50% responded to agree, 22.50% responded to undecided, 5.50% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 71.00% of students favour the statement that the use of educational technologies influences student's participation in the overall educational process in a positive way.

Item No. 48: Traditional classroom is better than E-learning system.

The data pertaining to this item has been presented in table -4.48.

Table-4.48 Percentage wise analysis of item no. 48

Category	N	SA%	A%	U%	D%	SD%
Boys	100	13.00%	15.00%	22.00%	35.00%	15.00%
Girls	100	9.00%	26.00%	29.00%	31.00%	5.00%
Total	200	11.00%	20.50%	25.50%	33.00%	10.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 13.00% responded to strongly agree, 15.00% responded to agree, 22.00% responded to Undecided, 35.00% responded to disagree and 15.00% of students responded to strongly disagree. From this it is clear that 50.00% of Boy students are not in favour of the statement that traditional classroom is better than E-learning system.

Out of 100 girl students 9.00% responded to strongly agree, 26.00% responded to agree, 29.00% responded to undecided, 31.00% responded to disagree, and 5.00% students responded to strongly disagree. From this it is clear that 36.00% of girl students are not in favour of the statement that traditional classroom is better than E-learning system.

Out of total 200 students 11.00% responded to strongly agree, 20.50% responded to agree, 25.50% responded to undecided, 33.00% responded to disagree, and 10.00% of students responded to strongly disagree. From this it is clear that 43.00% of students are not in favour of the statement that traditional classroom is better than E-learning system.

Item No. 49: Using E-learning enhances my overall personality and output as a student in scholastic activities.

The data pertaining to this item has been presented in table -4.49.

Table-4.49 Percentage wise analysis of item no. 49

Category	N	SA%	A%	U%	D%	SD%
Boys	100	14.00%	48.00%	25.00%	11.00%	2.00%
Girls	100	14.00%	45.00%	22.00%	17.00%	2.00%
Total	200	14.00%	46.50%	23.50%	14.00%	2.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 14.00% responded to strongly agree, 48.00% responded to agree, 25.00% responded to Undecided, 11.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 62.00% of Boy students favour the statement that using E-learning enhances my overall personality and output as a student in scholastic activities.

Out of 100 girl students 14.00% responded to strongly agree, 45.00% responded to agree, 22.00% responded to undecided, 17.00% responded to disagree, and 2.00% students responded to strongly disagree. From this it is clear that 59.00% of girl students favour the statement that using E-learning enhances my overall personality and output as a student in scholastic activities.

Out of total 200 students 14.00% responded to strongly agree, 46.50% responded to agree, 23.50% responded to undecided, 14.00% responded to disagree, and 2.00% of students responded to strongly disagree. From this it is clear that 60.50% of students favour the statement that using E-learning enhances my overall personality and output as a student in scholastic activities.

Item No. 50: Using E-learning decreases my chance of scoring good marks.

The data pertaining to this item has been presented in table -4.50.

Table-4.50 Percentage wise analysis of item no. 50

Category	N	SA%	A%	U%	D%	SD%
Boys	100	2.00%	16.00%	29.00%	40.00%	13.00%
Girls	100	6.00%	22.00%	21.00%	39.00%	12.00%
Total	200	4.00%	19.00%	25.00%	39.50%	12.50%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 2.00% responded to strongly agree, 16.00% responded to agree, 29.00% responded to Undecided, 40.00% responded to disagree and 13.00% of students responded to strongly disagree. From this it is clear that 53.00% of Boy students favour the statement that using E-learning decreases my chance of scoring good marks.

Out of 100 girl students 6.00% responded to strongly agree, 22.00% responded to agree, 21.00% responded to undecided, 39.00% responded to disagree, and 12.00% students responded to strongly disagree. From this it is clear that 51.00% of girl students are not in favour of the statement that using E-learning decreases my chance of scoring good marks.

Out of total 200 students 4.00% responded to strongly agree, 19.00% responded to agree, 25.00% responded to undecided, 39.50% responded to disagree, and 12.50% of students responded to strongly disagree. From this it is clear that 52.00% of students are not in favour of the statement that using E-learning decreases my chance of scoring good marks.

Item No. 51: With E-learning my course will be more interesting, rewarding and satisfactory.

The data pertaining to this item has been presented in table -4.51.

Table-4.51 Percentage wise analysis of item no. 51

Category	N	SA%	A%	U%	D%	SD%
Boys	100	24.00%	53.00%	15.00%	6.00%	2.00%
Girls	100	29.00%	52.00%	16.00%	3.00%	0.00%
Total	200	26.50%	52.50%	15.50%	4.50%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

On this item out of 100 Boy students 24.00% responded to strongly agree, 53.00% responded to agree, 15.00% responded to Undecided, 6.00% responded to disagree and 2.00% of students responded to strongly disagree. From this it is clear that 77.00% of Boy students favour the statement that with E-learning my course will be more interesting, rewarding and satisfactory.

Out of 100 girl students 29.00% responded to strongly agree, 52.00% responded to agree, 16.00% responded to undecided, 3.00% responded to disagree, and 0.00% students responded to strongly disagree. From this it is clear that 81.00% of girl students favour the statement that with E-learning my course will be more interesting, rewarding and satisfactory.

Out of total 200 students 26.50% responded to strongly agree, 52.50% responded to agree, 15.50% responded to undecided, 4.50% responded to disagree, and 1.00% of students responded to strongly disagree. From this it is clear that 79.00% of students favour the statement that with E-learning my course will be more interesting, rewarding and satisfactory.

4-2 Summary of Item wise analysis of the Attitude of Students towards E-learning

The summary of item wise analysis of the Attitude of Students towards E-learning is presented in table 4.52.

Table 4.52 Summary of Item wise analysis of the Attitude of Students towards E-learning

Item No.	Category	N	SA%	A%	U%	D%	SD%
1	Boys	100	27.00%	66.00%	2.00%	3.00%	2.00%
	Girls	100	27.00%	67.00%	1.00%	5.00%	0.00%
	Total	200	27.00%	66.50%	1.50%	4.00%	1.00%
2	Boys	100	15.00%	64.00%	13.00%	5.00%	3.00%
	Girls	100	21.00%	48.00%	12.00%	16.00%	3.00%
	Total	200	18.00%	56.00%	12.50%	10.50%	3.00%
3	Boys	100	21.00%	54.00%	17.00%	7.00%	1.00%
	Girls	100	19.00%	58.00%	20.00%	2.00%	1.00%
	Total	200	20.00%	56.00%	18.50%	4.50%	1.00%
4	Boys	100	25.00%	48.00%	14.00%	11.00%	2.00%
	Girls	100	27.00%	56.00%	9.00%	5.00%	3.00%
	Total	200	26.00%	52.00%	11.50%	8.00%	2.50%

5	Boys	100	14.00%	25.00%	30.00%	28.00%	3.00%
	Girls	100	13.00%	34.00%	24.00%	25.00%	4.00%
	Total	200	13.50%	29.50%	27.00%	26.50%	3.50%
6	Boys	100	23.00%	61.00%	13.00%	3.00%	0.00%
	Girls	100	28.00%	53.00%	15.00%	3.00%	1.00%
	Total	200	25.50%	57.00%	14.00%	3.00%	0.50%
7	Boys	100	14.00%	34.00%	28.00%	19.00%	5.00%
	Girls	100	20.00%	41.00%	24.00%	13.00%	2.00%
	Total	200	17.00%	37.50%	26.00%	16.00%	3.50%
8	Boys	100	18.00%	44.00%	16.00%	21.00%	1.00%
	Girls	100	19.00%	45.00%	13.00%	20.00%	3.00%
	Total	200	18.50%	44.50%	14.50%	20.50%	2.00%
9	Boys	100	15.00%	48.00%	19.00%	16.00%	2.00%
	Girls	100	19.00%	57.00%	11.00%	11.00%	2.00%
	Total	200	17.00%	52.50%	15.00%	13.50%	2.00%
10	Boys	100	3.00%	15.00%	34.00%	41.00%	7.00%
	Girls	100	6.00%	17.00%	25.00%	43.00%	9.00%
	Total	200	4.50%	16.00%	29.50%	42.00%	8.00%
11	Boys	100	27.00%	53.00%	16.00%	4.00%	0.00%
	Girls	100	25.00%	58.00%	14.00%	2.00%	1.00%
	Total	200	26.00%	55.50%	15.00%	3.00%	0.50%
12	Boys	100	13.00%	42.00%	19.00%	22.00%	4.00%
	Girls	100	19.00%	50.00%	10.00%	16.00%	5.00%
	Total	200	16.00%	46.00%	14.50%	19.00%	4.50%

