

# AWARENESS ON IMPACT OF TECHNOLOGY ON KNOWLEDGE ENHANCEMENT AMONG COLLEGE STUDENTS

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## ABSTRACT:

Technology, actually the application of knowledge on practical skills. Technology has owned the entire world with its accessibility and advancement. This technology had changed the education process not in what to learn but also in the way of learning. It had led to development of education, skills, communication and attitudes towards the future environment. Acquiring knowledge is a process not a product and this process is taken over by technological development. This study aims to create awareness on the impact of technology in knowledge enhancement among college students. It comprises a small population size of 110 participants. A self structured questionnaire involving their personal view on technology and its impact and the awareness they have on technology was distributed to the targeted population. The data were collected, analysed and presented as pie charts. Then arriving at conclusion, technology though possess negative impacts made a greater positive impact on knowledge and education.

## Keywords:

Online survey, communication, education, enhanced knowledge, technology.

## INTRODUCTION:

The term technology defines 'Techne' means craft or skill and 'logo' means to speak of. Application of knowledge with practical aims which manipulate the human environment and thereby make life easier and productive. This implies that technology expands human possibilities and capability (Shorey, 1930). Technology exists with knowledge and development as its two characteristics. In this era of gadgets, technology is to enhance effectiveness and not transformation (Anson and United States. Office of Educational Research and Improvement, 1994). Thus mostly technology is expressed as applied science (Beaver, 2002). Technology can also be viewed as an activity that changes culture (Borgmann, 2006). The current study relates the development of technology to knowledge enhancement. Technological development has led to enhanced learning procedures in institutions and thus establishing a great progress in reach of knowledge (Angeles, 2011). The impact of technology on knowledge has been a discussion of every time. Besides its impact on knowledge, technology on overuse affects physical health by causing

diabetes, a common problem nowadays (Ponnulakshmi et al., 2019). The radiations from the gadgets being used and long exposure to smartphones, computers and other sources results in cancer which totally destructs one's life. Cancer in turn affects the proper functioning and normal metabolism of the cells such as variations and improper apoptosis, etc.,

The previous studies, in the topic of mobile learning the usage and dependency of technology varies according to level of study. 95% of students own a mobile device and 51.7% of them have 5 years of experience of mobile usage and thus revealing that mobile usage and dependency enhance the exposure to diverse online portals. The limitations of the above study involves non mobile users and the wireless connections that could improve m-learning (Alzaza and Alzaza, 2011). Gadgets based learning develops creativity and enables to get wide knowledge of the concept to be learnt. Thereby decreasing the teacher centered approach. This prevalence in turn increases the learning learning centered approach but the study is limited that it could not be followed in all courses (Montrieux et al., 2015).

Our present study focuses on assessing that technology remains as hindrance to knowledge or supports to enhance our knowledge. Generally, it can be said that technology has paved for new improved techniques useful to mankind. This study also desires to create awareness and makes them think about the influence of technology on their day to day life. Previous studies on enzyme assays (Rengasamy et al., 2016), obesity (Shukri et al., 2016), cirrhosis (Mohan, Veeraraghavan and Jainu, 2015), nano materials (Ke et al., 2019; Wang et al., 2019; Li et al., 2020), cancer biology (Menon, V and Gayathri, 2016; G et al., 2018; Jainu, Priya and Mohan, 2018; Rengasamy et al., 2018; Gan et al., 2019; Ma et al., 2019), natural compounds (Chen et al., 2019; Wu et al., 2019) enriched my knowledge and this made me to do an epidemiological study which is the need for the community. The aim of the current study is to create awareness on the impact of technology on knowledge enhancement among college students.

## **MATERIALS AND METHODS:**

The present study is a prospective observational study which is economical, easy to create having wide reach which gathers large data and establishes quick interpretation. This study is undertaken in a homogeneous population. This study has been approved by the Scientific review board, Saveetha Dental College, Chennai which has undertaken many successful studies. The sample size of the study comprises 110 college students. The similar studies include Digital literacy awareness among 60 college students in Bangkok by Promsri et.al., 2019 (Promsri, 2019). Knowledge and use of m-health technology among 963 UG students in Ghana by Prince Peprah et.al., 2019 (Peprah et al., 2019). Addiction to technological gadgets like mobile phones among 360 participants in Kut by Sameeha Naser Abed et.al., 2017 (Abed et al., 2017) which adds evidence and supports our present study. The current study includes simple random sampling and the sampling bias was reduced by minimising errors in the questions and by avoiding the leading questions.

This present study contains a self structured questionnaire of validated 15 questions. The participants might analyse the impact of technology on their knowledge enhancement. The data were collected by distributing the questionnaire to target population through google forms and output variables include socio demographic information, knowledge, attitude and usage towards online portals and social apps. Each of the output variables involved were collected and presented in the form of pie charts.

Descriptive analysis was done establishing the output variable in the pie chart. The independent variables of the study are age, gender, education, technological innovation and communication skills. Knowledge, frequency of usage, awareness of impact and purpose of dependency and technology are categorised as dependent variables.

