

This chapter presents the results of the study. Data have been collected using survey method as described in chapter 3. Descriptive and inferential statistics techniques have been applied wherever needed. The sample has been drawn from 2 different university contexts, the students of private universities and the students of public universities. Students in the present study refer to ‘undergraduate engineering and technology students of ‘Communication skills courses’. The chapter has been divided into four sections. The first section deals with the first group, i.e. students of public universities. The second section follows with the results of second group, i.e. students of private universities; the third section presents the discussion of the findings and results of the study. The chapter concludes with a discussion on the themes emerged from the responses gathered from the teachers community.

4.1) IBP Users of Public Universities

Users of public universities refer to the students of engineering and technology undergraduate students of Communication skills courses. The students of these public universities are a mixed population from urban and rural India. As the population chosen is from the National Capital Region (NCR) also, it provides a mixed representation from all over the country.

4.1.1) Preliminary Analysis and Descriptive Statistics

Prior to data analysis, it was assured that the data is free from errors and all the codes are accurately compiled in the SPSS file. The task of data screening and preliminary analysis of the continuous variables was done by using various methods. To check the normality of the

data, i.e. the data is normally distributed or not, normal bell shape curve was investigated by making a histogram. Furthermore, data screening has been done to fulfill the assumptions of parametric techniques so that parametric tests can be used for analysis. Scatter plots and Q-Q distribution plots were inspected to assure that the variables are in a linear relationship with each other. It was found that the continuous variable and the categorical variables are showing a straight line, which signifies that they are in a linear relationship. To check the outliers, boxplots have been inspected because regression is very sensitive towards outliers. So, outliers were inspected and the values which were in extreme were deleted from the data. To see the distribution of scores on the continuous variables kurtosis and skewness values have been calculated. “The skewness value provides an indication of the symmetry of the distribution. Kurtosis, on the other hand, provides information about the ‘Peakedness’ of the distribution” (Pallant, 2005, p. 51). The observed value for skewness of the data is .076, which is a positive value and it indicates that the data is skewed towards the left. The kurtosis observed value for the data is .260. It is also a positive value which is indicating that the distribution is peaked in the middle, with long flat tails. Tabachnick and Fidell (2005) suggests that the value of kurtosis and skewness are very sensitive with large samples, approximately a sample size which is larger than 200. “If the sample is large, it is a good idea to look at the shape of the distribution instead of using formal inference tests. Because the standard errors for both skewness and kurtosis decrease with larger N , the null hypothesis is likely to be rejected with large samples when there are only minor deviations from normality” (Tabachnick and Fidell , 2005, p. 80). They recommend inspecting the shape of the distribution using histograms for continuous variables before using parametric tests. So, histograms were made to observe the shape of the responses. After doing all these preliminary analysis of checking the data for normality, linearity, outliers, errors, minimum and maximum values for the categorical variables the final sample size considered was 530.

Table 4.1 Mean score and Standard deviation

Construct	Mean	S.D.	N
PE	15.80	2.52	530
EE	14.87	2.92	530
FC	13.20	2.95	530
SE	15.56	2.76	530
ANX	13.94	3.06	530
IOU	15.01	2.79	530
U	15.06	2.60	530

The 5-point Likert scale used in the study moves from 1 representing strong disagreement to 5 representing strong agreement. In figure 4.1 (Appendix 1) the responses for Performance Expectancy are more peaked towards right indicating the responses strongly agree to the fact that IBPs motivate students for enhancing their performance. It can be inferred by investigating the graph that respondents strongly agree with the point that they use IBP because they feel that IBP helps to increase their performance.

For Effort Expectancy, the responses are more peaked towards centre and slightly right, (see Figure 4.2 in Appendix 1) with a mean score of 14.87. The statements of the variable asked about the effort required in using IBPs. The responses reflect that users are not distracted by the complexity of the IBP. By analyzing the graph it can be inferred that respondents tend to remain neutral to the technologies in terms of the efforts required to use. This observation can be easily related to the characteristic of “digital native” generation. They are brought up in the environment where technology is inherent in their environment. Technology is imbibed in their daily lives and they easily handle it. For Facilitating Conditions the responses are more peaked towards the centre (see Figure 4.3 in Appendix 1). This area refers to the neutral response. The mean score is 13.20, which confirms that maximum number of responses belong to the neutral category. The items of the variable attempted to find out the effect of enabling conditions, infrastructure and other support on their decision

to use IBP. An attempt has been made here to find out if an inherently external factor can influence a user's decision to accept IBP. The responses can be strengthened by the interaction done with the students. They mentioned the low availability of infrastructure provided by the institution. In Self-Efficacy the responses are more peaked towards the right (see Figure 4.4 in Appendix 1). Users tend to accept those technologies about which they are more confident. The mean value is 15.56, which confirms that maximum number of responses belong to the agreement side of the statement. This implies that the traits like self-confidence in using technology, self-capabilities in learning and adopting the online platforms for learning plays an important role in students' choice to adopt technology.

For the variable Anxiety, the responses are more peaked towards the centre, and slightly towards right, which means that the responses belong to neutral and slightly to agreement with the statements (see Figure 4.5 in Appendix 1). The mean score is 13.94, which confirms that responses are mixed between agreement and neutral. This implies that respondents prefer to use those platforms which are simpler and secure because it leads towards less fear and anxiety of any mis-happening. Users tend to trust authentic platforms because it relieves them from security issues and make them more comfortable and confident to proceed further. For Intention of Use and usage the responses are more peaked towards the right, this area indicates agreement and total agreement responses (see Figure 4.6 and 4.7 in Appendix 1). The items of these two variables refer to the intention to use and accept a technology and the actual use. In the framework it was proposed that various determiners lead to form a positive attitude towards the usage of IBP. Therefore, the data also reflects that intention to use a technology plays an important role in the ultimate acceptance of technology intervention.

After observing the distribution of the data, bar graphs were prepared in order to estimate the difference between the responses of different groups of the population. If a difference would

be found in the responses of the groups, i.e. between the responses of males and females; between the more experienced and the less experienced, then further parametric tests were applied to observe the significance of the difference.

It can be inferred from the bar graph (see Figure 4.8 in Appendix 1) that both male and female respondents of public university differ in their opinion about Performance Expectancy. Males and females with less experience and males and females with more years of experience differ in their opinions. Same can be inferred for Effort Expectancy also (see Figure 4.9 in Appendix 1). The users show a difference of opinion about Effort Expectancy as well. For Facilitating Conditions, public users with less years of experience have similar opinions (see Figure 4.10 in Appendix 1); but as the experience increases their perception also changes. In the initial years of IBP usage, male and female users tend to vary in their decisions for Self-efficacy (see Figure 4.11 in Appendix 1). For Anxiety also it is the same as self-efficacy (see Figure 4.12 in Appendix 1). In the initial years of IBP usage, male and female users tend to perceive IBP differently. As the users gain experiences they become more comfortable in handling those platforms. Therefore in the later years of experience no difference is noticed in their responses. For the final construct i.e. the actual usage (see Figure 4.13 in Appendix 1). The bar graphs indicate that the respondents in their early years of experience differ in their actual usage behavior, but with the growing years of experience their decisions tend to be similar. The results of the survey as well as the focus group discussion with the students suggest that in the initial stage, i.e. when they have less experience in using the technology they tend to be more anxious and less confident. The factors are applicable for male users as well as female users. Both the users tend to be anxious in the beginning but as they start using the technology in their routine life, they gain more confidence. With the passage of time users tend to gain confidence and become more confident and comfortable with the platforms and ultimately their usage also increases.

This section presented the preliminary descriptive analysis of the data in order to prepare for the higher level inferential statistics. This analysis has been done in order to understand the data more comprehensively and to analyze the characteristics of the data. To check whether the difference is significant or not, independent-samples t-test has been conducted. The results of the test have been described in the further sections of the chapter.

4.1.2) Demographic Characteristics of the Sample

The demographic information about the respondents was on a categorical scale. To find out the characteristics about the categorical variables frequencies have been counted. The first demographic variable was gender. Among 530 respondents, 340 respondents were males and 190 respondents were female. The second demographic variable was the years of experience using IBP. There were four categories, namely, using IBP since one year-54 respondents, using IBP for more than 1 year but less than 3 years-176 respondents, using IBP for more than 4 years but less than 6 years, 174-respondents, using IBP for more than 6 years-126 users. Further for using appropriate techniques, the four categories were converted into two groups. First group belongs to the early users, and the later group belongs to the experienced users. The last demographic information collected was about their type of usage. The respondents were asked to answer whether they use IBP by their own choice, or they use IBP whenever they are forced to use it. Among 530 total respondents 492 students use IBPs because they want to use it i.e. voluntarily. Whereas only 38 of the respondents reported accessing and using these IBPs non-voluntarily. The number 38 out of 530 is a very small number, therefore this variable was not used for any kind of further analysis. It was assumed from the data that users use IBP by their own choice and reasons.

In order to fulfill the first objective, i.e. to measure the intensity of the usage of IBPs by the undergraduate engineering and technology students of communication skills courses, a usage questionnaire was administered to the sample. This task was conducted in order to study the

usage characteristics of the selected population. 250 total users took part in the survey. All the respondents agreed with the statement of using and accessing IBPs to accomplish their academic goals inside and outside the classroom. It was also confirmed that these platforms are actually helping them a lot in enhancing all their four skills, i.e. listening, speaking, reading and writing. Out of 250 respondents 199 were male respondents, and 51 female respondents. The participants responded in affirmative for using IBPs to accomplish their academic goals, specifically for Communication skills courses. 46 respondents reported that they spend less than one hour a day, 109 respondents reported that they spend more than 2 hours per day, 62 reported that they spend more than 2 hours, and 33 responded that they spend more than 4 hours to accomplish their academic tasks on these internet Based Platforms. It can be inferred from the results that the highest number of respondents belongs to the second category, i.e. more than 2 and less than 4 hours. These results imply that a vast majority of students spend considerable amount of time using IBPs, which can be tapped to enhance their language and communication skills.