13	Boys	100	10.00%	42.00%	21.00%	23.00%	4.00%
	Girls	100	10.00%	42.00%	19.00%	24.00%	5.00%
	Total	200	10.00%	42.00%	20.00%	23.50%	4.5.00%
14	Boys	100	10.00%	42.00%	18.00%	22.00%	8.00%
	Girls	100	15.00%	38.00%	11.00%	29.00%	7.00%
	Total	200	12.50%	40.00%	14.50%	25.50%	7.50%
15	Boys	100	18.00%	55.00%	19.00%	6.00%	2.00%
	Girls	100	9.00%	54.00%	22.00%	13.00%	2.00%
	Total	200	13.50%	54.50%	20.50%	9.50%	2.00%
16	Boys	100	12.00%	32.00%	16.00%	24.00%	16.00%
	Girls	100	12.00%	28.00%	14.00%	36.00%	10.00%
	Total	200	12.00%	30.00%	15.00%	30.00%	13.00%
17	Boys	100	24.00%	44.00%	21.00%	11.00%	0.00%
	Girls	100	19.00%	53.00%	18.00%	9.00%	1.00%
	Total	200	21.50%	48.50%	19.50%	10.00%	0.50%
18	Boys	100	10.00%	44.00%	23.00%	21.00%	2.00%
	Girls	100	14.00%	51.00%	27.00%	7.00%	1.00%
	Total	200	12.00%	47.50%	25.00%	14.00%	1.50%
19	Boys	100	3.00%	18.00%	16.00%	48.00%	15.00%
	Girls	100	7.00%	18.00%	21.00%	45.00%	9.00%
	Total	200	5.00%	18.00%	18.50%	46.50%	12.00%
20	Boys	100	36.00%	57.00%	3.00%	2.00%	2.00%
	Girls	100	48.00%	49.00%	1.00%	1.00%	1.00%
	Total	200	42.00%	53.00%	2.00%	1.50%	1.50%

21	Boys	100	29.00%	60.00%	4.00%	6.00%	1.00%
	Girls	100	36.00%	46.00%	9.00%	6.00%	3.00%
	Total	200	32.50%	53.00%	6.50%	6.00%	2.00%
22	Boys	100	1.00%	8.00%	9.00%	52.00%	30.00%
	Girls	100	2.00%	9.00%	7.00%	55.00%	27.00%
	Total	200	1.50%	8.50%	8.00%	53.50%	28.50%
23	Boys	100	1.00%	8.00%	13.00%	62.00%	16.00%
	Girls	100	1.00%	8.00%	12.00%	60.00%	19.00%
	Total	200	1.00%	8.00%	12.50%	61.00%	17.50%
24	Boys	100	12.00%	63.00%	12.00%	12.00%	1.00%
	Girls	100	23.00%	55.00%	16.00%	4.00%	2.00%
	Total	200	17.50%	59.00%	14.00%	8.00%	1.50%
25	Boys	100	32.00%	64.00%	4.00%	0.00%	0.00%
	Girls	100	33.00%	57.00%	2.00%	5.00%	3.00%
	Total	200	32.50%	60.50%	3.00%	2.50%	1.50%
26	Boys	100	23.00%	66.00%	5.00%	4.00%	2.00%
	Girls	100	28.00%	62.00%	7.00%	2.00%	1.00%
	Total	200	25.50%	64.00%	6.00%	3.00%	1.50%
27	Boys	100	7.00%	32.00%	16.00%	35.00%	10.00%
	Girls	100	12.00%	28.00%	18.00%	35.00%	7.00%
	Total	200	9.50%	30.00%	17.00%	35.00%	8.50%
28	Boys	100	7.00%	57.00%	24.00%	12.00%	0.00%
	Girls	100	21.00%	40.00%	27.00%	10.00%	2.00%
	Total	200	14.00%	48.50%	25.50%	11.00%	1.00%

29	Boys	100	19.00%	59.00%	14.00%	6.00%	2.00%
	Girls	100	25.00%	48.00%	12.00%	11.00%	4.00%
	Total	200	22.00%	53.50%	13.00%	8.50%	3.00%
30	Boys	100	1.00%	9.00%	12.00%	55.00%	23.00%
	Girls	100	4.00%	10.00%	13.00%	48.00%	25.00%
	Total	200	2.50%	9.50%	12.50%	51.50%	24.00%
31	Boys	100	2.00%	13.00%	17.00%	51.00%	17.00%
	Girls	100	6.00%	12.00%	15.00%	46.00%	21.00%
	Total	200	4.00%	12.50%	16.00%	48.50%	19.00%
32	Boys	100	18.00%	62.00%	16.00%	3.00%	1.00%
	Girls	100	22.00%	52.00%	11.00%	12.00%	3.00%
	Total	200	20.00%	57.00%	13.50%	7.50%	2.00%
33	Boys	100	16.00%	58.00%	16.00%	7.00%	3.00%
	Girls	100	19.00%	50.00%	22.00%	7.00%	2.00%
	Total	200	17.5.00%	54.00%	19.00%	7.00%	2.50%
34	Boys	100	31.00%	48.00%	15.00%	5.00%	1.00%
	Girls	100	32.00%	54.00%	8.00%	6.00%	0.00%
	Total	200	31.50%	51.00%	11.50%	5.50%	0.50%
35	Boys	100	11.00%	19.00%	26.00%	29.00%	15.00%
	Girls	100	11.00%	22.00%	35.00%	26.00%	6.00%
	Total	200	11.00%	20.50%	30.50%	27.50%	10.50%
36	Boys	100	2.00%	11.00%	18.00%	60.00%	9.00%
	Girls	100	3.00%	22.00%	26.00%	43.00%	6.00%
	Total	200	2.50%	16.50%	22.00%	51.50%	7.50%

37	Boys	100	2.00%	8.00%	29.00%	44.00%	17.00%
	Girls	100	0.00%	8.00%	28.00%	49.00%	15.00%
	Total	200	1.00%	8.00%	28.50%	46.50%	16.00%
38	Boys	100	7.00%	21.00%	30.00%	32.00%	10.00%
	Girls	100	6.00%	31.00%	30.00%	29.00%	4.00%
	Total	200	6.50%	26.00%	30.00%	30.50%	7.00%
39	Boys	100	9.00%	52.00%	29.00%	10.00%	0.00%
	Girls	100	10.00%	50.00%	29.00%	9.00%	2.00%
	Total	200	9.50%	51.00%	29.00%	9.50%	1.00%
40	Boys	100	13.00%	57.00%	13.00%	11.00%	6.00%
	Girls	100	19.00%	57.00%	13.00%	8.00%	3.00%
	Total	200	16.00%	57.00%	13.00%	9.50%	4.50%
41	Boys	100	10.00%	49.00%	18.00%	16.00%	7.00%
	Girls	100	13.00%	56.00%	18.00%	10.00%	3.00%
	Total	200	11.50%	52.50%	18.00%	13.00%	5.00%
42	Boys	100	9.00%	46.00%	22.00%	18.00%	5.00%
	Girls	100	19.00%	36.00%	31.00%	14.00%	0.00%
	Total	200	14.00%	41.00%	26.50%	16.00%	2.50%
43	Boys	100	15.00%	27.00%	17.00%	31.00%	10.00%
	Girls	100	9.00%	24.00%	24.00%	37.00%	6.00%
	Total	200	12.00%	25.50%	20.50%	34.00%	8.00%
44	Boys	100	17.00%	33.00%	13.00%	31.00%	6.00%
	Girls	100	12.00%	26.00%	17.00%	32.00%	13.00%
	Total	200	14.50%	29.50%	15.00%	31.50%	9.50%