## **RESULTS AND DISCUSSION:**

In the present study, it was observed that 84.5% of the population were female and 15.5% were male (Fig.1). 67.3% of participants belong to the age group of 18-20 years, 27.3% belongs to 20-22

years of age and 5.45% of the population belongs to 22-24 years of age group (Fig.2). About 40% of respondents use whatsapp frequently, 31.8% use google and 20.9% use instagram whereas 4.55% and 2.73% of the population uses other browsers and apps respectively (Fig.3). Majority of the population of about 48.18% spend 1-2 hours on online per day whereas almost to the similar ratio of about 40% spend 5-8 hours in a day and 11.82% of participants spend about more than 8 hours on online per day (Fig.4). Among the participants 81.82% used online portals much for academics and 18.18% regretted that they didn't use online portals more for academics (Fig.5). 82.73% of the participants responded that the google classroom and the video classes on online helps in their improvisation and 17.27% of them stated those online classes were not useful (Fig.6). 89.09% of the population stated that technology has a greater impact on the education system whereas 10.9% of them stated there was not such a greater impact (Fig.7). When the view of respondents on the impact of technology was questioned, 87.27% reacted as positive impact and 12.73% of the participants stated as negative impact (Fig.8). 63.64% of the population felt that technology has made communication better while 36.36% answered that communication became lesser (Fig.9). About 95.45% of the participants stated that being more dependent on technology and apps affects normal human life and 4.5% stated that the normal life was not much affected (Fig.10). When the reason for dependency on technology was enquired, majority of responses about 40.9% of the population responded as it saves time, 24.55% stated that it improves knowledge and 22.7% answered as that it connects the entire world while 11.82% stated that it keeps more entertained (Fig.11). 61.82% of the population believes that all the population they get from online portals were accurate and reliable whereas 38.1% responded that all the information were not accurate (Fig.12). 80.91% of respondents agreed that development of technology reduced the dependency on books and teachers while 19.09% disagreed with the statement (Fig.13). About 87.27% of participants felt technological improvement was the reason for distraction and 12.73% of them opposed it (Fig.14). Conclusively when the participants were questioned about the impact of technology on knowledge, 69.09% of them responded that the technology has enhanced their knowledge while 30.9% of the population reacted that it remains as hindrance to knowledge (Fig.15).

We have seen the association between gender and different age groups (Figure 3), most frequently used app (Figure 5), time spent online per day (Figure 7), usage of online portals for academics (Figure 9), improvisation of knowledge due to google classroom and video classes (Figure 11), impact of technology on the educational system (Figure 13), impact of technology (Figure 15), impact of technology on communication (Figure 17), impact of technology which got us far from normal life (Figure 19), reason for technological dependency (Figure 21), information on online portals are accurate and reliable (Figure 23), impact of technology on dependency of books and teachers (Figure 25), technological improvement is the reason for distraction (Figure 27), impact of technology on knowledge enhancement (Figure 29).

The supporting study conducted by Raymond Chui et.al., 2014, on fig.10, evidence that smartphone usage and technologies created a negative influence on peer relations and family relations and thus coincides with our study (Chui, 2015). The study conducted by Bo- Kyung Seo et.al.,2018 among similar populations exists as a supportive finding study in which most participants were engaged in gaming and internet surfing and thus adds evidence to our study (Cha and Seo, 2018). There is yet another study which adds as evidence for our final finding that 69.9% of the participants stated that the technology improved knowledge (Al-Hariri and Al-Hattami, 2017).

The present study is limited to small sample size which can be improved by large sample size and inclusion of more criteria. Technology in recent times hadown the world entirely. Thus being independent of technology won't be happening, so healthy usage of technology and its application becomes essential. Thus in future, awareness on usage of technology should not be a dependency.

## CONCLUSION:

In this study it can be concluded that dependency on technology has a greater impact on life and its knowledge gives a higher benefit for college students on their academics. Hence technology has created a vital platform for a higher education environment. Thus the impact of technology on college students have paved the way for their knowledge enhancement and not hindrance. Moreover, this study gave us the current status of knowledge of students over technological consequences. As individuals of the present

generation, we should be aware that technology not only revolutionized education and knowledge but also impacted different facets of life and redefined living.

#### **AUTHOR CONTRIBUTION:**

P.S.Thana Lakshme - Analysis and manuscript drafting  
V.Vishnu Priya - Analysis and manuscript drafting  
R. Gayathri - Data analysis and manuscript drafting  
S. Kavitha - Data analysis and manuscript drafting

#### **CONFLICT OF INTEREST: Nil**

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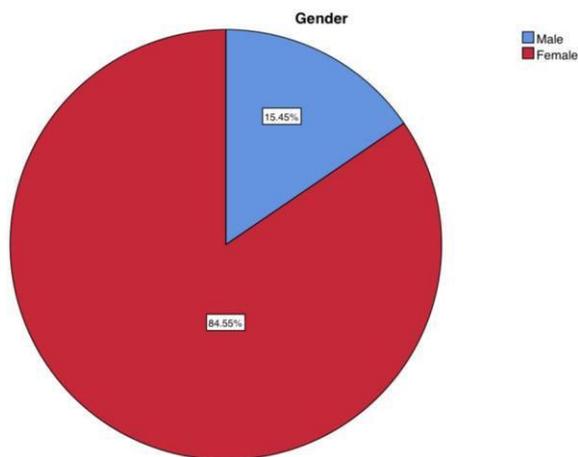


Figure 1: Pie chart represents the percentage distribution of gender of the participants. Blue colour represents female and red represents male in which 84.55% were female while 15.45% were male. Higher number of participants were female (84.55%).

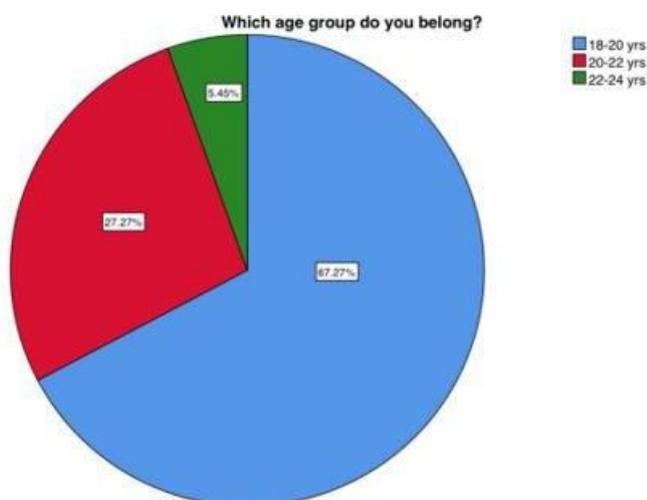


Figure 2: Pie chart shows the percentage distribution of various age groups of the participants. 67.27% of the participants belong to 18 -20 yrs of age group (blue), 27.27% of the population belongs to 20-22 years of age group (red) ,5.45% belonged to the age group of 22-24 years of age group which is represented in green. Higher number of participants belongs to the age group of 18-20 years (67.27%) .