Students were found to use IBPs for a variety of tasks. 197 responded in affirmative for IBP usage for completing the class assignment which includes information retrieval, compilation, writing, and listening. Qualitative discussion with the students revealed that such indulgence helps in refining the four communication skills. Moreover, as a result of online interaction and discussion with peers, communication skills also improve. 195 of the students responded that they perform the task of downloading class notes, lectures, PPTs etc. uploaded by the teachers using IBPs. 67 respondents replied in affirmative when enquired about the task of uploading queries related to the class assignments. During the focus group interviews the students reported that the main purpose for using these platforms is the flexibility provided by these platforms of breaking the space and time barrier, submission of assignments can be done without any physical effort of covering distances and taking appointments. It allows

flexibility, which was not possible earlier. They could easily download the material which has been uploaded by the teacher in the form of PPTs or any other format. 89 of the respondents reported that they use it to upload their assignments. 78 reported that they participate in online quizzes through these platforms. 86 respondents responded that they take tests online. During focus group interview users also reported that some tasks are controlled by the teachers, so they do not have any choice over these tasks; for example, if the teacher has scheduled a test online the students have no option other than participating in it online, either by choice or by force. 96 of the respondents reported that they participate in online discussions and it benefits them a lot. 209 respondents said that these IBPs are really very helpful and they collect information from varied sources whenever they have any assignment or project in hand. When asked about the authenticity of the platforms, every respondent replied that they prefer to use trusted sites only, and they always take advice from their teachers before trusting any source. One group of the students reported that the teacher is an important source to get the conformation about the authenticity of any material, because they have more experience of their respective fields. Respondents reported that these IBPs are very helpful in keeping them up-to-dated with the changes occurring in the respective academic domain. 184 of the respondents reported that IBPs help them to keep themselves updated. 243 respondents reported that IBPs are very useful and easily accessible.

The preference of the respondents was recorded by giving them options of different Internet Based Platforms. The first choice of the highest number of respondents is YouTube. 228 users reported it as their first choice. The second most preferred platform is Wikipedia, 219 users reported that they use Wikipedia to gather information for their class assignments; projects etc. 150 students reported that through e-mails they share various tasks with their peers as well as faculty members. It serves the purpose of submitting any assignment, or

some class task. 137 respondents reported that e-books, e-journals, online libraries subscription help them a lot, and they prefer to read reviews, articles, research papers online. 130 students reported that they do take help from available online lectures. 128 students told that they take help from online PPTs but from an authenticated source only. So, in educational context, authenticity is found to be a very crucial issue while using internet. 133 students said that they use Social Networking Platforms for the sharing of knowledge. They discuss online with their friends regarding various issues. Only 82 respondents reported usage of Blogs. Also, Learning Management system (LMS) and Content Management System (CMS) were used by 133 students.

Further, the preferred place of using IBPs was probed to find out whether students use IBPs inside the classroom only or outside the classroom usage is also present. Apart from place of choice, the choice of device interface was also inquired. 219 users reported their living place as their first choice. It shows that students feel comfortable in working from that place where they feel at ease the most. 121 users preferred classrooms/labs as their second choice to access IBPs. It signifies that if motivated, students would feel comfortable in accessing IBPs from the class rooms also. The third place of choice is library. Students reported that they prefer to use library when they need to take help from the prescribed journals. 164 users have chosen library as their third preferred access place. The central computer facility provided by the institute is the fourth preference by the users. 154 users preferred it as their last option because the institute computers usually have some technical constraints which eventually decrease their motivation level and enthusiasm.

The results signify that although the students consider IBPs as a good source of information for them, they still prefer to use these at their personal level and avoid using the facilities provided by the institute because it has its flaws. The results can be strengthened by analyzing the responses about their choice of interface for accessing IBP. Personal computer

is the first preference by highest number of users. 123 students reported that they access IBPs from their personal computers; 105 students reported that they use their smart phones for accessing these IBPs. 136 students have given institute computers as their last preference for using IBPs. 98 students reported using tablet for accessing IBPs. Students even reported that they do not prefer tablets as they are comparatively new and expensive devices.

4.1.3) Correlation between the Dependent and Independent Variables

As discussed in chapter 3, UTAUT framework proposed by Venkatesh et al. is the theoretical foundation taken for the study. The survey instruments used in the study are based on this theoretical framework. Karl-Pearson's product-moment correlation coefficient (r) has been used to investigate the relationship and the degree of association between 2 variables, although it does not determine the causal relationship between the 2 variables. As quoted in the handbook by Pallant, "Correlation coefficient provides a numerical summary of the direction and the strength of the linear relationship between two variables" (Pallant, 2005, p. 114). "It tells the direction and strength of the relationship" (Pallant, 2005, p.95). Gupta (1993) claimed that Karl Pearson's method is the most satisfactory method to determine the exact degree and direction of correlation between two variables. As quoted by the same author in her book, "The coefficient of correlation measures the degree of correlation between two phenomena" (Gupta, 1993, p. 56). The results indicate that increase in Performance Expectancy, Effort Expectancy, Self Efficacy, Anxiety lead to increase in Intention of Usage. The results also indicate that increase in Facilitating Conditions and Intention of Usage leads to increase in Usage. The values of the Pearson's coefficient and the coefficient of determination are mentioned in table 4.2.

Table 4.2 Correlation between the Dependent and Independent Variables

Variable	Question		R	r ²
IOU&U	Do students with high degree of perceived Intention to Use leads to actual Usage of IBPs?	Yes	.779	60%
PE&IOU	Do students with high degree of perceived performance expectations leads to form a positive intention to use IBPs?	Yes	.452	20%
EE&IOU	Do students with high degree of perceived low effort expectancy leads to form a positive Intention to Use IBPs?	Yes	.340	11%
FC&U	Do students tend to use IBP if given facilitating conditions?	No	.291	8%
SE&IOU	Do students with high degree of perceived self-efficacy tend to form a positive intention to use IBP?	Yes	.431	18%
ANX&IOU	Do students with low degree of perceived Anxiety associated with using IBP leads to form a positive intention to use IBP?	Yes	.400	16%

Table 4.2 explains that all the independent and dependent variables are in a positive relationship. Any increase in the independent variable leads to an increase in the dependent variable. The highest level of correlation is noticed between Intention to Use and the actual usage; whereas, Facilitating Conditions and Usage are found to be less correlated with each other in the present context. It was noticed during the interview and discussion with the respondents that in public institutions there is a lack of proper support and infrastructure. For example, there are devices such as computers and laptops which have been provided by the government but they are not in a working condition. It has been observed during the field study that the availability of technological support by the institutions was negligible mainly on account of inefficient procedures. Still the users were using IBPs to fulfill their tasks.

The coefficient values obtained are not very high in numerical terms but they have a significant value and as quoted in a handbook, “With large samples, even quite small correlation coefficients can reach statistical significance”, (Pallant, 2005, p. 116). It can be inferred from table 4.2 that the correlation coefficient (r), between Facilitating Conditions and Usage is 8%. Although there is a positive and significant relationship with each other but the value of ‘r’ is very less. It was observed during the field study in the interviews also

that the IBP infrastructure in the public universities is not strong; even if minimal infrastructure is present then the support services are not available. It can be seen clearly from the results that an increase in facilitating conditions will lead to increase in the actual usage of IBP. If proper facilities are given to the users, they would attempt to extract some benefit from them. At the same time, it was also noticed that though proper infrastructure was not there, still the users, students as well as teachers were very enthusiastic about using IBPs. It would be helpful for those students who come from an underprivileged background, and cannot afford it from their own side. Uniformity can be established if the basic availability can be maintained. Students, who cannot pay high fees in the private colleges, come to government colleges with a hope that proper utilization of books, journals, articles, research papers, and all such facilities will be accessible through technology at par with private institutions. Except facilitating conditions all other variables are in a strong positive correlation, which suggests that increase in one independent variable leads to the increase in the dependent variable.

4.1.4) Results of Standard Multiple Regression

This section presents the prediction of the independent variable upon the dependent variable. Standard multiple regression was used to investigate the percentage of variance explained by the independent variables PE, EE, SE, ANX in totality to explain IOU, and the variance explained by the independent variables FC and IOU to explain the dependent variable U. In addition to it, standard multiple regression also tells the variance explained by each variable separately, and the highest percentage explained by the variable separately. As quoted in the SPSS manual by Pallant, “Multiple regression is a more sophisticated extension of correlation and is used when you want to explore the predictive ability of a set of independent variables on one continuous dependent measure”, (Pallant, 2005, p.95).

“This is the most commonly used multiple regression analysis. You would use this approach if you had a set of variables and wanted to know how much variance in a dependent variable they were able to explain as a group or block”, (Pallant, 2005, p. 141). Therefore, standard multiple regression was used to explore the predictive ability of the measures of adoption i.e., Performance Expectancy, Effort Expectancy, Anxiety, and Self-efficacy in predicting the Intention to Use IBP and Facilitating Conditions and Intention to Use with Usage. This section attempts to answer the following questions:

Q_1. How much variance in perceived intention to use scores can be explained by scores on the four scales; namely, PE, EE, SE and ANX?

Q_2. Which is the best predictor of perceived intention to use IBP?

Q_3. How much variance in perceived usage score can be explained by scores on the two scales; namely, FC and IOU?

Before performing the analysis task various assumptions were checked in order to get accurate data results. The assumptions of normality and linearity were checked during the preliminary analysis. In order to check the multicollinearity and singularity, tolerance value and variance inflation factor (VIF) was calculated. “Multicollinearity refers to the multiple correlations with other variables. Multicollinearity exists when the independent variables are highly correlated. Singularity occurs when one independent variable is actually a combination of other independent variables. Tolerance value should not be less than .10 and VIF (Variance Inflation Factor) should not be above 10”, (Pallant, 2005, p.143). The results have been given in table 4.3.

Table 4.3 VIF and Tolerance Value

Variable	T.V.	VIF
PE	.742	1.347
EE	.701	1.427
SE	.595	1.681
ANX	.792	1.262
IOU	.918	1.089
FC	.918	1.089

In table 4 all the values are in an acceptable range, which means that none of the constructs are measuring items of some other variable and all the items of the constructs are measuring their own items.

Normal Probability Plots were investigated to check the Outliers, Normality, Linearity, and Homoscedasticity. Regression results revealed that 31% of the variance can be explained by the four measures of adoption, namely PE, EE, SE, and ANX as presented in Table 4.4.

Table 4.4 Model Summary

Model	R	R square	Adjusted R square	Std. error of the Estimate
1	.560	.314	.308	2.32734

- a. predictors: (constant) ANX_T, PE_T, EE_T, SE_T
- b. dependent variable: IOU_T

The regression results stated in Table 4.4 show that 31% of the variance can be explained by the four measures of adoption, namely PE, EE, SE, and ANX. To answer the second question, i.e. which is the best predictor among the four variables, the beta value was calculated. The results have been reported in table 4.5.