45	Boys	100	6.00%	47.00%	30.00%	11.00%	6.00%
	Girls	100	15.00%	42.00%	28.00%	14.00%	1.00%
	Total	200	10.50%	44.50%	29.00%	12.50%	3.50%
46	Boys	100	13.00%	54.00%	19.00%	12.00%	2.00%
	Girls	100	28.00%	33.00%	20.00%	15.00%	4.00%
	Total	200	20.50%	43.50%	19.50%	13.50%	3.00%
47	Boys	100	16.00%	54.00%	23.00%	5.00%	2.00%
	Girls	100	17.00%	55.00%	22.00%	6.00%	0.00%
	Total	200	16.50%	54.50%	22.50%	5.50%	1.00%
48	Boys	100	13.00%	15.00%	22.00%	35.00%	15.00%
	Girls	100	9.00%	26.00%	29.00%	31.00%	5.00%
	Total	200	11.00%	20.50%	25.50%	33.00%	10.00%
49	Boys	100	14.00%	48.00%	25.00%	11.00%	2.00%
	Girls	100	14.00%	45.00%	22.00%	17.00%	2.00%
	Total	200	14.00%	46.50%	23.50%	14.00%	2.00%
50	Boys	100	2.00%	16.00%	29.00%	40.00%	13.00%
	Girls	100	6.00%	22.00%	21.00%	39.00%	12.00%
	Total	200	4.00%	19.00%	25.00%	39.50%	12.50%
51	Boys	100	24.00%	53.00%	15.00%	6.00%	2.00%
	Girls	100	29.00%	52.00%	16.00%	3.00%	0.00%
	Total	200	26.50%	52.50%	15.50%	4.50%	1.00%

SA--Strongly Agree, A--Agree, U--Undecided, D—Disagree, SD--Strongly Disagree

4-3 Findings of the Study

After careful analysis of the obtained data and interpretation of the result with regard to the objectives of the study, the investigator reached at the following findings.

4-3.1 Findings on the Attitude of students towards E-learning

1. 93.00%, 94.00%, and 93.50% of the Boy, girl and the total sample of students favour the statement that E-learning allows me to have all the information I need for my studies and projects.

2. 79.00%, 69.00%, and 74.00% of the Boy, girl and the total sample of students favour the statement that E-learning gives facilities to efficiently manage our time, effort and energy.

3. 75.00%, 77.00%, and 76.00% of the Boy, girl and the total sample of students favour the statement that E-learning helps learning in an independent way without any hindrance.

4. 73.00%, 83.00%, and 78.00% of the Boy, girl and the total sample of students favour the statement that E-learning helps us to learn according to interest, capability and capacity of the learner.

5. 31.00%, 29.00%, and 30.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning is better than other teaching learning aids and materials.

6. 84.00%, 81.00%, and 82.50% of the Boy, girl and the total sample of students favour the statement that E-learning is helpful for quality learning in short time span with limited resources.

7. 48.00%, 61.00%, and 54.50% of the Boy, girl and the total sample of students favour the statement that E-learning is more interesting and self-motivating than any other study materials.

8. 22.00%, 23.00%, and 22.50% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning is much more comfortable than any other sources.

9. 63.00%, 76.00%, and 69.50% of the Boy, girl and the total sample of students favour the statement that E-learning is the best means to solve any of the educational queries and problems.

10. 48.00%, 52.00%, and 50.00% of the Boy, girl and the total sample students are not in favour of the statement that E-learning materials are not attractive and are usually monotonous and mechanical.

11. 80.00%, 83.00%, and 81.5.00% of the Boy, girl and the total sample of students favour the statement that E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

12. 55.00%, 69.00%, and 62.00% of the Boy, girl and the total sample of students favour the statement that E-learning provides mutual interaction with teachers and friends.

13. 27.00%, 29.00%, and 28.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning increases students overall educational cost.

14. 30.00%, 36.00%, and 33.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning reduces the interest and interaction of students in the daily educational activities.

15. 73.00%, 63.00%, and 68.00% of the Boy, girl and the total sample of students favour the statement that E-learning sources allows me to have access to infinite information about my courses in global perspectives.

16. 40.00%, 46.00%, and 43.00% of the Boy, girl and the total sample 43.00% of students are not in favour of the statement that E-learning reduces my interest in co-curricular activities.

17. 68.00%, 72.00%, and 70.00% of the Boy, girl and the total sample of students favour the statement that I am satisfied with E-learning contents.

18. 23.00%, 8.00%, and 15.50% of the Boy, girl and the total sample of students are not in favour of the statement that I believe E-learning contents are valid, reliable and practical.

19. 63.00%, 54.00%, and 58.50% of the Boy, girl and the total sample of students are not in favour of the statement that I believe E-learning is not a useful learning tool in providing distance and mass education.

20. 93.00%, 97.00%, and 95.00% of the Boy, girl and the total sample of students favour the statement that I believe that E-learning gives me opportunities to learn new things from a new perspective.

21. 89.00%, 82.00%, and 85.50% of the Boy, girl and the total sample of students favour the statement that I can learn through E-learning sources anytime and anywhere.

22. 82.00%, 82.00%, and 82.00% of the Boy, girl and the total sample of students are not in favour of the statement that I don’t like to work with machine/computers.

23. 78.00%, 79.00%, and 78.50% of the Boy, girl and the total sample of students are not in favour of the statement that I don’t want to use E-learning contents to enhance my learning.

24. 75.00%, 78.00%, and 76.50% of the Boy, girl and the total sample of students favour the statement that I enjoy instructions given through multimedia.

25. 96.00%, 90.00%, and 93.00% of the Boy, girl and the total sample of students favour the statement that I enjoy interactive videos and educational documentaries over the internet.

26. 89.00%, 90.00%, and 89.50% of the Boy, girl and the total sample of students favour the statement that I enjoy using E-learning as a learning facilitating tool and technique.

27. 45.00%, 42.00%, and 43.50% of the Boy, girl and the total sample of students are not in favour of the statement that I face many problems while using internet.

28. 64.00%, 61.00%, and 62.50% of the Boy, girl and the total sample of students favour the statement that I feel confident using E-learning material.

29. 78.00%, 73.00%, and 75.50% of the Boy, girl and the total sample of students favour the statement that I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

30. 78.00%, 73.00%, and 75.50% of the Boy, girl and the total sample of students are not in favour of the statement that I feel that E-learning resources are not useful for my study.

31. 68.00%, 67.00%, and 67.50% of the Boy, girl and the total sample of students are not in favour of the statement that I do not like to share my E-learning experiences with my peers, teachers and others.

32. 80.00%, 74.00%, and 77.00% of the Boy, girl and the total sample of students favour the statement that I prefer to learn my course work and do assignments through E-learning.

33. 74.00%, 69.00%, and 71.50% of the Boy, girl and the total sample of students favour the statement that I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

34. 79.00%, 86.00%, and 82.50% of the Boy, girl and the total sample of students favour the statement that I strongly prefer E-learning as the best tool and technique of education in present time.

35. 44.00%, 32.00%, and 38.00% of the Boy, girl and the total sample of students are not in favour of the statement that I think E-learning is better than books.

36. 69.00%, 49.00%, and 59.00% of the Boy, girl and the total sample of students are not in favour of the statement that I think it is very difficult to use computer application.

37. 61.00%, 64.00%, and 62.50% of the Boy, girl and the total sample of students are not in favour of the statement that I think the teacher's application of E-learning in teaching learning process is a waste of time.

38. 42.00%, 33.00%, and 37.50% of the Boy, girl and the total sample of students are not in favour of the statement that I feel E-learning hinders my self-study.

39. 61.00%, 60.00%, and 60.50% of the Boy, girl and the total sample of students favour the statement that I use social media as a medium of collaborative learning.

40. 70.00%, 76.00%, and 73.00% of the Boy, girl and the total sample of students favour the statement that in my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

41. 59.00%, 69.00%, and 64.00% of the Boy, girl and the total sample of students favour the statement that my parents encourages me to utilize E-learning for my academic activities.

42. 55.00%, 55.00%, and 55.00% of the Boy, girl and the total sample of students favour the statement that teachers in my college are very motivated to use E-learning on a wider scale.

43. 41.00%, 43.00%, and 42.00% of the Boy, girl and the total sample of students are not in favour of the statement that teachers in my college still using traditional ways for teaching.