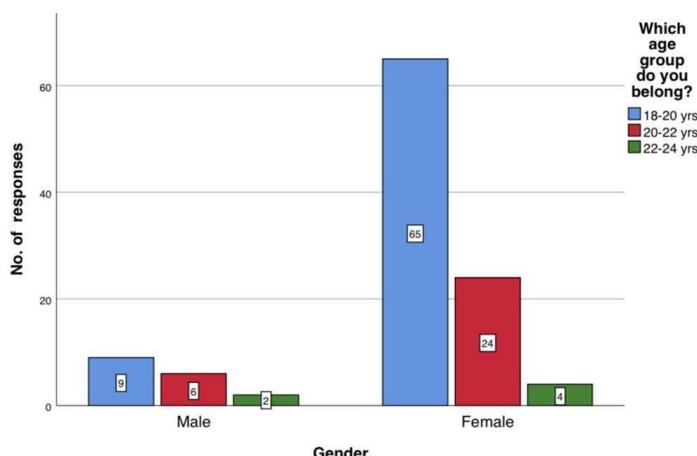


Figure 3: Bar chart showing association between the gender (X axis) and different age groups (Y axis) of the participants. Blue colour denotes 18-20 years of age, Red colour denotes 20-22 years of age and green denotes 22-24 years of age. Higher number of females belongs to the age group 18-20 years (65 out of 110 responses) and a higher number of males belong to 18-20 years of age. Majority of both genders belong to the age group of 18-20 years but on analysis there was no statistical significance between genders and age group. Chi square value = 2.55, p value= 0.2

(  $p > 0.05$ , statistically not significant).

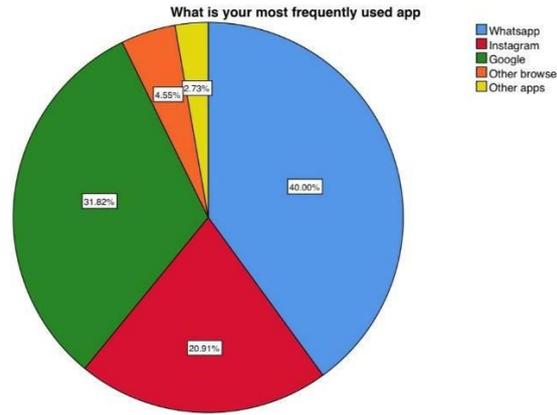


Figure 4: Pie chart shows the percentage distribution of responses on frequently used apps of the participants. 40% of the participants uses WhatsApp (blue), 20.91% of the participants uses Instagram (red), 31.82% uses Google frequently (green), 4.56% uses other browsers (orange) and 2.73% of the participants uses other apps frequently (yellow). Higher number of participants had responded WhatsApp as the most frequently used app (40%).

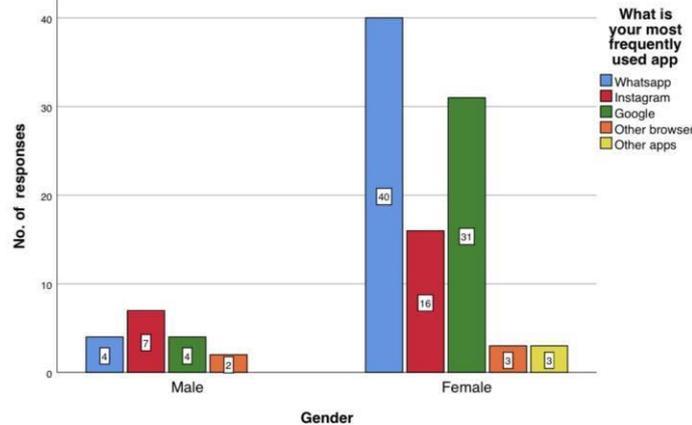


Figure 5: Bar chart represents the association between gender (X axis) and responses of most frequently used apps (Y axis). Blue denotes WhatsApp, red colour denotes Instagram, green denotes Google, orange denotes other browser and yellow denotes other apps. Higher number of females (40 out of 110 responses) and a higher number of males (7 of 110 responses) responded Instagram as their most frequently used app. Majority of both genders responded as WhatsApp but on analysis there were no statistical significance between the gender and most frequently used app. Chi square value = 8.602, p value = 0.07 ( $p > 0.05$ , statistically not significant).

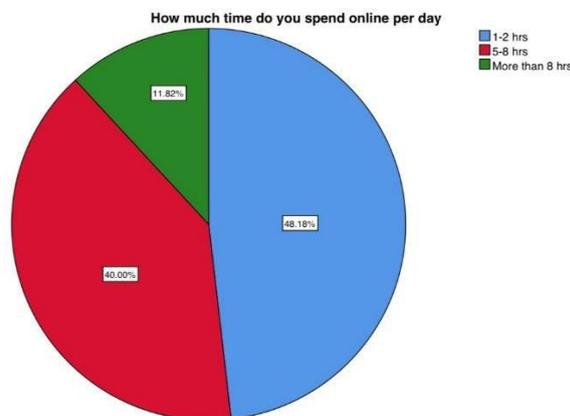


Figure 6: Pie chart shows the percentage distribution of responses on time spent online per day by the participants. 48.18% of the participants spend 1-2 hours in a day (blue), 40% of the participants spend 5-8 hours per day (red), 11.82% spend more than 8 hours in online per day which is denoted in green. Higher number of participants had responded 1-2 hours (48.18%).