Table 4.5 Regression results

Variable	Beta value	Sig Value
PE	0.285	0.000
EE	0.073	0.091
SE	0.159	0.001
ANX	0.229	0.000

It can be inferred from the results in table 4.5 that all the variables except EE, have significant statistical relationship with the dependent variable IOU. The results also indicate that in the present context, the variable PE is separately contributing 8% of variance. ANX is contributing 05% of variance, and SE contributes 2%, in the present study. The variable PE means Performance Expectancy and it refers to the degree of perceived benefits a user thinks of getting after using IBP such as enhancement of performance, time saving, enhancement of knowledge, keep oneself up-to-dated. The study proves that the users, i.e. the undergraduate engineering students of Communication skills courses believe that by using Internet Based Platforms they can enhance their output, their knowledge and it also helps to improve their communication efficiency. Next important contribution is of ANX factor. ANX in the present study stands for the lack of anxiety from fear of using IBPs. The student population has responded that while using IBP they do not feel any kind of anxiety or fear of losing information, compromising with privacy or hesitation in using IBP. In fact it turns out that lack of anxiety is one of the factors which motivate them to form a positive intention towards start using IBP.

The low percentage of the Effort Expectancy proves that these digital natives, i.e. a generation brought up in techno-savvy environment are more prone to take risks. Any challenge encountered with the complexity of the provided technology would not stop them from using that. Moreover, this result also indicates that for digital natives, efforts needed for using IBPs are not a very important concern. SE i.e. Self Efficacy contributes 2% uniquely

in forming a positive intention to use IBP. Self Efficacy refers to the confidence of using IBPs without taking somebody's help. It refers to the perceived confidence the students have in using IBP. The results of the study show that self efficacy is an important factor which motivates the students to form a positive intention to use IBP. The undergraduate engineering students of Language and Communication courses get motivated and form a positive attitude to use Internet Based Platforms due to various factors. Performance Expectancy contributes the highest in forming this opinion, followed by Anxiety and Self Efficacy.

It can be summarized according to the results, 31% of the variance can be explained by scores of the four measures, namely, PE, EE, SE, and ANX. Also, it can be deducted that performance expectancy (PE) is the best predictor in forming a positive attitude towards using IBPs.

The standard multiple regression used again for model 2, i.e. to see the relationship between IOU and FC as independent variables and U as a dependent variable. The regression results stated that 61% of the variance can be explained by the two measures namely IOU and FC (see Table 4.6). It shows that perceived positive intention to use IBP leads to perceived usage of IBP. The implication is that if students are motivated to use IBP, the propensity of actual usage also increases.

Table 4.6 Model Summary

Model	R	R square	Adjusted R square	Std. error of the Estimate
2	.749	.613	.560	1.81163

- a. predictors: (constant) IOU_T, FC_T
- b. dependent variable: U_T

FC directly influences the perceived usage unlike other 4 dependent variables. The beta value for FC is .074, which is almost a negligible value. It has been tested during the correlation that perceived facilitating conditions have minimal effect on the students in the present scenario. The contribution of perceived Intention to use IBP is 34%, whereas both these variables FC and IOU explain 61% of the variance.

Table 4.7 Regression results

Variable	Beta value	Sig Value
IOU	0.591	0.000
FC	0.074	0.091

Once analyzing the relationship between the four variables with perceived intention to use IBP, and the contribution of the factors was obtained; the relationship between the perceived intention to use and the perceived usage was examined. Beta value of .591 ($p < 0.000$) is obtained, which means that 34% of the variance in usage can be explained by the construct Intention to Use. The results imply the Intention to Use plays crucial role in the acceptance behavior of users. If students are motivated through various means, they would eventually use IBPs as mainstream part of the learning process.

4.1.5) Results of Independent-Samples t-test

Though the ‘digital native’ nature of the respondents has been discussed earlier in the section, there are certain cultural stereotypes associated with gender based access to technology. Research literature also indicates that female users who have limited access to technology, due to certain cultural, social, and other barriers, become less confident in handling technology. Gender and different demographic aspects like culture and environment affect the decision of a person to adopt a technology. A study carried out in North America, Asia, and Europe showed that gender played a significant role in how women and men used emails for communication. The results of the study indicated that

female users feel more hesitant and less confident than males while using emails, Gefen & Straub (1997). An attempt has been made to understand the difference of opinion between the different groups, i.e. gender and years of experience because the culture and context of the present study is different from the previous studies. To measure the significance of difference between the users on the basis of their gender and the experience of usage, independent samples t-test has been used. This section presents the answers to the following questions.

Q_ 1 Is there a significant difference in the mean PE scores for male and female students?

Q_ 2 Is there a significant difference in the mean EE scores for male and female students?

Q_ 3 Is there a significant difference in the mean FC scores for male and female students?

Q_ 4 Is there a significant difference in the mean SE scores for male and female students?

Q_ 5 Is there a significant difference in the mean ANX scores for male and female students?

There are 190 female students and 340 male students in the public university sample. The t value, the significance value, and the eta-square value, are given in table 4.8. Eta-squared value has been calculated by using the following equation:

$$\text{Eta squared} = \frac{t^2}{t^2 + (N1 + N2 - 2)} \text{----- Equation_1}$$

The value was calculated to confirm that the values obtained from the test are not values obtained co-incidentally. For interpretation of the results, the following scales were used: “0.01=small effect, 0.06=moderate effect, 0.14=large effect, [Cohen, 1998” (Pallant, 2005, p. 209)]. The values presented in table 4.8 shows that male users and female users think differently about the availability of facilitating conditions for the usage of IBP; and their opinions differ about the perceived absence of Anxiety while forming an intention to use IBP.

Table 4.8 t-test Results for Gender Group

Variable	t-value	Sig value	Significance	Eta-squared	effect
PE	-1.051	.294	No	0.002	Small effect
EE	.001	1.000	No	0.000	No effect
FC	-4.018	.000	Yes	0.030	Small effect
SE	-1.388	.166	No	0.004	Small effect
ANX	-3.546	.000	Yes	0.023	Small effect

There is no significant difference in scores for PE, for males ($M=15.52$, $SD=2.37$) and females [$M=15.76$, $SD=2.61$; $t(528) = -1.051$, $p=.294$]. The magnitude of the differences in the means is very small (eta squared=.002). There is no significant difference in scores for EE, males ($M=14.87$, $SD=2.78$) and females [$M=14.87$, $SD=3.01$; $t(528) = .001$, $p=1.00$]. The magnitude of the differences in the means is negligible, no difference lies (eta squared=.000). There is a significant difference in scores for FC, males ($M=13.57$, $SD=2.98$) and females [$M=12.53$, $SD=2.79$; $t(528) = -4.018$, $p=.000$]. The magnitude of the differences in the means is also small like all other variables. (eta squared=.030). There is no significant difference in scores for SE, males ($M=15.68$, $SD=2.79$) and females [$M=15.34$, $SD=2.68$; $t(528) = -1.388$, $p=.166$]. The magnitude of the differences in the means is very small (eta squared=.004). There is a significant difference in scores for ANX, males ($M=14.28$, $SD=3.08$) and females [$M=13.32$, $SD=2.94$; $t(528) = -3.546$, $p=.000$]. The magnitude of the differences in the means is also small (eta squared=.023).

Similarly, independent sample t-test was also employed to investigate the difference between the students who have a less experience of using IBPs and those who have been using IBPs for a long time. Two categories are made, the first group belongs to the users having an experience of less than 4 years and the second group belongs to the users having an experience of more than 4 years. The total number of users are 530, 230 belongs to the

category of the less experienced users and 300 belongs to the category of those users who have an experience of more than 4 years of using IBPs. The results of the test are described in Table 4.9.

Table 4.9 t-test results for experience group

Variable	t-value	Sig value	Significance	Eta-squared	effect
PE	-3.444	.001	Yes	0.015	small effect
EE	-5.018	.000	Yes	0.032	small effect
FC	1.945	.052	No	0.005	small effect
SE	-3.735	.000	Yes	0.018	Small effect
ANX	-1.752	.080	No	0.004	small effect

There is a significant difference in scores for PE, less experienced ($M=15.24$, $SD=2.83$) and more experienced [$M=16.00$, $SD=2.21$; $t(528) = -3.444$, $p=.001$]. The magnitude of the differences in the means is small (eta squared=.015). Similarly, the opinion of less experienced and more experienced differs in their perception about effort expectancy as well. There is a significant difference between the scores for less experienced ($M=14.15$, $SD=3.01$) and more experienced [$M=15.42$, $SD=2.74$; $t(528) = -5.018$, $p=.000$]. The magnitude of the differences in the means is small (eta squared=.032). There is no significant difference in scores for FC, less experienced ($M=13.48$, $SD=2.86$) and more experienced for facilitating conditions [$M=12.98$, $SD=3.01$; $t(528) = 1.945$, $p=.052$]. The magnitude of the differences in the means is also small (eta squared=.005). There is a significant difference in scores for SE, less experienced ($M=15.05$, $SD=2.72$) and more experienced for self-efficacy [$M=15.95$, $SD=2.72$; $t(528) = -3.735$, $p=.000$]. The magnitude of the differences in the means is very large (eta squared=.018). There is no significant difference in scores for ANX, less experienced ($M=13.67$, $SD=3.02$) and more experienced

[$M=14.14$, $SD=3.09$; $t(528) = -1.752$, $p=.080$]. The magnitude of the differences in the means is very small ($\eta^2=.004$).

For the gender group there is a significant difference in the obtained mean scores for FC and ANX. It means that the opinions of male and female users vary towards the availability of Facilitating Conditions and the absence of perceived Anxiety and fear before using IBP. Preferences of male and female students differ while considering Facilitating Conditions. When correlation was calculated the values obtained were higher for females, and for males it was a slight lower. It indicates that females rely much on facilitating conditions. Therefore, their opinions differ from that of male students. In Indian culture men have more freedom to access technology and taking their own decisions. So, in the present context as well, males tend to use IBPs either the university supports it or not, whereas females are slightly dependent on the universities' infrastructure. The same argument can be applied to the factor of Anxiety also. David, Hood, Yoo (2013) carried out a study which reported that perception differs when there is a gender difference for the learning tasks. The female students have shown a higher level of anxiety as compared to the male students. Females are more conscious while taking their decisions, whereas male users are more risk taking and confident while deciding. So, male students and female students differ in their opinions when it comes to the perceived effect of facilitating conditions and anxiety.