44. 37.00%, 45.00%, and 41.00% of the Boy, girl and the total sample of students are not in favour of the statement that teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

45. 53.00%, 57.00%, and 55.00% of the Boy, girl and the total sample of students favour the statement that teachers in my college wants me to use E-learning as much as possible.

46. 67.00%, 61.00%, and 64.00% of the Boy, girl and the total sample of students favour the statement that teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

47. 70.00%, 72.00%, and 71.00% of the Boy, girl and the total sample of students favour the statement that the use of educational technologies influences student's participation in the overall educational process in a positive way.

48. 50.00%, 36.00%, and 43.00% of the Boy, girl and the total sample of students are not in favour of the statement that traditional classroom is better than E-learning system.

49. 62.00%, 59.00%, and 60.50% of the Boy, girl and the total sample of students favour the statement that using E-learning enhances my overall personality and output as a student in scholastic activities.

50. 53.00%, 51.00%, and 52.00% of the Boy, girl and the total sample of students are not in favour of the statement that using E-learning decreases my chance of scoring good marks.

51. 77.00%, 81.00%, and 79.00% of the Boy, girl and the total sample of students favour the statement that with E-learning my course will be more interesting, rewarding and satisfactory.

CHAPTER 5

REVIEW, CONCLUSIONS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Students learning in Higher education undergone tremendous transformation since the age of Information and Communication Technology have emerged and became advanced. The traditional method of teaching is now dominating by the modern method of technologies and it is becoming easy to access for the teacher as well as students also. This is the facilities we are benefiting is due to the modernization. We the people are seek only to have luxurious life style and modern technology in education is playing vital role to make the education system easy and fast accessible. Many higher education institutions in India are using e-learning system but in some places students are deprived of this system. This dissertation will help to address the students to know the attitude towards e-learning and to help them to opt the E-learning system in their education.

Students' attitude towards e-learning is influenced by its perceived advantages and disadvantages. The schedule flexibility is, without no doubt, an important advantage, the student having the opportunity to learn no matter his location, no matter the time as long as he has an Internet connection. Reducing costs is another benefit together with time saving, in case of students who are commuting. E-learning is a solution for students hired during their studies, allowing them to adapt their learning schedule to their job program. So, the student has the possibility to choose how he organizes his activities. This way he is encouraged to take full responsibility for his future, being the only one responsible for assessing the knowledge and the abilities required for

professional development. The research studies conducted by Liaw (2008), Aixia and Wang (2011), Mehra and Omidian (2011), Akimanimpaye (2012), Farooq (2012), Misra (2012), Ouma, Awuor and Kyyambo (2013), Sabha (2013), Brumini, Spalj, Mavrinac, Biocina-Lukenda, Strujic and Brumini (2014), Rhema and Milisewska (2014), Abdullah, Ziden, Aman and Mustafa (2015), Amma and Panicker (2015), Pradhan (2015) and Reddy and Srilatha (2015) found that there is a positive attitude of the students towards e-learning. But on the other hand Gopal and Anandan (2013) found that the students are having lesser attitude towards e-learning. Further, Liaw and Huang (2011), Akimanimpaye (2012), Rhema and Miliszewska (2014) and found that there is the gender difference in the attitude of students towards e-learning. But, Gopal and Anandan (2013), Ramesh and Prabu (2013), Kar, Saha and Mondal (2014), Amma and Panicker (2015) and Pradhan (2015) found that there is no gender difference in the attitude of students towards e-learning. Abdullah, Ziden, Aman and Mustafa (2015), found that there is statistically significant difference between Arts and Science students towards e-learning but, Ramesh and Prabu (2013) found that there is no significant difference in attitude of Arts and Science students towards e-learning. Ramesh and Prabu (2013) and Kar, Saha and Mondal (2014) found that there is no significant difference in the attitude of rural and urban students and the place they born and brought up towards e-learning. On the other hand, Rhema and Miliszewska (2014) in the study found that there is the significant difference in the attitude of rural and urban students towards e-learning.

E-learning has enough potential to provide solid assistance to all type of academic tasks in theoretical and practical, individual and collaborative classroom situations. It can provide a valuable treasure of the knowledge and information to all subjects of the curriculum of schools and colleges. It fosters greater student interaction and

collaboration and it accommodates multiple learning styles using a variety of delivery methods geared to different learning. E-learning is the more effective way of learning and teaching in large group of students. In the rapid moving world, we can sustain only by making ourselves capable of racing with the pace of the time and technological progress. E-learning is the demand of the time and we have to prepare our young students to tackle all the challenges they face in the modern technological life. Therefore, the investigator of the present study thought to study the attitude of college students towards E-learning particularly in Sikkim state. Further, no worthwhile endeavour has been made so far to investigate attitude towards e-learning of college students, especially in context of Sikkim. To fulfill this purpose and to add more knowledge to existing one the investigator selected the following problem for the study:

Construction and Standardization of an Attitude Scale towards E-Learning for College Students of Sikkim

5-1 Objectives of Study

The following objectives laid down for the present study:

1. To construct and standardize an attitude scale towards E-learning for college students.
2. To study the attitude of college students towards E-learning in Sikkim.

5-2 Delimitations of the Study

The present study was delimited in the following aspects:

1. The state of Sikkim has four districts. The study was be restricted to only three districts i.e. East, West and South district of the state because there is no college situated in North district of Sikkim State.
2. The study was be delimited to the college students only.

3. The study was delimited to the B.A./B.Com./B.Sc. third year (fifth Semester) students only.

5-3 Operational Definitions of Key Terms

The different key terms used in the title of the study and in the body of study are operationally defined as follows;

1. **Construction:** Construction of a scale means to construct the items for the scale. In the present study, construction means to write the original scale items for measuring the attitude towards e-learning among college students.
2. **Standardization:** In the present study standardization means preparing the uniform procedures in administering and scoring the scale and establishing its reliability, validity and norms.
3. **College Students**- It connotes the students both boys and girls studying in arts and science stream in colleges of Sikkim state.
4. **Attitude-** Attitude in the study connotes the way of thinking or feeling about E-learning by the students of college students.
5. **E-Learning**- It refers to the use of all the gadgets by the college students like DVD-CD, TV, Computers, Laptops, Projectors, Internet/Intranet, and Mobile Phone for the study purpose.

5-4 Method

The aim of present investigation is to study the attitude of college students towards E-learning in Sikkim. In other words, the present study seeks to describe and interpret what conditions or relationship exist at present in case of college students with respect to the variables attitude towards E-learning. The further purpose of the study is to collect detailed description of existing phenomena with the intent of employing the

same to justify current conditions and practices and to make intelligent plans for improving them.

Hence, it was decided to use Descriptive Method of research in the present case which is relevant and justified in view of the objectives of the study.

5-5 The Sample

In the present study, the sample was draw from the college students. The sample for the present investigation was drawn by employing multistage sampling technique.

5-6 Tools Used

To collect the requisite data for present study the investigator developed and standardized the Attitude Scale in English version for college students. The Attitude Scale consists of 51 items selected out of a total of 97 items consisting of positively (30) or negatively (21) phrased pertaining to the Accessibility and Flexibility, Satisfaction, Usefulness, Intention Parent and Teacher's Support areas. The instrument uses a 5-point scale i.e. 'Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. The maximum possible score for the present scale is 255, students were asked to read the statement carefully and asked to place tick mark (√) on respective place. The items are scored in such a manner that if the answer to a positive item is 'Strongly Agree (SA)', a score of 5 is given; for 'Agree (A)' option, a score of 4, for 'Undecided (U)' option, a score of 3, for 'Disagree (D)' option, a score of 2 and for 'Strongly Disagree (SD)' option, a score of 1 is awarded. On the other hand, in case of negative items 'Strongly Agree (SA)', a score of 1 is given; for 'Agree (A)' option, a score of 2, for 'Undecided (U)' option, a score of 3, for 'Disagree (D)' option, a score of 4 and for 'Strongly Disagree (SD)' option, a score of 5 is awarded. The test-retest and split-half reliability of the scale was found to be 0.71 and 0.63 respectively.

5-7 Statistical Techniques Used

In order to analyse the objectives of the present study the percentage analysis technique was used.

5-8 Conclusions

After careful analysis of the obtained data and interpretation of the results with regard to the objectives of the study, the investigator reached at the following findings.