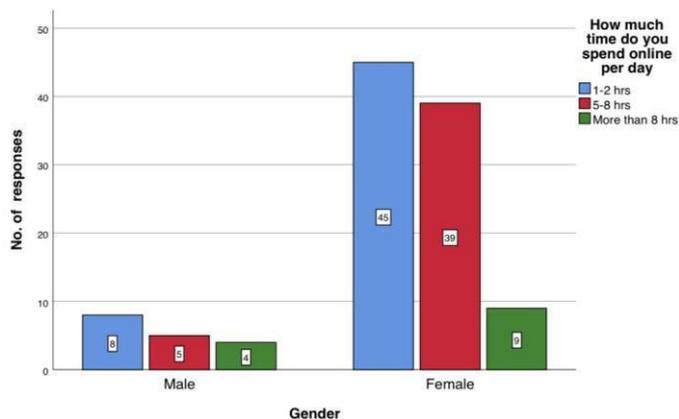


Figure 7: Bar chart represents the association between gender of participants (X axis) and responses of time spent online per day (Y axis). Blue denotes 1-2 hours, red denotes 5-8 hours and green colour denotes more than 8 hours. Higher number of females (45 out of 110 responses) and higher number of males (8 out of 110 responses) shows response as 1-2 hours. Majority of both genders responded 1-2 hours but on analysis there were no statistical significance between the gender and time spent online per day. Chi square value= 2.902, p value= 0.2 ( $p > 0.05$ , statistically not significant).

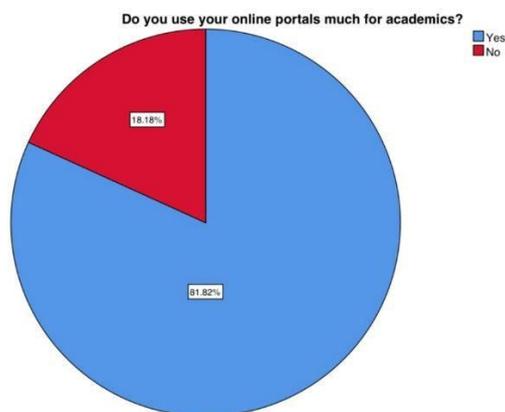


Figure 8: Pie chart shows the percentage distribution of responses on usage of online portals for academics. 81.82% of the population uses online portals for academics (blue) and 18.18% of them don't use online portals much for academics (red). Higher number of participants had responded yes (81.82%).

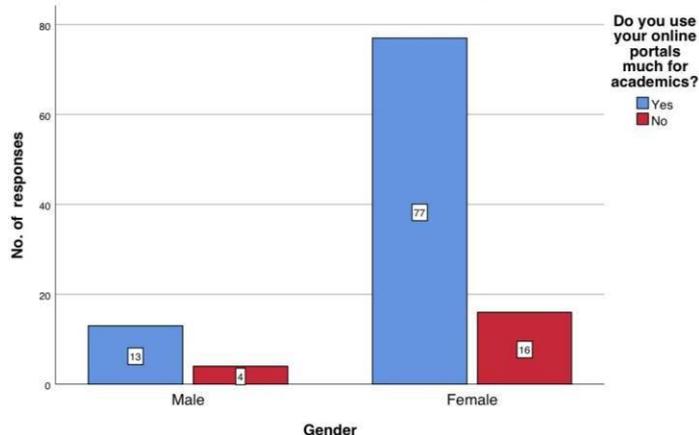


Figure 9: Bar chart represents the association between gender (X axis) and responses on use of online portals for academics (Y axis). Blue denotes yes, red denotes no. Higher number of females (77 of 110 responses) and higher number of males (13 of 110 responses) responded that they use online portals much for academics. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and usage of online portals much for academics. Chi square value= 0.387, p value= 0.53 ( $p > 0.05$ , statistically not significant).

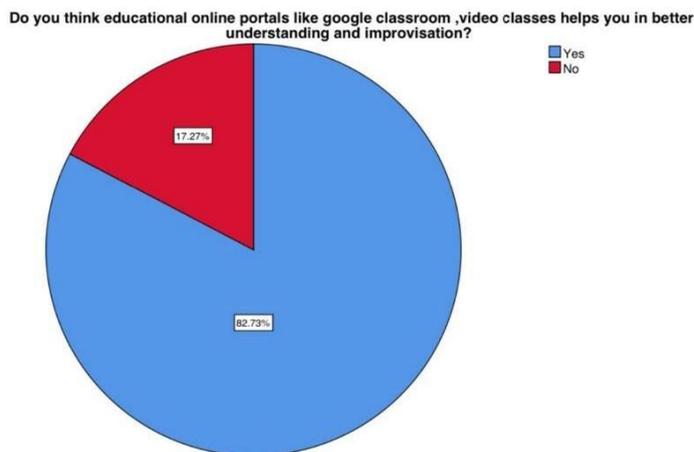


Figure 10: Pie chart shows the percentage distribution of responses on considering google classrooms and video classes are useful for academics. 82.73% of the population considers google classrooms and video classes are useful for academics (blue) and 17.27% of them don't consider it helps in better understanding and improvisation (red). Higher number of participants had responded yes (82.73%).