For the second group i.e. experience of using IBPs, the opinions vary for PE, EE and SE. The results indicate that students tend to change their perceived opinions over a period of time. The students tend to differ in their opinions with the growing years of experience. The opinions of the students tend to change with the increased exposure of technology. Users tend to become more aware about the performance they are getting by using IBPs, their efforts comes to a lower level, so as their confidence increases, with the passage of time. All these factors are interrelated with each other. The perceived enhancement in performance

leads to improve the self-efficacy; likewise the perceived enhancement in handling easily leads to the enhancement in self-efficacy. Therefore, with the increasing years of using IBP the users tend to change their opinions.

4.2) IBP Users of Private Universities

Users of private universities refer to the engineering and technology undergraduate students of Communication skills courses of private universities. The sample has been selected from the universities and the National Capital Region. It was observed during the field study that the fee structure of private universities is higher than that of the public universities and people with high amount of income can easily afford to get admission in a private university.

4.2.1) Preliminary Analysis and Descriptive statistics for Continuous variables

All essential preliminary data screening tasks such as checking the data for normality, linearity, outliers, errors, minimum and maximum values for the categorical variables, the final sample of 500 respondents was used for the analysis. The skewness value is .090, which is a positive value and it indicates that the data is skewed towards the left. The kurtosis value is .270 and it is also a positive value which is indicating that the distribution is peaked in the middle, with long flat tails.

Table 4.10 Descriptive Information

Variable	Mean	Std. deviation	N
PE	16.37	2.72	500
EE	16.15	3.49	500
FC	16.64	3.14	500
SE	16.01	3.08	500
ANX	14.98	3.17	500
IOU	15.43	2.60	500

U	15.49	2.84	500
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The 5-point Likert scale used in the study moves from 1 representing strong disagreement to 5 representing strong agreement. For Performance Expectancy the responses are more peaked towards strong agreement (see Figure 4.14 in Appendix 1) with a mean value of 16.37 which indicates that the respondents believe that IBPs help them to enhance their performance. Similarly for Effort Expectancy also, the responses are more peaked towards the strong agreement (see Figure 4.15 in Appendix 1) with a mean value of 16.15 confirming that students of private universities consider the need of effort required to accept an IBP. Likewise the other two variables the responses for Facilitating Conditions are also inclined towards the strong agreement (see Figure 4.16 in Appendix 1) with a mean value 16.64 indicating that while accepting IBPs Facilitating conditions play a major role. In Self-Efficacy the responses are more peaked towards the right (see Figure 4.17 in Appendix 1). Users tend to accept those technologies about which they are more confident. The mean value is 16.01, which confirms that maximum number of responses belong to the strong agreement side of the statement. This implies that the traits like self-confidence in using technology, self-capabilities in learning and adopting the online platforms for learning plays an important role in students' choice to adopt technology. For the variable Anxiety, the responses are more peaked towards the centre, and slightly towards right, which means that the responses belong to neutral and slightly to agreement with the statements (see Figure 4.18 in Appendix 1). The mean score is 14.98, which confirms that responses are mixed between agreement and neutral. This implies that respondents prefer to use those platforms which are simpler and secure because it leads towards less fear and anxiety of any mis-happening. Users tend to trust authentic platforms because it relieves them from security issues and make them more comfortable and confident to proceed further. For Intention of Use the responses are more peaked towards the right, this area indicates agreement (see

Figure 4.19 in Appendix 1) with a mean value of 15.43, which confirms that mostly responses belong to the category of agreement with the statement. Therefore, the data also reflects that intention to use a technology plays an important role in the ultimate acceptance of technology intervention. For Usage construct, the responses are more peaked towards the right similar to the IOU factor (see Figure 4.20 in Appendix 1). The mean value is 15.49, which confirms that mostly responses belong to agreement with the statements. The statements in the variable inquired about the usage of IBP. All the respondents have replied in very positive manner, that they use IBP for the completion of various tasks outside the classroom.

After observing the distribution of the data, bar graphs were prepared in order to estimate the difference between the responses of different groups of the population similar to the exercise done for public university settings. It can be inferred from the bar graph (see Figure 4.21 in Appendix 1) that both male and female respondents of public university differ in their opinion about Performance Expectancy. Males and females with less experience and males and females with more years of experience differ in their opinions. Same can be inferred for Effort Expectancy also (see Figure 4.22 in Appendix 1). The users show a difference of opinion about Effort Expectancy as well. For Facilitating conditions, public users with less years of experience have similar opinions (see Figure 4.23 in Appendix 1); but as the experience increases their perception also changes. In the initial years of IBP usage, male and female users tend to vary in their decisions for Self-Efficacy (see Figure 4.24 in Appendix 1). For Anxiety also it is the same as Self-efficacy (see Figure 4.25 in Appendix 1). In the initial years of IBP usage, male and female users tend to perceive IBP differently. As the users gain experiences they become more comfortable in handling those platforms. Therefore in the later years of experience no difference is noticed in their responses. For the final construct i.e. the actual usage (see Figure 4.26 in Appendix 1). The bar graphs indicate

that the respondents in their early years of experience differ in their actual usage behavior, but with the growing years of experience their decisions tend to be similar.

This section presented the preliminary descriptive analysis of the data in order to prepare for the higher level inferential statistics. This analysis has been done in order to understand the data more comprehensively and to analyze the characteristics of the data. To check whether the difference is significant or not, independent-samples t-test has been conducted.

4.2.2) Demographic Characteristics of the Sample

The demographic information about the respondents was on a categorical scale. To find out the characteristics about the categorical variables frequencies have been counted. The first demographic variable was gender. Among 500 respondents, 359 respondents were males while 141 respondents were females. The second demographic variable was about users' years of experience in using IBPs. There were four categories. 24 respondents were using IBPs since one year, 122 respondents were using IBPs for more than 1 year and less than 3 years, 206 respondents were using IBPs for more than 4 and less than 6 years, and 148 students were using IBPs for more than 6 years. Further for using inferential statistics this category was converted into two groups. First group includes the early users, and the later group includes the experienced users. The last demographic information collected was about type of usage: voluntary or mandatory. Among 500 total respondents 466 of them said that they use IBPs voluntarily because they want to use it and only 34 of the respondents used it only when they were forced to use it. The number 34 out of 500 is a very small number, therefore this variable was not used for any kind of further analysis in this private university sample also. It was assumed from the data that students use IBP voluntarily.

In order to fulfill the first objective, i.e. to measure the intensity of the usage of IBPs by the undergraduate engineering and technology students of Communication skills courses, questionnaire was administered among the sample. This task was conducted in order to study

the usage characteristics of the selected population. The questionnaire addressed the issue of usage such as, purpose of usage, preferred platform, and the tasks for which they use IBPs. 250 completely filled responses were analyzed finally. Out of 250 respondents 132 were male respondents, and 118 were female respondents. All the respondents agreed with the fact that they take help from these platforms in order to accomplish their academic tasks. It was also confirmed that these platforms are actually helping them a lot in various ways. The instrument enquired about the amount of time they devote on the platforms to accomplish their academic tasks. 40 respondents reported that they spend less than one hour a day, 127 respondents reported that they spend more than 2 but less than 4 hours per day, 56 reported that they spend more than 4 hours but less than 6 hours, and 27 responded that they spend more than 6 hours to accomplish their academic tasks on these Internet Based Platforms. It can be inferred from the results that the highest number of respondents belongs to the second category, i.e. more than 2 and less than 4 hours. The results are similar with the public users where maximum number of students belongs to the second category. 127 reported the usage for more than 2 and less than 4 hours. It was instructed clearly before distributing the questionnaire that they need to respond keeping in mind the usage for Communication skills courses specifically.

Users were found to use IBP for a variety of tasks. 200 students responded in affirmative for IBP usage for completing the class assignments which included sourcing the content, reading, composing, online discussing, listening, seeking answers to queries with peers and communication with instructors. 230 of the respondents reported that they perform the tasks of downloading class notes, lectures, PPTs etc. uploaded by the teachers by using IBPs. The students of private universities use IBPs more than the students of public university since the infrastructure plays an important role in motivating the students for usage. 163 of the respondents replied in affirmative about the task of posing queries related to the class works

on various IBPs including Social Media Platform, Learning Management System etc. 135 of the respondents reported that they use IBPs to complete their project assignments. 78 students reported that they participate in online quizzes through these platforms. 126 respondents have told that they take mock tests online. 204 respondents reported that they participate in online discussions and it benefits them a lot. 220 respondents reported that these IBPs are really very helpful and they collect information from varied sources whenever they have any assignment or project in hand. Students also believed that teacher is a trusted source to get the conformation about the authenticity of any material, because they have more experience of their respective fields. Students reported that these IBPs are very helpful in keeping them up-to-date with the changes occurring in academic domain. These IBPs work as an efficient knowledge provider for them.

The IBPs preference of the respondents was inquired by providing list of different Internet Based Platforms to be ranked. The first choice of the respondents was YouTube. 230 students reported it as their first choice. The second most preferred platform was Learning Management System (LMS). 200 students reported that they use LMS to share information with peers and colleagues, to upload and download notes, slides, lectures etc. The third preference was e-mails. 185 students reported that with the help of e-mails they share various tasks with their peers as well as faculty members. But the purpose for using e-mails is a way of passing information. It serves the purpose of submitting any assignment, or some class task. 150 respondents reported that e-books, e-journals, online libraries subscription help them a lot, and they prefer to read reviews, articles, research papers online. 170 students reported that they do take help from available online lectures. When asked about Online PPTs, 128 students told that they take help from online PPTs but from an authenticated source only. They take part in the discussions using the platforms to discuss on various issues. 54 respondents reported usage of Blogs. Finally Social Networking Sites like

facebook and twitter got 46 scores, Google Drive, and Drop-box got the least scores for usage i.e. 30, and 20. Unlike public university students, the students of private universities use LMS the most. All the private universities taken in the sample were using various learning management platforms; for example Amity University uses '*Amizone*', BITS Pilani uses '*Nalanda*' and '*Taxila*' and likewise different universities use their own platforms for various purposes related to academic and administrative purposes.