1. 93.00%, 94.00%, and 93.50% of the Boy, girl and the total sample of students favour the statement that E-learning allows me to have all the information I need for my studies and projects.

2. 79.00%, 69.00%, and 74.00% of the Boy, girl and the total sample of students favour the statement that E-learning gives facilities to efficiently manage our time, effort and energy.

3. 75.00%, 77.00%, and 76.00% of the Boy, girl and the total sample of students favour the statement that E-learning helps learning in an independent way without any hindrance.

4. 73.00%, 83.00%, and 78.00% of the Boy, girl and the total sample of students favour the statement that E-learning helps us to learn according to interest, capability and capacity of the learner.

5. 31.00%, 29.00%, and 30.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning is better than other teaching learning aids and materials.

6. 84.00%, 81.00%, and 82.50% of the Boy, girl and the total sample of students favour the statement that E-learning is helpful for quality learning in short time span with limited resources.

7. 48.00%, 61.00%, and 54.50% of the Boy, girl and the total sample of students favour the statement that E-learning is more interesting and self-motivating than any other study materials.

8. 22.00%, 23.00%, and 22.50% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning is much more comfortable than any other sources.

9. 63.00%, 76.00%, and 69.50% of the Boy, girl and the total sample of students favour the statement that E-learning is the best means to solve any of the educational queries and problems.

10. 48.00%, 52.00%, and 50.00% of the Boy, girl and the total sample students are not in favour of the statement that E-learning materials are not attractive and are usually monotonous and mechanical.

11. 80.00%, 83.00%, and 81.5.00% of the Boy, girl and the total sample of students favour the statement that E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.

12. 55.00%, 69.00%, and 62.00% of the Boy, girl and the total sample of students favour the statement that E-learning provides mutual interaction with teachers and friends.

13. 27.00%, 29.00%, and 28.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning increases students overall educational cost.

14. 30.00%, 36.00%, and 33.00% of the Boy, girl and the total sample of students are not in favour of the statement that E-learning reduces the interest and interaction of students in the daily educational activities.

15. 73.00%, 63.00%, and 68.00% of the Boy, girl and the total sample of students favour the statement that E-learning sources allows me to have access to infinite information about my courses in global perspectives.

16. 40.00%, 46.00%, and 43.00% of the Boy, girl and the total sample 43.00% of students are not in favour of the statement that E-learning reduces my interest in co-curricular activities.

17. 68.00%, 72.00%, and 70.00% of the Boy, girl and the total sample of students favour the statement that I am satisfied with E-learning contents.

18. 23.00%, 8.00%, and 15.50% of the Boy, girl and the total sample of students are not in favour of the statement that I believe E-learning contents are valid, reliable and practical.

19. 63.00%, 54.00%, and 58.50% of the Boy, girl and the total sample of students are not in favour of the statement that I believe E-learning is not a useful learning tool in providing distance and mass education.

20. 93.00%, 97.00%, and 95.00% of the Boy, girl and the total sample of students favour the statement that I believe that E-learning gives me opportunities to learn new things from a new perspective.

21. 89.00%, 82.00%, and 85.50% of the Boy, girl and the total sample of students favour the statement that I can learn through E-learning sources anytime and anywhere.

22. 82.00%, 82.00%, and 82.00% of the Boy, girl and the total sample of students are not in favour of the statement that I don’t like to work with machine/computers.

23. 78.00%, 79.00%, and 78.50% of the Boy, girl and the total sample of students are not in favour of the statement that I don’t want to use E-learning contents to enhance my learning.

24. 75.00%, 78.00%, and 76.50% of the Boy, girl and the total sample of students favour the statement that I enjoy instructions given through multimedia.

25. 96.00%, 90.00%, and 93.00% of the Boy, girl and the total sample of students favour the statement that I enjoy interactive videos and educational documentaries over the internet.

26. 89.00%, 90.00%, and 89.50% of the Boy, girl and the total sample of students favour the statement that I enjoy using E-learning as a learning facilitating tool and technique.

27. 45.00%, 42.00%, and 43.50% of the Boy, girl and the total sample of students are not in favour of the statement that I face many problems while using internet.

28. 64.00%, 61.00%, and 62.50% of the Boy, girl and the total sample of students favour the statement that I feel confident using E-learning material.

29. 78.00%, 73.00%, and 75.50% of the Boy, girl and the total sample of students favour the statement that I feel that E-learning provides latest information and expertise without the presence of the teachers in a virtual manner.

30. 78.00%, 73.00%, and 75.50% of the Boy, girl and the total sample of students are not in favour of the statement that I feel that E-learning resources are not useful for my study.

31. 68.00%, 67.00%, and 67.50% of the Boy, girl and the total sample of students are not in favour of the statement that I do not like to share my E-learning experiences with my peers, teachers and others.

32. 80.00%, 74.00%, and 77.00% of the Boy, girl and the total sample of students favour the statement that I prefer to learn my course work and do assignments through E-learning.

33. 74.00%, 69.00%, and 71.50% of the Boy, girl and the total sample of students favour the statement that I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.

34. 79.00%, 86.00%, and 82.50% of the Boy, girl and the total sample of students favour the statement that I strongly prefer E-learning as the best tool and technique of education in present time.

35. 44.00%, 32.00%, and 38.00% of the Boy, girl and the total sample of students are not in favour of the statement that I think E-learning is better than books.

36. 69.00%, 49.00%, and 59.00% of the Boy, girl and the total sample of students are not in favour of the statement that I think it is very difficult to use computer application.

37. 61.00%, 64.00%, and 62.50% of the Boy, girl and the total sample of students are not in favour of the statement that I think the teacher's application of E-learning in teaching learning process is a waste of time.

38. 42.00%, 33.00%, and 37.50% of the Boy, girl and the total sample of students are not in favour of the statement that I feel E-learning hinders my self-study.

39. 61.00%, 60.00%, and 60.50% of the Boy, girl and the total sample of students favour the statement that I use social media as a medium of collaborative learning.

40. 70.00%, 76.00%, and 73.00% of the Boy, girl and the total sample of students favour the statement that in my college, teachers encourage me to use E-learning in doing assignments, presentations, term papers etc.

41. 59.00%, 69.00%, and 64.00% of the Boy, girl and the total sample of students favour the statement that my parents encourages me to utilize E-learning for my academic activities.

42. 55.00%, 55.00%, and 55.00% of the Boy, girl and the total sample of students favour the statement that teachers in my college are very motivated to use E-learning on a wider scale.

43. 41.00%, 43.00%, and 42.00% of the Boy, girl and the total sample of students are not in favour of the statement that teachers in my college still using traditional ways for teaching.

44. 37.00%, 45.00%, and 41.00% of the Boy, girl and the total sample of students are not in favour of the statement that teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.

45. 53.00%, 57.00%, and 55.00% of the Boy, girl and the total sample of students favour the statement that teachers in my college wants me to use E-learning as much as possible.

46. 67.00%, 61.00%, and 64.00% of the Boy, girl and the total sample of students favour the statement that teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.

47. 70.00%, 72.00%, and 71.00% of the Boy, girl and the total sample of students favour the statement that the use of educational technologies influences student’s participation in the overall educational process in a positive way.

48. 50.00%, 36.00%, and 43.00% of the Boy, girl and the total sample of students are not in favour of the statement that traditional classroom is better than E-learning system.

49. 62.00%, 59.00%, and 60.50% of the Boy, girl and the total sample of students favour the statement that using E-learning enhances my overall personality and output as a student in scholastic activities.

50. 53.00%, 51.00%, and 52.00% of the Boy, girl and the total sample of students are not in favour of the statement that using E-learning decreases my chance of scoring good marks.

51. 77.00%, 81.00%, and 79.00% of the Boy, girl and the total sample of students favour the statement that with E-learning my course will be more interesting, rewarding and satisfactory.

5-9 Educational Implications

The findings of the study have the following major educational implications which are thought to be essential for the development of attitude of college students towards E-learning.

1. Orientation programmes for all college students should be organized for developing the attitude of college students towards E-learning.
2. The teachers and parents should motivate the students to get up to date knowledge by using E-learning.
3. Proper facilities should be arranged in the colleges.
4. Emphasis should be given on wi-fi campus so that students may use more and more e-learning material in their teaching-learning process.