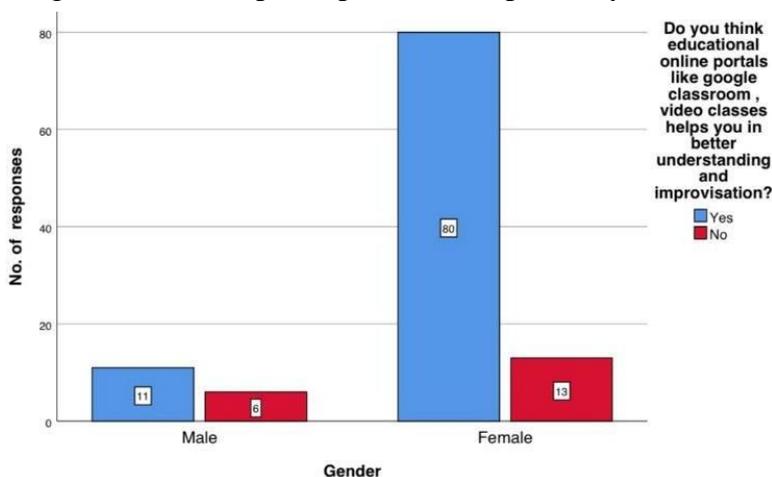


Figure 11: Bar chart represents the association between gender (X axis) and responses of improvisation of knowledge due to google classroom and video classes in academics (Y axis). Blue denotes yes, red denotes no. Higher number of females (80 of 110 responses) and higher number of males ( 11 of 110 responses) responded as online educational portals were helpful in improvisation. Majority of both genders responded yes and on analysis it was statistically evident from the graph above. Chi square value= 4.57, p value= 0.03 (p<0.05, statistically significant).

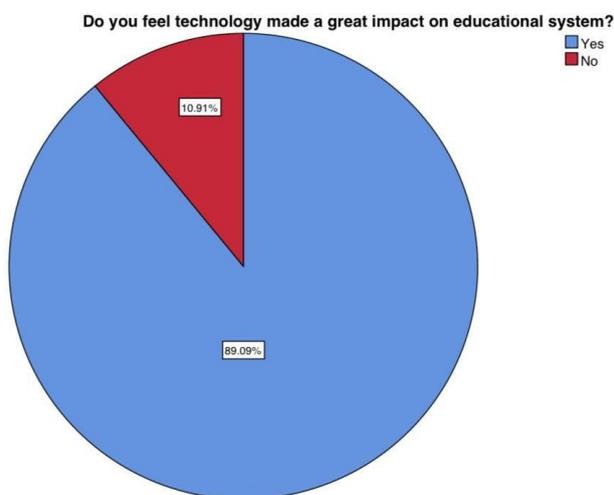


Figure 12: Pie chart shows the percentage distribution of responses on impact of technology in the educational system. 89.09% of the participants responded yes (blue) and 10.91% responded no (red). Higher number of participants had responded yes (89.09%).

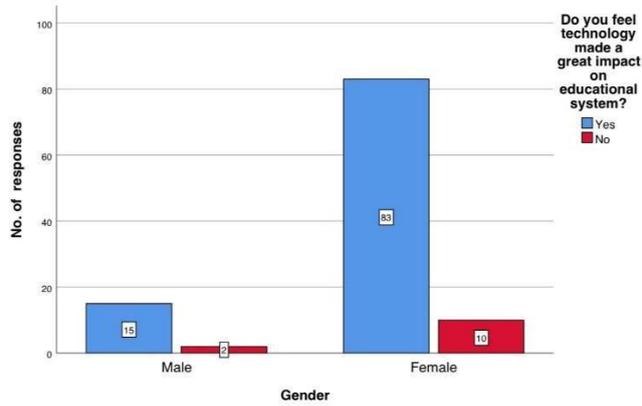


Figure 13: Bar chart represents the association between gender of the participants (X axis) and the responses on impact of technology in the educational system (Y axis). Blue denotes yes, red denotes no. Higher number of females (83 of 110 responses) and higher number of males (15 of 110 responses) responded yes. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and the impact of technology on the educational system. Chi square value= 0.015, p value = 0.9 ( $p > 0.05$ , statistically not significant).

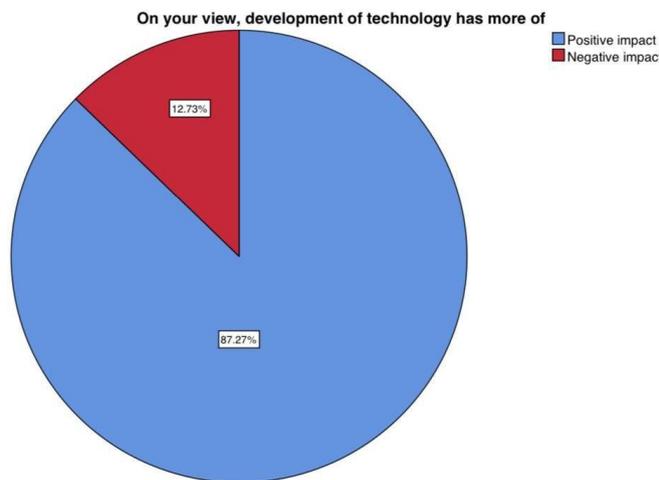


Figure 14: Pie chart showing the percentage distribution of responses on impact of technology. 87.27% of the participants responded that technology has more of a positive impact (blue) and 12.73% of the participants responded as it has more of negative impact (red). Higher number of participants had responded as positive impact (87.27%).

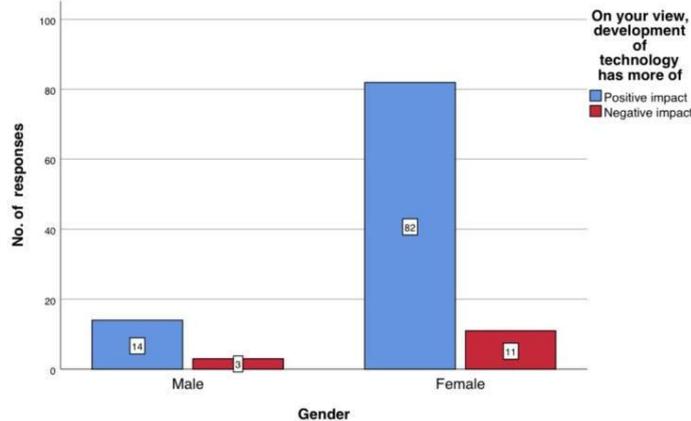


Figure 15: Bar chart represents the association between gender of college students (X axis) and the responses on impact of technology (Y axis). Blue denotes positive impact, red denotes negative impact. Higher number of females (82 of 110 responses) and higher number of males (14 of 110 responses) responded as technology has a positive impact. Majority of both genders responded as positive impact but on analysis there were no statistical significance between the gender and the impact of technology. Chi square value= 0.43, p value= 0.5 ( $p > 0.05$ , statistically not significant).