Further, students were probed to mark their preferences about their places of choice for accessing IBPs. Apart from place of choice, students were also used to identify the device interface which they prefer to use for accessing the IBPs. 222 students marked Library as their first choice. 118 users reported the central computer unit as their second choice to access IBPs. These two choices of the students reflect that the infrastructure of the private university supports the usage of IBP and allied technologies. When it was discussed with the students during the focus group interview, they informed that there are various online subscriptions to various books and journals which they can easily access from the library. The third place of choice is the personal place of the students. Students reported that they prefer to use library when they need to take help from the prescribed online resources, but these subscriptions can be accessed from anywhere inside the campus. 168 users have chosen their own living space as their third place of choice. 150 users preferred the classroom as their last option because they do not find it much convenient to use IBPs inside the classrooms. Smart phones got the first preference by highest number of users unlike the students of public universities who prefer to use personal computer instead of using personal phones to access the IBPs. 130 reported smart phones as their first preference to access internet. The reason can be the level of comfort in using mobile phones than carrying laptops everywhere. 123 students reported that they access IBPs from their personal computers; there is not much difference between the number of students using personal computers and

smart phones for assessing these platforms. 112 students reported that they use computers provided by the University for accessing these IBPs. 107 students gave tablets as their last preference for using IBPs.

4.2.3) Correlation between the Dependent and Independent Variables

To investigate the relationship between the independent and dependent variables, Karl-Pearson's product-moment correlation coefficient (r) has been investigated. As already discussed in section 4.1.4, it has been used to measure the degree of correlation existing between two variables. To inspect the relationship visually, scatter plots have been investigated. After of serving the positive and linear relationship between all the dependent and independent variables, (r) was obtained applying appropriate methods. It can be interpreted as perceived increase in PE, EE, SE, ANX leads to increase in IOU and perceived increase in FC and IOU leads to increase in perceived actual Usage. The coefficient of correlation and the coefficient of determiner have been mentioned in table 4.11.

Table 4.11 Degree of relationship between the Dependent and Independent variables

Variable	Question		R	r ²
IOU&U	Do students with high degree of perceived increase in Intention to Use leads to actual usage of IBP?	Yes	0.69	48%
PE&IOU	Do students with high degree of perceived increase in performance leads to form a positive intention to use IBP?	Yes	0.39	15%
EE&IOU	Do students with high degree of perceived low efforts expectancy leads to form a positive intention to use IBP?	Yes	0.33	11%
FC&U	Do students tend to use IBP if facilitating conditions available?	Yes	0.40	16%
SE&IOU	Do students with high degree of perceived self-efficacy tend to form a positive intention to use IBP?	Yes	0.44	19%
ANX&IOU	Do students with low degree of perceived anxiety associated to use IBP leads to form a positive intention	Yes	0.41	16%

	to use IBP?			
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The highest level of correlation is noticed between intention to use and the actual usage; whereas, all other variables are in a significant relationship, with EE having the least number in the private group.

4.2.4) Results of Standard Multiple Regression

Standard multiple regression technique was used to investigate the percentage of variance explained by the independent variables PE, EE, SE, ANX in totality to explain IOU, and the variance explained by the independent variables FC and IOU to explain the dependent variable U. In addition to it, standard multiple regression also tells the variance explained by each variable separately, and the highest percentage explained by the variable separately. Therefore, standard multiple regression was used to find out that how well the measures of adoption i.e., performance expectancy, effort expectancy, anxiety, and self-efficacy predict intention to use IBP, and usage of IBP.

- Q1. How much variance in perceived intention to use scores can be explained by scores on the four scales; namely, PE, EE, SE and ANX?
- Q2. Which is the best predictor of perceived intention to use IBP?
- Q3. How much variance in perceived usage score can be explained by scores on the two scales; namely, FC and IOU?

The assumptions of normality and linearity were checked during the preliminary analysis. In order to check the multicollinearity and singularity tolerance value and variance inflation factor (VIF) was calculated. The results have been given in Table 4.12.

Table 4.12 VIF and Tolerance Value

Variable	T.V.	VIF
PE	.658	1.520
EE	.648	1.542
SE	.625	1.600
ANX	.698	1.433
IOU	.877	1.140
FC	.877	1.140

None of the values exceed the standardized values, as it can be seen in Table 4.12. All the values are in an acceptable range, which means that none of the independent variables are measuring some other independent variable and all the independent variables are measuring their own variable.

Normal Probability Plots were investigated to check the Outliers, Normality, Linearity, and Homoscedasticity. Regression results revealed that 52% of the variance can be explained by the four measures of adoption, namely PE, EE, SE, and ANX as presented in Table 4.13.

Table 4.13 Regression results for model 1

Model	R	R square	Adjusted R square	Std. error of the Estimate
1	.550	.527	.300	2.28501

- a. predictors: (constant) ANX_T, PE_T, EE_T, SE_T
- b. dependent variable: IOU_T

To answer the second question, i.e. which is the best predictor among the four variables, the beta values were checked. The results have been reported in Table 4.14.

Table 4.14 Beta Values

Variable	Beta value	Sig Value
PE	0.186	0.000
EE	0.065	0.119
SE	0.219	0.000
ANX	0.208	0.000

It can be inferred from Table 4.14 that all the variables except SE has a significant contribution in the model as all the significant values obtained are less than .05 ($p < .0005$). While looking at the results it can be said that in the present context, the variable PE is separately contributing 3% of variance. The contribution of EE is not statistically significant. SE and ANX are contributing 4% each. Once analyzing the relationship between the four variables with perceived Intention to Use IBP, and the contribution of the factors was obtained. The relationship between the perceived Intention to Use and the actual Usage was examined. 52% of the variance can be explained by scores on the four scales namely PE, EE, SE, and ANX. It can be seen from the results that SE and ANX, both the variables are contributing almost equally, only a small difference is there and SE is the best predictor in forming a positive attitude towards using IBPs. Regression results presented in Table 4.15 shows that 51% of the variance can be explained by FC and IOU. It shows that perceived positive intention to use IBP leads to perceived usage of IBP. FC i.e. facilitating Conditions directly influences the perceived usage unlike other 4 dependent variables.

Table 4.15 Regression results for model 2

Model	R	R square	Adjusted R square	Std. error of the Estimate
1	.718	.515	.513	1.98401

- a. predictors: (constant) FC_T, IOU_T
- b. dependent variable: U_T

The obtained beta value for FC is .189, which means that FC is contributing 3% in predicting the perceived usage of IBP in the private group. The unique contribution of perceived Intention to use IBP is 39%, as shown in Table 4.16.

Table 4.16 Beta Values

Variable	Beta value	Sig Value
FC	0.189	0.000
IOU	0.630	0.000

4.2.5) Results of Independent-samples t-test used to measure the significance of difference

Independent samples t-test is used to investigate whether the difference between various group responses is significant or not. Research suggests that the role of gender is an important factor to explore in the domain of acceptance, (Gefen, D., & Straub, D. W. 1997). Therefore, an attempt has been made in the present study to observe the role of gender as a moderating variable. To ensure that the results are not random and there is actually some difference in the responses of the groups, independent-sample t-test was used. The data collected is fulfilling all the basic requirements of using independent samples t-test like, random sampling, independence of observations and normal distribution of data.

- Q1. Is there a significant difference in the mean PE scores for male and female students?
- Q2. Is there a significant difference in the mean EE scores for male and female students?
- Q3. Is there a significant difference in the mean FC scores for male and female students?
- Q4. Is there a significant difference in the mean SE scores for male and female students?
- Q5. Is there a significant difference in the mean ANX scores for male and female students?

To obtain the answers for all the questions listed above, independent-sample t-test has been used. There are 141 female students and 359 male students in the sample. The t-value, the significant value, and the eta-square value, are given below in the table. Eta-squared value has been calculated by using the formula:

$\text{Eta squared} = \frac{t^2}{t^2 + (N1 + N2 - 2)} \text{----- Equation_2}$

The value was calculated to confirm that the values obtained from the test are not values obtained co-incidentally. For interpreting the results following scale was used- “.01=small effect, .06=moderate effect, .14=large effect, Cohen, 1998” (Pallant, 2005, p. 209).

Table 4.17 t-test results for the gender group

Variable	t-value	Sig value	Significance	Eta-squared	effect
PE	-.226	.822	No	0.000	no effect
EE	-.977	.330	No	0.002	small effect
FC	-2.375	.018	No	0.011	small effect
SE	-.531	.596	No	0.001	small effect
ANX	.324	.746	No	0.000	no effect

There is no significant difference in mean scores for PE between males ($M=16.39$, $SD=2.69$) and females [$M=16.33$, $SD=2.80$; $t(498) = -.226$, $p=.822$]. There is no difference between the magnitude of the means (eta squared=.000). There is no significant difference in scores for EE between males ($M=16.24$, $SD=3.50$) and females [$M=15.90$, $SD=3.46$; $t(498) = .977$, $p=.330$]. The magnitude of the differences in the means is very small (eta squared=.002). There is no significant difference in scores for FC between males ($M=14.86$, $SD=3.04$) and females [$M=14.09$, $SD=3.33$; $t(498) = -2.375$, $p=.018$]. The magnitude of the differences in the means is small (eta squared=.011). There is no significant difference in scores for SE between males ($M=16.06$, $SD=3.01$) and females [$M=15.89$, $SD=3.23$; $t(498) = -.531$,

$p=.596$]. The magnitude of the differences in the means is very small (eta squared=.001). There is no significant difference in scores for ANX between males ($M=14.95$, $SD=3.20$) and females [$M=15.05$, $SD=3.12$; $t(498) = .324$, $p=.746$]. The magnitude of the differences in the means is negligible (eta squared=.000).

After doing this exercise for the gender group, same was done to investigate the difference between the students who have less experience of using IBPs and those who have been using IBPs for a long time. The first group belongs to the users having an experience of less than 4 years and the second group belongs to the users having an experience of more than 4 years.

Table 4.18 t-test results for the experience group

Variable	t-value	Sig value	Significance	Eta-squared	Effect
PE	-3.150	.002	Yes	0.020	small effect
EE	-3.226	.001	Yes	0.020	small effect
FC	-1.849	.065	No	0.007	small effect
SE	-1.815	.071	No	0.007	small effect
ANX	-1.411	.160	No	0.004	small effect

The total number of users are 500, 146 users belong to the category of the less experienced users and 354 users belong to the category of those users who have an experience of more than 4 years of using IBPs. The results of the test have been presented in table 4.18.