5-10 Suggestions for Further Research

On the basis of above findings, the investigator is inclined to have following suggestions for further research:-

1. Research can be conducted on more samples on state wise or district wise basis.
2. Research can be conducted on students belonging to different streams.
3. Research can be conducted on seeking the opinion of the professors for developing the attitude towards e-learning among students in this regard.
4. The study can be extended over more number of samples including the various levels of education.

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ATTITUDE SCALE TOWARDS E-LEARNING
(Preliminary Draft for Expert Opinion)

Si. No.	Items	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Accessibility and Flexibility						
1.	E-learning makes classroom learning more flexible.					
2.	Computer can solve all the educational problems.					
3.	I spent most of my time in using computer.					
4.	I would generally feel comfortable trying something new on a computer.					
5.	**I face many problems while using internet.**					
6.	E-learning helps to learn according to individual needs.					
7.	E-learning provides flexible interaction with teachers and friends.					
8.	I feel that e-learning is very much convenience for learning purpose.					
9.	E-learning gives all the materials whatever I need in my studies.					
10.	High speed internet facilities are there in my college.					
11.	I have computer lab in my college.					
12.	I can use e-learning sources easily.					
13.	E-learning provides boundless freedom to learner.					
14.	**E-learning system is very costly.**					
15.	**I believe that e-learning materials are not easily accessible.**					
16.	**Sometimes the slowness or network problem hinders my online learning.**					
17.	**E-learning enables me to learn at my pace.**					
18.	My college has an updated website.					
19.	My college has got the technology needed for the delivery of e-learning.					
20.	My college has trained professionals available to carry out e-learning training.					

21.	E-learning reduces students educational cost.					
22.	E-learning gives facilities to efficiently manage your time.					
23.	**I think e-learning is very far away from real life of the learner.**					
24.	We can learn through e-learning sources any time.					
25.	I can access e-learning material anywhere.					
26.	E-learning sources provides us fast information for the learning.					
27.	E-learning provides almost infinite worldwide resources available to learners.					
28.	E-learning allows the rapid growth of any course cheaply.					
29.	e-learning helps learning in independence way					
30.	Through e-learning sources students and teachers can communicate from almost any deice in a safe and secure learning environment.					
31.	E-learning sources allow me to have access to more information about my courses.					
Satisfaction						
32.	I like computer very much.					
33.	Online learning is much more comfortable.					
34.	E-learning makes me more interesting in study.					
35.	**E-learning is not efficient as teaching method.**					
36.	I feel satisfied when material is collected from Internet.					
37.	**I am unwilling to learn my lesson through e-learning method.**					
38.	**I think the teacher's application of e-learning in teaching is a waste of my time.**					
39.	E-learning for teaching and learning is more relaxing and delightful than the traditional method.					
40.	**I think e-learning is obstacle for learner.**					

41.	**Computer is not helpful to good learning because sometime it creates technical problems.**					
42.	E-learning is more interesting than any other study materials.					
43.	I consider e-learning is a useful learning tool.					
44.	I would enjoy my class if teachers use e-learning material in classroom teaching learning.					
45.	E-learning is better than any other teaching learning aids and materials.					
46.	I use to enjoy using e-learning as a supported learning tool.					
47.	I use to enjoy using e-learning functions.					
48.	I am satisfied with e-learning contents.					
49.	I am enjoyed with multimedia instruction.					
50.	I feel confident using e-leaning system					
51.	I feel confident using online learning contents.					
52.	I use to enjoy an interactive videos and documentaries over the internet.					
53.	I use social media as a medium of learning.					
54.	Once I started to use computer I find it hard to stop.					
55.	E-learning is helpful for quality teaching and learning.					
56.	My school have sufficient computers.					
57.	I learn many things from Internet through trial-error method.					
58.	Using e-learning requires a lot of mental effort.					
59.	E-learning allows me to have all the information I need for my studies.					
60.	E-learning increases the quality of learning because it incorporates all forms of media.					
61.	**E-learning materials are not attractive.**					

62.	**E-learning makes learning difficult for me.**					
63.	**I think that e-learning cannot replace the teacher's role.**					
64.	E-learning makes me feel tired.					
65.	**Traditional classroom is better than e-learning system.**					
66.	**I never feel confident in using computers.**					
67.	**I never satisfied with the material I usually get from e-learning sources.**					
68.	**I am not friendly with the computer.**					
Usefulness						
69.	I feel that e-learning contents are informative.					
70.	I use internet for self-study.					
71.	I believe e-learning is a useful learning tools.					
72.	I believe e-learning contents are useful.					
73.	I believe e-learning contents are always valid and reliable.					
74.	Using e-learning enhances my efficiency as a student.					
75.	Using e-learning reduces my study load considerably.					
76.	Using e-learning increases my chance of scoring higher marks.					
77.	Computer is easy to use for me					
78.	Computer is the basic need for the education.					
79.	Computer will replace papers in the offices and classrooms.					
80.	I used internet to complete my project work.					
81.	Computer is a valuable tool for student.					
82.	I think my grade will improve by applying e-learning in classroom.					
83.	I download learning content from Internet.					
84.	I download picture, diagram for my projects.					
85.	I use online library for self-study.					
86.	I prefer to transfer material through e-mail to my friends, teachers.					

87.	E-learning is the best means to solve any of the educational problems.					
88.	E-learning engages learner more than other form of learning.					
89.	E-learning makes me more effective learner.					
90.	I learn more from e-learning than I do from books.					
91.	E-learning is useful to enhance the carrier prospects.					
92.	I feel that e-learning provides knowledge without the help of teachers.					
93.	I believe e-learning can assist learning performance.					
94.	I use to exchange ideas about computers with my friends in the school.					
95.	E-learning helps in collaborative learning.					
96.	**E-learning is not important for learning.**					
Intention						
97.	I prefer to learn my subject from computer.					
98.	We should learn something about computer as a part of our course.					
99.	I intend to use e-learning in the next semester.					
100.	I prefer to use e-books for my studies.					
101.	I hope the teachers who conduct classes may apply e-learning in their teaching.					
102.	I prefer to use computer to keep my notes rather than copy.					
103.	I would like to share my e-learning experiences.					
104.	I intend to use e-learning to assist my learning.					
105.	Mostly I prefer to work on a computer.					
106.	I use e-learning materials to finish my assignment.					
107.	My friends are more confident in using e-learning sources than me.					
108.	I prefer to become a computer literate person.					

109.	I use different educational blogs for interaction.					
110.	**I never like to work with machine/computers.**					
111.	**I don't want to use e-learning contents to assist my learning.**					
112.	**I am not interested in studying courses that use e-learning.**					
113.	I think that in the visible future my university should be a completely electronic facility.					
114.	I wish I Could choose more online courses on campus to study.					
115.	I think positively towards e-learning as my study tools.					
116.	I intend to use e-learning application in future.					
117.	I intend to help others to use e-learning resources for their learning.					
118.	I intend to read books and class notes on computer rather than printed copy.					
Parent and Teacher's Support						
119.	The teacher encourage me to integrate computers in learning.					
120.	My parents encourage me to integrate computers in learning.					
121.	**My parents cannot afford to use computer for my study.**					
122.	Teacher allow us to use computer in school.					
123.	**My teacher never allow me to use e-sources for my study.**					
124.	My parents can afford me to use e-learning sources.					
125.	Teachers in my college prefer traditional ways of teaching and research.					
126.	Teachers in my college are very motivated to use e-learning on a wide scale.					
127.	In my university, teachers encourage me to use e-learning in doing assignment.					
128.	The teacher encourage me to go through e-learning sources.					

129.	My teacher use projector and audio device in classroom learning.					
130.	My teacher send study materials/notes through e-mail to the students.					
131.	My teacher wants me to use e-learning as much as possible.					

ATTITUDE SCALE TOWARDS E-LEARNING
(Preliminary Draft)

Please fill in the following information:

Your Name……Institution's Name……..

Age……Gender: Male/Female…… Class…… Stream……..

Locality: Rural/Urban……Marital Status: Married/Unmarried……..

Category: SC/ST/OBC/General……

INSTRUCTIONS

A list of 97 statements is presented before you which shows your attitude towards E-learning Please read each statement carefully and record your reaction to it on any one of five (SA, A, U, D, SD) alternatives provided against it. One by one, please react on all the statements like this.