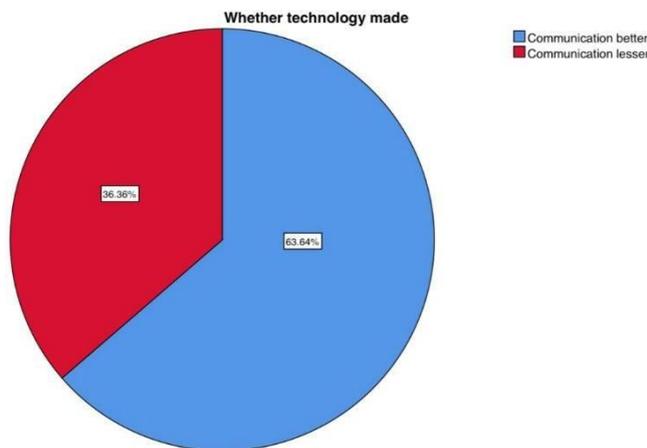


Figure 16: Pie chart shows the percentage distribution of the responses on impact of technology on communication. 63.64% of the participants responded that technology made communication better (blue) and 36.36% responded that technology made communication lesser (red). Higher number of participants had responded as technology made communication better (63.64%).

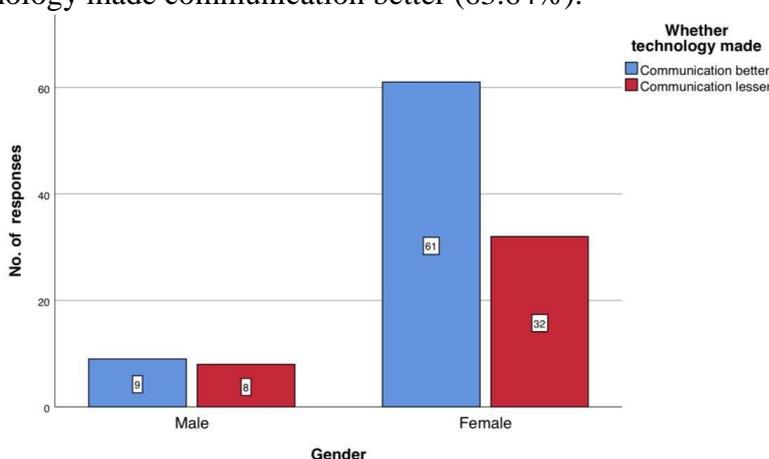


Figure 17: Bar chart represents the association between gender of college students (X axis) and responses on impact of technology in improvising communication (Y axis). Blue denotes communication better and red denotes communication lesser. Higher number of females (61 of 110 responses) and higher number of males (9 of 110 responses) responded as technology made communication better. Majority of both genders responded as communication became better but on analysis there were no statistical significance between the gender and the impact of technology on communication. Chi square= 0.99, p value = 0.3 ( $p > 0.05$ , statistically not significant).

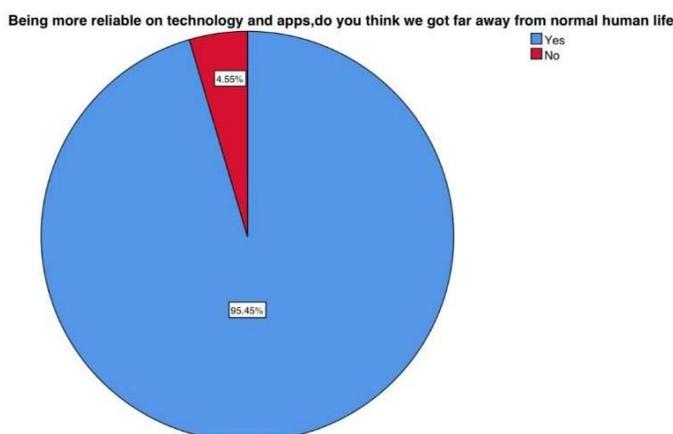


Figure 18: Pie chart shows the percentage distribution of the responses on impact of technology on normal human life. 95.45% of the participants relied that development of technology made us far away from normal human life (blue) and 4.55% of the participants don't rely on the fact (red). Higher number of participants had responded yes (95.45%).

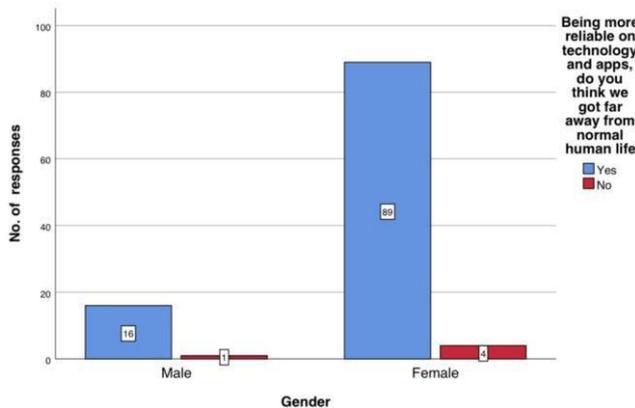


Figure 19: Bar chart represents the association between gender of college students (X axis) and responses on impact of technology in human life (Y axis). Blue denotes yes and red denotes no. Higher number of females (89 of 110 responses) and higher number of males (16 of 110 responses) responded that technology made us far away from normal human life. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and the impact of technology on normal life. Chi square value = 0.08, p value= 0.77 ( $p > 0.05$ , statistically not significant).