As it can be seen that there is a significant difference in scores for PE between less experienced ($M=15.78$, $SD=2.73$) and more experienced [$M=16.62$, $SD=2.68$; $t(498) = -3.150$, $p=.002$]. The magnitude of the differences in the means is small (eta squared=0.020). The significant difference makes PE a significant factor for both the users' group. Similarly, the difference for EE is also significant between less experienced users ($M=15.32$, $SD=3.78$) and more experienced users [$M=16.48$, $SD=3.30$; $t(498) = -3.226$, $p=.001$]. The magnitude of

the differences in the means is small ($\eta^2=0.020$) which makes it an important factor. There is no significant difference in scores for FC between less experienced ($M=14.25$, $SD=2.95$) and more experienced [$M=14.80$, $SD=3.21$; $t(498) = -1.849$, $p=.065$]. The magnitude of the differences in the means is small ($\eta^2=0.007$). There is no significant difference in scores for SE between less experienced ($M=15.63$, $SD=2.91$) and more experienced [$M=16.16$, $SD=3.13$; $t(498) = -1.815$, $p=.071$]. The magnitude of the differences in the means is small ($\eta^2=0.007$). There is no significant difference in scores for ANX between less experienced ($M=14.66$, $SD=3.30$) and more experienced [$M=15.11$, $SD=3.11$; $t(498) = -1.411$, $p=.160$]. The magnitude of the differences in the means is very small ($\eta^2=0.004$).

From the results it can be inferred that the male and female students of private group do not differ in their opinion, which is inconsistent with the previous studies where male users seem more motivated than female users to learn in an innovative environment, (Hu, P. J. H., and Hui, W. 2011). In the second group i.e. experience group, the users differ in their opinions in two variables, namely, PE and EE. Users tend to change their opinions with the passage of time. The next section discusses elaborately the results and findings of the current research with the previous studies.

4.3) Discussion of the Results

The focus of the study is to investigate the technology acceptance behavior of undergraduate engineering and technology students of Communication skills courses. An attempt has been made to find out their acceptance behavior, through factors which motivate them to accept Internet Based Platforms. Internet Based Platforms refer to all those online platforms where the users can create, consume, and share the learning content in an environment of collaborative pedagogy and leverage these platforms for various types of academic tasks. The results of the preliminary survey indicated that students access IBPs relatively more

outside the classroom as compared to inside the classroom. Consequently, while conducting the final survey, it was clarified to the respondents that the context is about using IBPs inside as well as outside the classroom. The sample was selected from two university environments, the students of public universities and the students of private universities. The objective of the study was to study their technology acceptance behavior, find out the perceived factors which motivate them to use and accept IBPs, and to investigate whether there is any significant difference between the technology acceptance behavior of male and female students and between students with less years of experience and students with more years of experience, in the two settings, public and private. The theoretical framework of the study is UTAUT, as discussed in chapter 2 in detail. The theory comprises of 8 variables namely, Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Self-Efficacy (SE), Facilitating Conditions (FC), Anxiety (ANX), Intention to Use (IOU) and Use (U). The variables of the framework are described below with the values obtained and their significance in the current study.

Performance Expectancy

Performance Expectancy refers to the perceived gain in Performance the students expect by using IBPs. As the results indicate, Usage of IBP enhance their work efficiency, helps the learner to do their academic tasks timely and with accuracy. Statistical analysis show that Performance Expectancy is found to be a significant determiner of Intention to Use IBPs in both the contexts, public as well as private with a beta coefficient of 0.285 ($p < 0.005$) and 0.186 ($p < 0.005$) respectively. The results obtained concurs with the findings of the previous studies proposing a significant relationship between PE and IOU (Al-Gahtani et al., 2007; Wang and Shih, 2008; Wang et al., 2009; Ma, W., & Yuen, A. 2011; Smarkola C, 2011; Luan, W. S., & Teo, T. 2011). When t-test was applied to investigate the difference between the opinions of male students and female students with different years of experience using

IBP of public and private group, it was observed that there is no significant difference between the opinions of these users regarding Performance Expectancy. Both male and female students of public and private universities think Performance Expectancy is an important factor while accepting IBPs in the context of Communication skills courses. It implies that Internet Based Platforms enable students to improve their performance in improving their language proficiency and communication skills including all the four skills, i.e. listening, speaking, reading, and writing. If technology is accessible, then the students of these courses can use technology such as discussion forums to enhance their writing skills. It not only enhances their writing skills but also provide feedback based learning from the teacher as well from the peers. Similarly, IBP like YouTube and Skype can be used to enhance their listening and speaking skills. Skype allows real time face to face interaction with friends and faculty. Free and open source online software and tools are available which can be helpful to enhance the skills of the students, such as voice recording applications, pronunciation software. Also, students can pursue personalized learning. Social Networking Platforms such as facebook and twitter may also be used by shy students to slowly come out of their shell and become efficient communicators by joining special internet groups and online communities.

Effort expectancy

Effort Expectancy refers to the perceived ease of using IBPs. Effort Expectancy (EE) is defined as “the degree of ease user feel with respect to the use of facilities”, (Venkatesh et al. 2011, p.329). The less the amount of perceived effort required while using a technology the more positively it would influence the Intention to Use it. The items of this variable enquired about the opinion of students regarding perceived ease of using IBP. In the present study Effort Expectancy is found to be an in-significant factor to determine the Intention to Use IBPs. The obtained values for the public and private group are 0.073 and 0.065 respectively.

The results are consistent with a prior study where EE was not proved as a significant determiner, (Lawan A. and Ringim K.J. 2012). The results can be substantiated by investigating the t-test results also. The results indicate that in public group the opinions do not differ for gender group, but for the experience group the opinions of users are different with each other. Initially, Effort Expectancy does not matter but as students start using IBPs, their opinions change. The results are similar for the gender group and experience group in private group also. There is no difference between the opinions of male users and female users, but as the experience increases, Effort Expectancy tends to affect their opinions. It proves, like previous studies, that the cultural background of a population differs in their opinions. For some individual effort expectancy can be a very important factor, whereas for some set of individuals the complexity of a technology does not matter at all. It also implies that IBPs with easy installations, comfortable user interface, better organization of content and features enabling easy interaction would be accepted faster. The digital nature of the students also contributes to insignificance of Effort Expectancy. Since the sample has grown up in technology embedded environment, they are better equipped to handle the complexity that accompanies technology innovation.

Social Influence

Social influence refers to the perceived effect of the decisions made by the important people around an individual. In this study the variable was found to be insignificant in contributing to form an Intention to Use a technology. 98% of the sample responded that the decision of other people, like their parents, friends, teachers do not affect their own decisions regarding the use of IBPs. Their decisions taken are independent. The responses for the items of this variable were concentrated on either disagree or strongly disagree. The results are similar with the demographic variable of 'Voluntariness of Use'. All the respondents have responded that their usage of IBPs is a usage of choice. They prefer to use them in voluntary

settings. In the present context where students use IBPs for academic purposes, especially in Communication skills context, the results did not give consistent results and values. Nonetheless, during the focus group discussions with the students, it was observed that students do not pay attention to the advice of their peers, or teachers while referring to the IBPs. But when further explored they responded that while start using a new software or a new application they generally seek advices from the people around them. Consequently, the variable was discarded for further investigation. However, it was an interesting finding that although the respondents do not accept it directly that they get influenced by their social circle, but when explored deeply and investigated in a different manner, they indirectly admit that they seek advice in the particular context from their faculty and friends.

Self-Efficacy

It refers to the perceived confidence the student has in his/her capabilities in using IBPs. The items were comprised of response about the capacity and capability the students possess to handle the IBPs. It was found to be a significant determiner for the students with a beta value .159 ($p < 0.001$) for the public group and .219 ($p < 0.001$) for the private group. It is a significant determiner which motivates the users to accept a technology (Biljon and Kotze, 2007). Both the gender groups, i.e., male students and female students of both the public and private groups do not differ in their opinions about self-efficacy; whereas, for the experience group, the opinions differ in the public university context. The students of public universities reported that their level of confidence tends to increase as they gather more experience. Students accept that when they start using the platforms for enhancing their communication skills or for drilling and practice purpose, they feel very confident about using them and handling them comfortably and it motivates them further to use them more effectively. Another aspect that strengthens this finding is the fact that the chosen sample is exposed to technology intervention very early in education system. Computer literacy in primary and

secondary education system in addition to personal use of IBPs leads to confidence building among the young learners. Since the context of Communication skills courses includes textual, visual, multimedia, based context for listening, speaking, reading and writing skills, Self-Efficacy in using IBPs can be very influential to lead to actual usage behavior.

Anxiety

Anxiety variable refers to the perceived lack of nervousness of the students in using IBPs. If a student has a perceived notion of fear, or insecurity related to the platform he/she would tend to avoid that platform. Students reported that they tend to access those platforms or sites which are more authentic and secure, where they have less or no chances of getting hacked or their personal details would be used by unauthorized agency. IBPs are generally free media where anybody can create their own account and create and consume content. So, students become aware and cautious while selecting learning materials from internet. Results indicate that Anxiety is a significant determiner of forming a positive intention towards using IBPs for students of Communication skills courses (Venkatesh et al. 2003). In both the settings the variable has proved its importance in forming a positive attitude for accepting IBPs. The opinions of male and female students in private universities are same, whereas, the students of public universities think slightly different about this variable. Females of public universities are more cautious about the fear and anxiety associated with the perceived attitude, which does not even change with the passage of time; whereas, in private group the male and female students think in the same manner. It is important to note that the female population has certain social and cultural constraints which make them more conscious while taking decisions to use and accept IBPs (Herring, S. C., & Marken, J. A. 2008). It can be attributed to the fact that female gender has very low access to technology use due to certain stereotypes associated with it. Consequently, when they encounter technology, there is a tendency of hesitation for indulging in its usage.