Yes, tick **(**√**)** mark against the SA or A when you strongly agree or simply agree to the statement respectively. However, if you remain uncertain or undecided, please tick **(**√**)** mark against the U placed against that statement. Similarly you have the choice to tick **(**√**)** mark against the D or SD if you disagree or strongly disagree to this statement. You are free to pick up only one of the five choices given for each statement.

This scale enlists your frank thinking, so as such there is no question of wrong answers. Please feel free to respond without any hesitation.

What is wanted is first spontaneous reaction of yours for each of the 97 statements. So, please record your responses as rapidly you can. There is no time limit but you may take 25-30 minutes to work over this Attitude Scale.

NOW MOVE TO THE NEXT PAGE AND START GIVING RESPONSES FROM STATEMENT NO. 1

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
1	E-learning allows me to have all the information I need for my studies and projects.	☐	☐	☐	☐	☐
2	E-learning does not help in effective learning because it creates many physical, mental and behavioural problems.	☐	☐	☐	☐	☐
3	E-learning engages learner more than other forms of learning in a multisensory way.	☐	☐	☐	☐	☐
4	E-learning equipment and devices are not easily accessible.	☐	☐	☐	☐	☐
5	E-learning for teaching and learning is more relaxing and delightful than the traditional methods.	☐	☐	☐	☐	☐
6	E-learning gives facilities to efficiently manage our time, effort and energy.	☐	☐	☐	☐	☐
7	E-learning helps in collaborative learning.	☐	☐	☐	☐	☐
8	E-learning helps learning in an independent way without any hindrance.	☐	☐	☐	☐	☐
9	E-learning helps us to learn according to interest, capability and capacity of the learner.	☐	☐	☐	☐	☐
10	E-learning increases the quality of learning because it incorporates all forms of media.	☐	☐	☐	☐	☐
11	E-learning is a learning environment which needs mastery for operating a computer and its application.	☐	☐	☐	☐	☐
12	E-learning is better than other teaching learning aids and materials.	☐	☐	☐	☐	☐
13	E-learning is helpful for quality learning in short time span with limited resources.	☐	☐	☐	☐	☐
14	E-learning is more interesting and self-motivating than any other study materials.	☐	☐	☐	☐	☐
15	E-learning is much more comfortable than any other sources.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
16	E-learning is not a reliable teaching approach.	☐	☐	☐	☐	☐
17	E-learning is the best means to solve any of the educational queries and problems.	☐	☐	☐	☐	☐
18	E-learning is the primary need for the teaching-learning process and communication.	☐	☐	☐	☐	☐
19	E-learning is useful to enhance the career prospects and future avenues.	☐	☐	☐	☐	☐
20	E-learning makes classroom learning more flexible.	☐	☐	☐	☐	☐
21	E-learning makes me more attentive and interested in studies.	☐	☐	☐	☐	☐
22	E-learning materials are not attractive and are usually monotonous and mechanical.	☐	☐	☐	☐	☐
23	E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.	☐	☐	☐	☐	☐
24	E-learning provides mutual interaction with teachers and friends.	☐	☐	☐	☐	☐
25	E-learning reduces students overall educational cost.	☐	☐	☐	☐	☐
26	E-learning reduces the interest and interaction of students in the daily educational activities.	☐	☐	☐	☐	☐
27	E-learning sources allows me to have access to infinite information about my courses in global perspectives.	☐	☐	☐	☐	☐
28	E-learning sources provides us quick and standard information for learning.	☐	☐	☐	☐	☐
29	E-learning reduces my interest in co-curricular activities.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
30	E-learning system is very costly.	☐	☐	☐	☐	☐
31	Every student should be able to know and apply Internet in academic activities.	☐	☐	☐	☐	☐
32	I am satisfied with e-learning contents.	☐	☐	☐	☐	☐
33	I believe e-learning can assist learning output and overall performance.	☐	☐	☐	☐	☐
34	I believe e-learning contents are valid, reliable and practical.	☐	☐	☐	☐	☐
35	I believe e-learning is a useful learning tool in providing distance and mass education.	☐	☐	☐	☐	☐
36	I believe that e-learning gives me opportunities to learn new things from a new perspective.	☐	☐	☐	☐	☐
37	I believe that e-learning may hinder my academic growth.	☐	☐	☐	☐	☐
38	I can learn through e-learning sources anytime and anywhere.	☐	☐	☐	☐	☐
39	I can use e-learning sources easily.	☐	☐	☐	☐	☐
40	I don't like to work with machine/computers.	☐	☐	☐	☐	☐
41	I don't want to use e-learning contents to enhance my learning.	☐	☐	☐	☐	☐
42	I download learning material from e-learning resources for references.	☐	☐	☐	☐	☐
43	I enjoy instructions given through multimedia.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
44	I enjoy interactive videos and educational documentaries over the internet.	☐	☐	☐	☐	☐
45	I enjoy using e-learning as a learning facilitating tool and technique.	☐	☐	☐	☐	☐
46	I face many problems while using internet.	☐	☐	☐	☐	☐
47	I feel confident using e-learning material.	☐	☐	☐	☐	☐
48	I feel reluctant to learn my lesson through e-learning sources.	☐	☐	☐	☐	☐
49	I feel satisfied when material is collected from Internet.	☐	☐	☐	☐	☐
50	I feel that e-learning contents are informative.	☐	☐	☐	☐	☐
51	I feel that e-learning provides latest information and expertise without the presence of the teachers in a virtual manner.	☐	☐	☐	☐	☐
52	I feel that e-learning resources are not useful for my study.	☐	☐	☐	☐	☐
53	I intend to augment learning activities of my peers and fellow student of other discipline by utilizing e-learning resources.	☐	☐	☐	☐	☐
54	I intend to use e-learning to assist my learning in a multidimensional way.	☐	☐	☐	☐	☐
55	I learn many things from Internet through trial-error method.	☐	☐	☐	☐	☐
56	I like to share my e-learning experiences with my peers, teachers and others.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
57	I prefer to do homework, projects, presentation and assignments in electronic form.	☐	☐	☐	☐	☐
58	I prefer to learn my course work and do assignments through e-learning.	☐	☐	☐	☐	☐
59	I prefer to read e-books and e-class notes on computer rather than printed copy.	☐	☐	☐	☐	☐
60	I prefer to transfer material through e-mail to my friends, teachers and experts in the field.	☐	☐	☐	☐	☐
61	I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.	☐	☐	☐	☐	☐
62	I strongly prefer e-learning as the best tool and technique of education in present time.	☐	☐	☐	☐	☐
63	I think e-learning is an obstacle for learner in the learning process.	☐	☐	☐	☐	☐
64	I think e-learning is better than books.	☐	☐	☐	☐	☐
65	I think it is very difficult to use computer application.	☐	☐	☐	☐	☐
66	I think that e-learning replaces the teacher's role.	☐	☐	☐	☐	☐
67	I think the teacher's application of e-learning in teaching learning process is a waste of time.	☐	☐	☐	☐	☐
68	I use internet for self-study.	☐	☐	☐	☐	☐
69	I use internet more for pleasure than for doing my assignments.	☐	☐	☐	☐	☐
70	I use internet to complete my project work efficiently.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
71	I use online library for self-study.	☐	☐	☐	☐	☐
72	I use social media as a medium of collaborative learning.	☐	☐	☐	☐	☐
73	I want to use e-learning resources and application in future.	☐	☐	☐	☐	☐
74	I wish the teachers who are involved in daily Teaching-learning process must apply e-learning method.	☐	☐	☐	☐	☐
75	I would enjoy my class if teachers use e-learning materials in classroom teaching learning process.	☐	☐	☐	☐	☐
76	In e-learning presence of teacher is optional for learning the course appropriately.	☐	☐	☐	☐	☐
77	In my college, teachers encourage me to use e-learning in doing assignments, presentations, term papers etc.	☐	☐	☐	☐	☐
78	My parents cannot afford to use e-learning resources for my studies.	☐	☐	☐	☐	☐
79	My parents encourages me to utilize e-learning for my academic activities.	☐	☐	☐	☐	☐
80	Teachers in my college are very motivated to use e-learning on a wider scale.	☐	☐	☐	☐	☐
81	Teachers in my college never allows me to use e-sources for my study constructively.	☐	☐	☐	☐	☐
82	Teachers in my college sends study materials/notes through e-mail to us.	☐	☐	☐	☐	☐
83	Teachers in my college still using traditional ways for teaching.	☐	☐	☐	☐	☐
84	Teachers in my college uses projector, audio-video device in classroom learning for enhancing multi-sensory experience.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
85	Teachers in my college wants me to use e-learning as much as possible.	☐	☐	☐	☐	☐
86	Teachers of my college encourage me towards e-learning in daily Teaching-Learning process.	☐	☐	☐	☐	☐
87	Teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.	☐	☐	☐	☐	☐
88	The use of educational technologies influences student's participation in the overall educational process in a positive way.	☐	☐	☐	☐	☐
89	Through e-learning sources students and teachers can communicate in a safe and secure learning environment.	☐	☐	☐	☐	☐
90	Traditional classroom is better than e-learning system.	☐	☐	☐	☐	☐
91	Use of audio-video aids in classroom obstructs in creative thinking of the students.	☐	☐	☐	☐	☐
92	Using e-learning enhances my overall personality and output as a student in scholastic activities.	☐	☐	☐	☐	☐
93	Using e-learning increases my chance of scoring good marks.	☐	☐	☐	☐	☐
94	Using e-learning reduces stress and strain of studies significantly.	☐	☐	☐	☐	☐
95	We are provided with Wi-Fi and broadband facilities in our college campus.	☐	☐	☐	☐	☐
96	With e-learning I will get more opportunities to interact with other students in global platform.	☐	☐	☐	☐	☐
97	With e-learning my course will be more interesting, rewarding and satisfactory.	☐	☐	☐	☐	☐