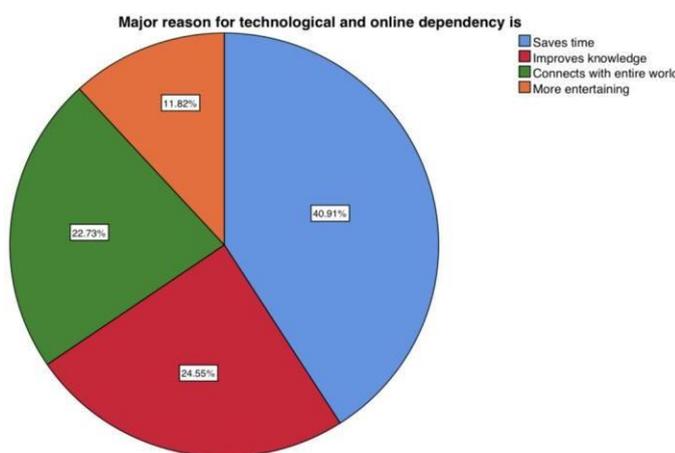


Figure 20: Pie chart shows the percentage distribution of the responses on reasons for online dependency. 40.91% of the participants responded as to save time (blue), 24.55% responded to improve knowledge (red), 22.73% of response were to get connected with entire world (green) and 11.82% of the participants gave the reason as entertainment (orange). Higher number of participants had responded as to save time (40.91%).

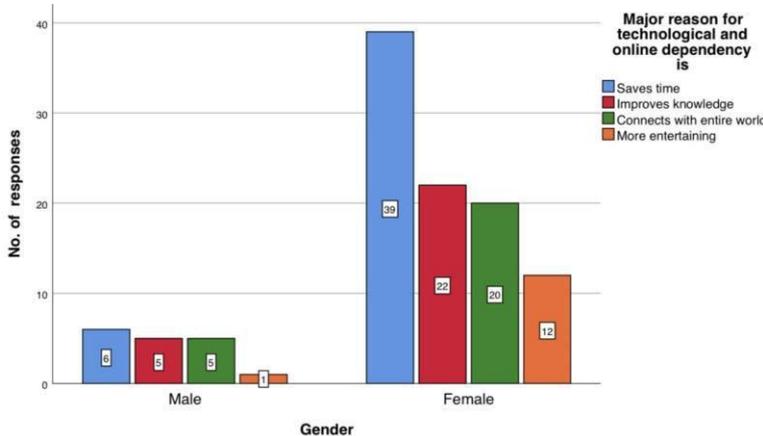


Figure 21: Bar chart represents the association between gender of college students (X axis) and responses on technological dependency (Y axis). Blue denotes saves time, red denotes improve knowledge, green denotes connects with entire world and orange denotes more entertaining. Higher number of females (39 of 110 responses) and higher number of males (6 of 110 responses) responded the reason as to save time. Majority of both genders responded as it saves time but on analysis there were no statistical significance between the gender and the reason for technological dependency. Chi square value= 1.3,  $p = 0.71$  ( $p > 0.05$ , statistically not significant).

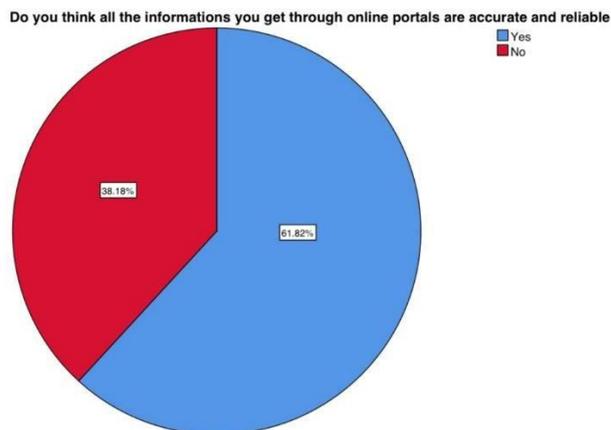


Figure 22: Pie chart shows the percentage distribution of the responses on accuracy of information through online portals. 61.82% of the participants consider the information are accurate (blue) and reliable and 38.18% of the participants don't consider online information are accurate and reliable (red). Higher number of participants had responded yes (61.82%).

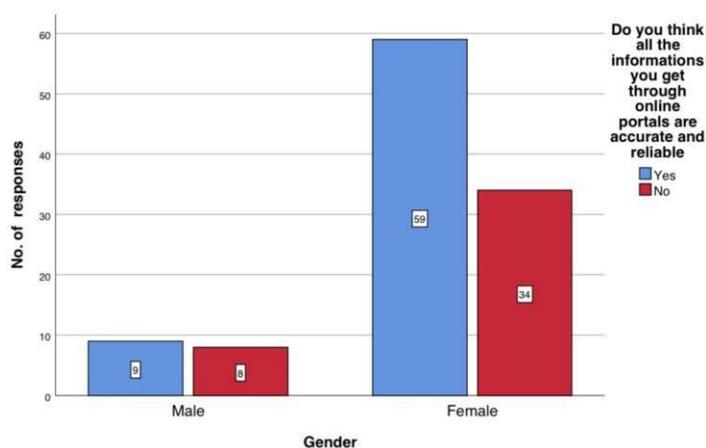


Figure 23: Bar chart represents the association between gender of college students (X axis) and responses on accuracy of information through online portals. (Y axis). Blue denotes yes, red denotes no. Higher number of females (59 of 110 responses) and a higher number of males (9 of 110 responses) responded that online information is accurate and reliable. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and online information are accurate and reliable. Chi square value= 0.61, p value= 0.4 ( $p > 0.05$ , statistically not significant).