Facilitating Conditions

This variable is a direct determiner of IBP use. It refers to the infrastructure support services provided by the university for the students to access technology. In this study it refers to the availability of facilitating technology infrastructure such as, Wi-Fi, Local Area Network, online subscription of journals or libraries and support services such as maintenance, trouble shooting etc. For public universities the beta value obtained is very low 0.074 ($p < 0.005$), whereas for the private universities the obtained beta value is .189 ($p < 0.005$). The results indicate that there is no significant relationship between the Facilitating Conditions and the Usage in public universities. It can be attributed to the fact that public universities lack in providing the efficient and necessary infrastructure which is required by the students to make use of these IBPs. On the other hand for private university students the value is significant which is consistent with the prior research (Wang and Shih, 2008; park et al., 2007; Im et al. 2011). The opinion of male and female students also differ for the public group settings where male students reported that they use the IBPs even if availability is not there from the institution side, whereas female users reported to be dependent on university support for technology, it can be associated with the results of the ANX factor where it suggests that females are more concerned due to cultural constraints. Students pointed out that it does not matter whether their university is providing essential infrastructure set ups for them. If there is a need of IBP they use it on their own. Not only this, the students told that their teachers also help them a lot, in case if there is a need and there is no provision from the university's side, their teachers help them personally at their own level. It can be deduced that if readily available and usable infrastructure is provided, students start using it to a high degree and the increased indulgence would give them more exposure and opportunities to enhance their communication skills.

Intention to Use

The 'Intention to Use' refers to the perceived attitude an individual has towards using IBPs. It is defined as "a measure of the strength of one's intention to perform a specified behavior" (Davis et.al. 1989, p. 330). It acts as an independent variable when Actual Usage becomes a dependent variable. Students tend to form a positive intention to use IBPs when they have positive opinion about perceived gain in perceived performance, level of confidence, lack of anxiety, and feeling of lack of efforts need to be paid. According to UTAUT a positive Intention to Use IBP leads towards actual higher usage. In the present study for public group the value is 0.591, with a significance value of 0.000, whereas for the private group it is 0.189, with a significance value of 0.000. This finding is similar to the previous studies establishing a significant relationship between the Intention to Use and the Use (Al-Gahtani et al. 2007; Wang and Shih, 2008). It can be seen that a positive Intention to Use IBP leads towards the actual use. It enhances their knowledge and keeps them up dated with the current practices. The results revealed that respondents were highly positive about using IBPs for academic purposes in future. However, students also reported that they do not intend to use these platforms inside a class room because it hinders their classroom learning.

Usage

This variable refers to the actual Use of IBPs for academic purposes, and specifically for Communication skills courses in the present study. Students reported that they actually use these platforms to enhance their knowledge. Students use the platforms and software for enhancing their language and communication skills. In the IBP usage intensity questionnaire they reported that the platforms help them to enhance their skills. It helps them to enhance their vocabulary. It gives more opportunities for personalized learning. Students reported that they use IBP for discussions, for reading, for enhancing writing skills. Such platforms make their task more enriching and easier. When given some specific tasks by the teachers

they use the tools sometimes inside the classroom as well, but occasionally. Generally in Indian classrooms settings the usage of digital platforms by the students is considered as a distracting factor. Focus group discussion with students also revealed that students may deviate from the original task, as they tend to indulge in other activities when using IBPs inside the classroom. Teachers were also of the same opinion as observed during interaction with them.

4.4) Objective Wise Analysis

In order to fulfill the objectives of the study different techniques, methods, and tools were adopted. Various statistical tests have been applied and the results were analyzed. There are four objectives of the study. All the objectives have been described one by one. The first objective was- to observe the IBP usage intensity of undergraduate Engineering and Technology students of Communication skills courses.

In order to achieve this goal data collection was done through a survey questionnaire. The questionnaire consisted of queries related to the most preferred used Internet Based Platforms by the respondents. They were expected to mark their choices about the tasks for which they prefer to use the chosen IBP platforms. It was observed that YouTube, Learning Management Systems, and e-mails (LMS) are the most preferred choice of these students. They use these platforms to exchange, collaborate, upload, download and undertake tasks related to their academic tasks in the context of English language and communication courses. Most of the students spend 1 to 2 hours daily on IBPs in order to accomplish their academic tasks. These students of private universities generally prefer to access and use IBPs inside the library, the central accessing laboratory, or their personal spaces, whereas the students of public universities prefer to access the IBPs from their personal computers.

The second objective was to find out the factors responsible for the acceptance of IBP by the students. In order to fulfill the second objective, UTAUT model by Venkatesh et.al has been

used as a theoretical framework and a questionnaire was developed based on the UTAUT model. Standard multiple regression was used in order to find out the degree of variance between the motivating and affecting factors with usage. Performance Expectancy, Self Efficacy, Lack of Anxiety and Intention to Use were found to be the 4 most significant determiners which motivate the students to use the internet based platforms in order to accomplish their academic tasks for Communication skills courses.

The third objective was to observe whether a change in demographic variables, changes the acceptance behavior of the users. In order to observe the difference of opinions between the public and private group users, the male and female users, and the users with less and more years of experience, independent sample t-test was applied. By observing the results for these varied groups, difference was noted in some variables only. There is a significant difference in technology acceptance behavior between the males and females of the public group for two variables namely, Facilitating Conditions, and Anxiety. This finding is consistent to prior research which has found FC and ANX as strong determiner for males than females (Venkatesh et al., 2003; Park et al. 2007; Wang and Shish, 2008). While in the private settings there is no difference of opinion between the male and female users. The results are consistent with the prior research, where the results revealed that there is no difference of opinion between the male and female users, (Boneva, B., Kraut, R., & Frohlich, D. 2001). This may be due to the fact that population of private universities is more homogenous in comparison with the public universities where students come from different classes of the society. There is a difference of opinion between the users with more years of experience and users with fewer years of experience in public settings for three variables, namely PE, EE, and SE, whereas the users with different years of experience in a private setting differ in their opinion in two constructs, namely, PE and EE. The findings are

consistent with the prior studies where opinions of users change with the increased years of experience with IBPs, (Wang and Shih, 2008; Wang et al. 2009; Venkatesh et al. 2011).

4.5) Qualitative Data Analysis

The fourth objective was to obtain the perspectives of Communication skills teachers regarding the role of IBP and allied technologies in higher education. Structured interviews were conducted in order to know the ideas and opinions of the teachers about the role of these technologies. The study has the UTAUT model as the theoretical foundation, so the questions were prepared with a theoretical orientation.

Teachers were enquired about the role that technology plays in their profession while teaching or while preparing for the teaching tasks. They were also asked to enumerate the difficulties they face during usage of the IBPs, the support they get from the authorities, administration and the government. The importance of IBP in higher education and in their own subject in specific and the perceived benefits they gain from using IBPs.

The faculty was approached through emails for seeking permission to interact. 37 faculty members were interviewed, and all of the interviews were considered for analysis. The interviews were taken and responses were recorded. All the meaningful responses were compiled in a word file. As for concerning the validity of the tool, the respondents were observed by the researcher during the interview process itself, like making and avoiding eye-contact, stammering while explaining any particular situation, or beating around the bush while answering any particular question (Herring, S. C., & Marken, J. A. (2008). The major themes which emerged from the analysis were the advantages and disadvantages of technology in education in general, and then the problems which the teachers of Communication skills courses face if they want to include this technology intervention into their teaching, the kind of steps to be taken to make the process of integration and adoption of technology more smooth and flexible.

4.5.1) Theme I: “Teachers’ Perceptions towards IBPs: Benefits”

IBPs save time, and effort both, but the ‘teacher’ needs to put a lot of effort and lot of time in preparing for any task for the classroom. A lot of energy, patience, and efforts are required to collect, compile and prepare material. One faculty shared his experience about IBP usage in his course. He wanted to share an old newspaper cutting with the students. He said, “I just scanned and embedded them in the PPTs and shared it with everybody. Those who were more interested I emailed it to them”. This may not have been possible with traditional Media. It made his task easy and reproducible. “Students become more participative and interactive by using IBP”, said another teacher. The arguments were in support with what the literature says about the usage of IBP. It saves time and efforts, once you have a strategy to integrate IBP. Some teachers reported that IBP is very appealing and fascinating because there are lots of visuals, which attracts the person and catches their attention. IBP makes the tasks not only easy but also interesting. Chang, Pearman, Farha, (2012) have noted that iPhones, iPads, smart phones, net books and other devices are frequently used by today’s generation learners. The authors argue that these devices should be used for learning English and communication skills. Spoken language development, reading and writing skills can be enhanced through the use of technology. The authors have discussed about web 2.0 its evolution and methods of using it effectively for the enhancement of English language skills. Various web 2.0 tools like blogs, wikis, threaded discussions, and Skype can be used very effectively for English language learning

The storage issue of books and other forms of traditional media has been reduced due to IBPs. Millions of documents can be uploaded and kept safely on the internet enabled platforms such as, Google drive. “We used to fill our cupboard with lots of books, and in the end of the year it was always a problem to dump them”. We can save paper as well if we avoid unnecessary printing, which is very sustainable for the environment as well.

Additionally the task of referencing has also become very easy because of the online availability of the materials the tedious process of referencing has become very easy and takes less time. Today, students and teachers subscribe to the online journals, e-stores, online libraries, and lots of digital platforms are available where one can read e-materials. IBPs give access to lot of updated teaching and learning material through the open source content system.

“It is very essential for the empowerment of the students in the current scenario”, said one respondent of around 30 years of age. These technological advancements help the students to prepare them for jobs, and groom their personality for further carrier opportunities. The time is changing and everything has become smarter. It not only enhances their academic skills but also hone their communicative competence. IBPs work as an effective tool and provide a complete package of skills which are required today. IBPs support integrated learning and it helps in creating personal learning networks. It makes the users expressive. “It gives chance to the shy students in my classroom”, reported a teacher. “Students, who do not speak much in the classroom, actively take part in the online text based discussion forums”. Students try to overcome their fears, and prejudices. So in one way IBP fills the flaws of traditional teaching methods. Shy students become more interactive and come out from their cocoons. “We have control over our actions not on the results”, said one teacher. It gives the freedom of speech because it creates a liberal environment. “It helps to create learning which retains for a long period of time”, said another teacher. As IBPs provide a plethora of information and the students chose relevant material for them, it boosts their self-confidence. It helps in participative learning as students volunteer to come for sharing their created content. As they work in groups, qualities like team-spirit and coordination develops in their personality. It widens the scope of knowledge and give more chances and situations for expression, which otherwise were not available. IBPs give more options for practice as well. Slow learners can

learn according to their own needs with their own pace. Students are not on the receivers end in the contemporary technology enabled education environment. The concept of flipped classroom has changed the role of the student and the teacher in the class. A teacher respondent shared his experience saying that one of my students is a very good writer and how he has used online the resources to enhance his writing skills. It breaks the barrier between the faculty and the students. “It gives me the privilege of becoming more friendly with my students”, said one teacher. “It helps to connect to my colleagues as well. Together we seek each others’ help which increase the confidence level”. Citing an example, a teacher told that while watching a video online on you-tube, discussions follow on the subject matter. Group learning and peer learning is facilitated through such pedagogical improvisation using IBPs.