ATTITUDE SCALE TOWARDS E-LEARNING

Please fill in the following information:

Your Name.……

Institution's Name.……

Age.……..Gender:Male/Female.…… Class.……

Stream.……....Locality: Rural/Urban.……

Marital Status: Married/Unmarried.……

Category: SC/ST/OBC/General.……

INSTRUCTIONS

A list of 51 statements is presented before you which shows your attitude towards E-learning Please read each statement carefully and record your reaction to it on any one of five (SA, A, U, D, SD) alternatives provided against it. One by one, please react on all the statements like this.

Yes, tick **(√)** mark against the SA or A when you strongly agree or simply agree to the statement respectively. However, if you remain uncertain or undecided, please tick **(√)** mark against the U placed against that statement. Similarly you have the choice to tick **(√)** mark against the D or SD if you disagree or strongly disagree to this statement. You are free to pick up only one of the five choices given for each statement.

This scale enlists your frank thinking, so as such there is no question of wrong answers. Please feel free to respond without any hesitation.

What is wanted is first spontaneous reaction of yours for each of the 51 statements. So, please record your responses as rapidly you can. There is no time limit but you may take 25-30 minutes to work over this Attitude Scale.

NOW MOVE TO THE NEXT PAGE AND START GIVING RESPONSES FROM STATEMENT NO. 1

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
1	E-learning allows me to have all the information I need for my studies and projects.	☐	☐	☐	☐	☐
2	E-learning gives facilities to efficiently manage our time, effort and energy.	☐	☐	☐	☐	☐
3	E-learning helps learning in an independent way without any hindrance.	☐	☐	☐	☐	☐
4	E-learning helps us to learn according to interest, capability and capacity of the learner.	☐	☐	☐	☐	☐
5	E-learning is better than other teaching learning aids and materials.	☐	☐	☐	☐	☐
6	E-learning is helpful for quality learning in short time span with limited resources.	☐	☐	☐	☐	☐
7	E-learning is more interesting and self-motivating than any other study materials.	☐	☐	☐	☐	☐
8	E-learning is much more comfortable than any other sources.	☐	☐	☐	☐	☐
9	E-learning is the best means to solve any of the educational queries and problems.	☐	☐	☐	☐	☐
10	E-learning materials are not attractive and are usually monotonous and mechanical.	☐	☐	☐	☐	☐
11	E-learning provides almost infinite worldwide resources available to learners of various universities and libraries.	☐	☐	☐	☐	☐
12	E-learning provides mutual interaction with teachers and friends.	☐	☐	☐	☐	☐
13	E-learning increases students overall educational cost.	☐	☐	☐	☐	☐
14	E-learning reduces the interest and interaction of students in the daily educational activities.	☐	☐	☐	☐	☐
15	E-learning sources allows me to have access to infinite information about my courses in global perspectives.	☐	☐	☐	☐	☐
16	E-learning reduces my interest in co-curricular activities.	☐	☐	☐	☐	☐
17	I am satisfied with e-learning contents.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
18	I believe e-learning contents are valid, reliable and practical.	☐	☐	☐	☐	☐
19	I believe e-learning is not a useful learning tool in providing distance and mass education.	☐	☐	☐	☐	☐
20	I believe that e-learning gives me opportunities to learn new things from a new perspective.	☐	☐	☐	☐	☐
21	I can learn through e-learning sources anytime and anywhere.	☐	☐	☐	☐	☐
22	I don't like to work with machine/computers.	☐	☐	☐	☐	☐
23	I don't want to use e-learning contents to enhance my learning.	☐	☐	☐	☐	☐
24	I enjoy instructions given through multimedia.	☐	☐	☐	☐	☐
25	I enjoy interactive videos and educational documentaries over the internet.	☐	☐	☐	☐	☐
26	I enjoy using e-learning as a learning facilitating tool and technique.	☐	☐	☐	☐	☐
27	I face many problems while using internet.	☐	☐	☐	☐	☐
28	I feel confident using e-learning material.	☐	☐	☐	☐	☐
29	I feel that e-learning provides latest information and expertise without the presence of the teachers in a virtual manner.	☐	☐	☐	☐	☐
30	I feel that e-learning resources are not useful for my study.	☐	☐	☐	☐	☐
31	I do not like to share my e-learning experiences with my peers, teachers and others.	☐	☐	☐	☐	☐
32	I prefer to learn my course work and do assignments through e-learning.	☐	☐	☐	☐	☐
33	I prefer to use e-books, e-journals, e-abstracts, e-dissertation and e-dictionaries etc. for my studies.	☐	☐	☐	☐	☐
34	I strongly prefer e-learning as the best tool and technique of education in present time.	☐	☐	☐	☐	☐

S. No.	STATEMENTS	RESPONSE				
		Strongly Agree **SA**	Agree **A**	Undecided **U**	Disagree **D**	Strongly Disagree **SD**
35	I think e-learning is better than books.	☐	☐	☐	☐	☐
36	I think it is very difficult to use computer application.	☐	☐	☐	☐	☐
37	I think the teacher's application of e-learning in teaching learning process is a waste of time.	☐	☐	☐	☐	☐
38	I feel e-learning hinders my self-study.	☐	☐	☐	☐	☐
39	I use social media as a medium of collaborative learning.	☐	☐	☐	☐	☐
40	In my college, teachers encourage me to use e-learning in doing assignments, presentations, term papers etc.	☐	☐	☐	☐	☐
41	My parents encourages me to utilize e-learning for my academic activities.	☐	☐	☐	☐	☐
42	Teachers in my college are very motivated to use e-learning on a wider scale.	☐	☐	☐	☐	☐
43	Teachers in my college still using traditional ways for teaching.	☐	☐	☐	☐	☐
44	Teachers in my college do not uses projectors, audio-video devices in teaching-learning for enhancing my multi-sensory experiences.	☐	☐	☐	☐	☐
45	Teachers in my college wants me to use e-learning as much as possible.	☐	☐	☐	☐	☐
46	Teaching-learning material, notes, assignments projects etc. can be easily downloaded as per my convenience even if I miss few lectures.	☐	☐	☐	☐	☐
47	The use of educational technologies influences student's participation in the overall educational process in a positive way.	☐	☐	☐	☐	☐
48	Traditional classroom is better than e-learning system.	☐	☐	☐	☐	☐
49	Using e-learning enhances my overall personality and output as a student in scholastic activities.	☐	☐	☐	☐	☐
50	Using e-learning decreases my chance of scoring good marks.	☐	☐	☐	☐	☐
51	With e-learning my course will be more interesting, rewarding and satisfactory.	☐	☐	☐	☐	☐