4.5.2) Theme II: “Teachers’ Perceptions towards IBPs: Drawbacks”

There are lots of advantages mentioned by the teachers of English Language and communication courses, but certain demerits are also associated with its usage. The advantages motivate a person to adopt a technology while the disadvantages de-motivate the individuals to form a positive intention to espouse technology. Most of the respondents mentioned that although technology intervention is a very positive venture and it is beneficial for the teaching and learning process, but it comes with some of its drawbacks as well.

One of the frequently recurring drawbacks mentioned by most of the respondents was that students have become unaccountable and try to use shortcuts instead of doing in-depth study of anything. As there are numerous platforms available to gather information, it creates a lot of distraction for them. “Poor concentration is one of the major characteristic of some of my students today”, said one respondent with anxiety. Students do not afford to concentrate on one thing taught in the classroom. In some cases the teacher also reported that writing and

reading habits of students have also declined. Generally these days no student wants to visit the library. They have developed the habit of sourcing the readymade content. Several respondents observed that due to the technology intervention, the traditional learning activities, such as face to face interactions have seen a declining trend, except inside the classroom. While supporting the argument of creation of dummy individuals, the faculty said that internet platforms cannot be treated as acceptable for in depth knowledge. Although it gives information on the click of a mouse, but for in-depth knowledge, one has to feel and learn from the real life materials, by visiting libraries, archives and engaging in richer form of information exchange such as face to face communication.

One faculty emphasized on the importance of human touch. She belonged to the category of the age range of 30 to 35. She responded that it lacks the warmth of the living being and sounds sometimes very irritating to listen to the same mechanical voice most of the time. As explaining further, the faculty responded that sometimes the gadget carried by them in order to use inside the classroom does not get supported by the facility provided inside the classroom. Sometimes, it happens that the platform does not work inside the classroom, causing chaos inside the classroom. In order to save themselves from such situations, the teachers need to be ready with an alternate plan. It needs a lot of efforts and it is very time consuming always.

Lot of distraction is always a byproduct associated with the usage of IBP inside the classroom. During an English lesson observation in a Hungarian school, it was observed that students were allowed to access internet for certain tasks during the class. When the scholar asked the teacher replied that the students sign a bond during their admissions that they would not access internet during the class for personal or socializing purpose. Some teachers told about the association of anxiety and fear with the technology. The respondents said that

for the first time when they start using a new technology, they always feel hesitant. However, this hesitation fades away with time as the Self-Efficacy tends to increase.

4.5.3) Theme III: Challenges in Using IBPs

There are certain challenges apart from the drawbacks in integrating IBPs in mainstream academic environment due to which technology intervention does not emerge as a successful venture. One of the faculty reported, “Sometimes you are indulged in reading something and suddenly it happens that a message appears saying that you need to pay a certain amount in order to read it further”. The whole essence of reading gets spoiled. This experience implies a growing trend. There is increasing commercialization of good online content. The users are de-motivated to use online resources when a personal financial investment is required.

Additionally, the authenticity of the platforms is also an issue. It is an overlapping concept related to anxiety. Today users feel anxious in using internet in general, because we never know when our online account is hacked and be mis-used by someone. Cyber bullying is a very serious issue these days. Some users become the victims of cyber bullying which affects the surrounding people as well. As a result, students are discouraged to meaningfully use the IBPs.

One of the biggest challenges is the infrastructure. First of all, government support is needed in the universities to invest and maintain the availability of hardware systems which can support technology intervention. It needs a lot of investment to provide a healthy infrastructure in the education system. Private universities which provide good infrastructure for technology always demand a high fee from their students to sustain good infrastructure. Consequently, it widens the gap between poor and rich prospective students. The challenge is that technology must play positive role of achieving uniformity of opportunities, but on the contrary it is widening the gap between the rich and the poor students in some cases.

It was observed during the field study and also reported by the teachers of public universities that basic infrastructure is inefficient in public universities. “I always keep my speakers with me in my office, whenever I want to do a movie screening, I can do it on my own”, said a literature teacher of around 30 years of age. She explained that the university support system does not generally work efficiently. Moreover, it takes a long time to get permission to use the available equipments, which sometimes kills the essence of the task. In private universities infrastructure was available. However, there are speed and connectivity issues. Even if there is a subscription of online library and journals the login based access is always an issue. In addition to that, teachers are not trained in using or accessing those materials.

One of the faculty member from a private university reported that being innovative becomes problematic sometimes. The faculty member informed that it is very important to be more self-motivated. There is a lot of peer-pressure because generally teachers do not use technologies because they are not trained properly. So, there is a big challenge of becoming techno-savvy at personal level. There was a difference of opinions between the teachers who belong to the age group of 36 to 50 and the younger group which belongs to 25 to 35 years. The younger group finds technology interesting and they try to do experiments with it. They face the challenge of dealing with the problems of handling technology on their own. The younger group of faculty is more open to acceptance. The elder group of teachers shows higher level of resistance to use technology.

4.5.4) Theme IV: “Perceived Solutions for Technology Intervention Challenges”

Most of the faculty members also discussed about the challenges and solutions to technology enabled pedagogy. One professor suggested that technology should be strictly made a part of pedagogy. NEP (2016, MHRD) also emphasized the need to change in the pedagogy and make it technology oriented. Change in the pedagogy is required in order to make it more prominent inside the classroom. The fact has been mentioned in the 1986 policy as well.

Olaniran (2008) opined that new media should be incorporated in the course because it has various characteristics which can be helpful in various purposes. It makes the learners interactive and creative which can be very effective for enhancing writing, reading, and listening skills. It facilitates creative and transformational thinking in the learners.

“We have to create sustainable infrastructure for technology”, said one female professor. She was very positive about the inclusion of technology in education. She emphasized that although she is very passionate about using technology but there is minimal motivation from the university and the government. Talking further about the issue she said that since it is related with economy, there should be a direct intrusion of the government and the governmental policies. A collaborative effort is needed from the government and the university management bodies. As results indicated that the facilitating conditions inside an institute play a prominent role for technology usage and adoption, concerned authorities should put some extra efforts to include the technological advancements in the higher education system.

Centralization of the online subscription was one of the recommendations given by the teachers’ community. It was felt that libraries of different universities pay for different online subscriptions. Instead of paying at the university level, private and government universities should come in collaboration and expand the subscriptions. So, instead of investing money individually, collective investment of money would bring better benefits. Along with domestic university setup, international collaboration must also be explored.

Another professor emphasized on the issue of security. Collective steps should be taken into consideration concerning with the security issues. The issue is related with the *Anxiety* construct of the theoretical framework used in the study. If a data base assures of security and authenticity, then it enhances the likelihood of referring to that site or journal or data

base. So, while collaborating for accessing on line data bases and journals, a combined secure network should also be provided.

4.5.5) Theme V: “Teachers’ influence on IBP Technology Acceptance”

One prominent theme which emerged while interacting with the teachers is ‘the prominent role of a teacher’. Almost all of the teachers emphasized that the role of the teacher is very important in a students’ life. Technology can never replace the teacher. The traditional methods of teaching have their own esteemed value which can never be replaced by any technological advancement. The best way suggested by most of the teachers was the combination of technology with the traditional methods. The findings are also true with the existing literature. Tanyeli (2008) conducted an experimental study on Law students to see the effect of web assisted reading instruction. In his study he found out that instruction given through web based media for enhancing reading efficiency was better than that of only traditional media. Professors aged 45 to 50 were of the opinion that technology is making the students lazy and shallow. Some professors were even very against the idea of internet intervention in education inside the classroom because it causes distraction and develop poor concentration habits.

Most of the teachers suggested that the blending of the digital and the traditional would be the best way to adopt. “Human touch should be always there”, said one female professor from a private university. Recalling her student life she narrated various incidents telling that whatever was taught by her teachers has an everlasting impression on her mind. Technology will not replace teachers but those teachers who are using it would replace those who are not using it. Explaining further they emphasized the important role of a teacher in students’ lives. The role of a teacher has become more challenging, because the teacher has to become more skilled, smarter, more adaptable, and keep himself/herself more up to dated with current changes. “Teacher should act as a filter, motivator, guide,” said one professor of a

public university. Students are self-motivated but they need direction, and teacher has to provide that direction. Not only the teacher needs to act as a motivator for students, but he needs to be self-motivating also. There is lot of information available on internet and students need proper guidance to choose what is relevant for them. So, teacher has to invent new methods to engage the students in a manner that they focus on it with a positive attitude. “There is a need of specific academic agenda, freedom and flexibility in the curriculum, and doing away with rigidity”, said one female faculty from a public university. Further explaining she said that in today’s era, flexibility in the curriculum and freedom of choice are very important which is also applicable to the learn content sourcing, peer learning, collaborative learning, scaffolding etc. which the IBPs provide.

Teachers training, sessions for upgrading their knowledge and workshops should be conducted time to time. It was suggested by almost all the teachers that teachers’ training in IBPs usage is a must thing, and it can solve various problems related to the teaching learning process. This fact has been emphasized in the policy documents as well that training to the teachers should be given time to time. Syllabus of teachers training is also need to be updated. There is lot of theory, but the practical part is missing. When the syllabus prescribed for the teacher training is not up-to-date, how come the outcomes are expected to be satisfactory. The syllabus prescribed in the bachelor level and the master level in teacher education, needs to be upgraded. There is a complete subject for technology at both the levels, undergraduate and master’s level, but the subject does not provide much scope for practice, the evaluation is done on theoretical basis only. “Sometimes teachers are not willing to come out of their cocoons”, said one senior male professor of a public university. He said that teachers are generally not willing to learn new things about technology interventions, they are anxious about new changes. The factor anxiety from the UTAUT model proved to be a very important factor during the study. Opportunities should be given

to teachers for peer-interaction, collaboration, space for experimentation with new technologies so that they can come out from their comfort zones. Providing a free will to experiment, to take decisions, to take risks, trial and error methods would definitely make the teachers more confident in espousing a new technology. “Some will go wrong, some will go right, but it would widen the scope, and enhance their curiosity to learn new things”, said one female professor from a private university to summarize the field interaction with teachers for this study.