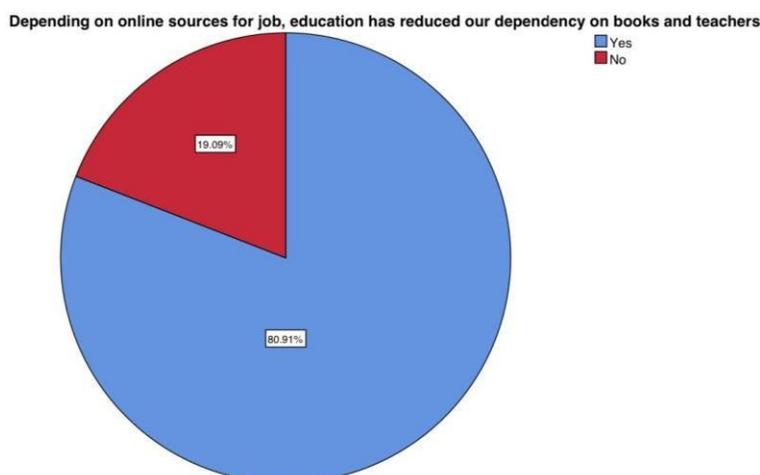


Figure 24: Pie chart shows the percentage distribution of the responses on impact of technology on dependency for books and teachers. 80.91% of the participants responded yes (blue) and 19.09% responded no (red). Higher number of participants had responded yes (80.91%).

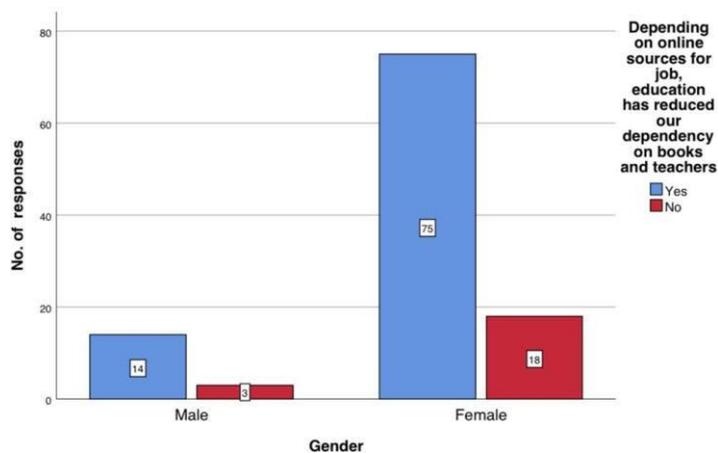


Figure 25: Bar chart represents the association between gender of college students (X axis) and responses on impact of technology on dependency of books and teachers (Y axis). Blue denotes yes, red denotes no. Higher number of females (59 of 110 responses) and a higher number of males (9 of 110 responses) responded that technology has reduced the dependency on books and teachers. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and impact of technology on dependency of books and teachers. Chi square value= 0.027, p value= 0.8 ( $p > 0.05$ , statistically not significant).

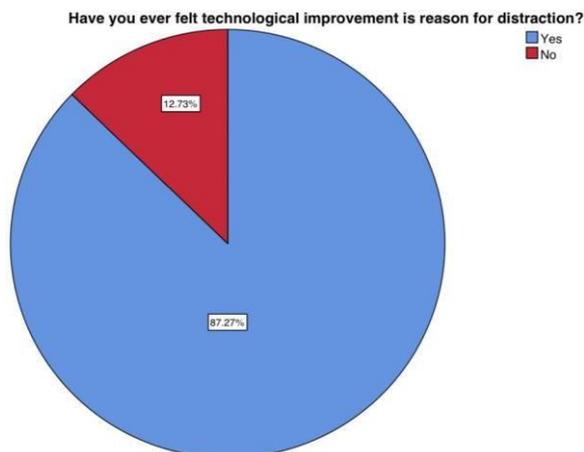


Figure 26: Pie chart shows the percentage distribution of the responses on technological improvement is the reason for distraction. 87.27% of the participants responded yes (blue) and 12.73% responded no (red). Higher number of participants had responded yes (87.27%).

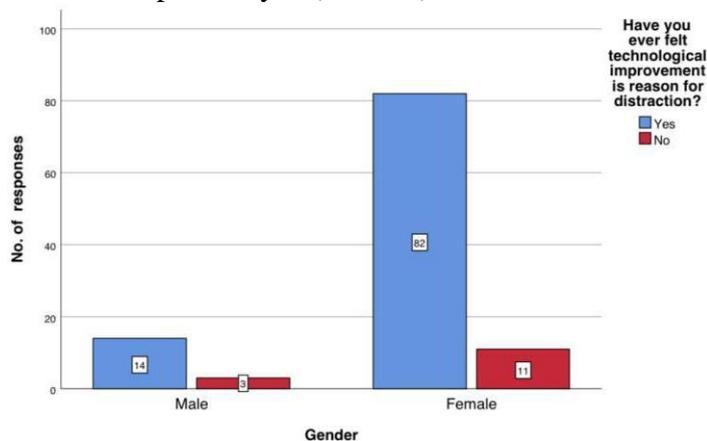


Figure 27: Bar chart represents the association between the gender of college students (X axis) and responses on technological improvement is the reason for distraction (Y axis). Blue denotes yes, red denotes no. Higher number of females (59 of 110 responses) and a higher number of males (9 of 110 responses) responded yes. Majority of both genders responded yes but on analysis there were no statistical significance between the gender and technological improvement is the reason for distraction. Chi square value= 0.43, p value= 0.5 ( $p > 0.05$ , statistically not significant).

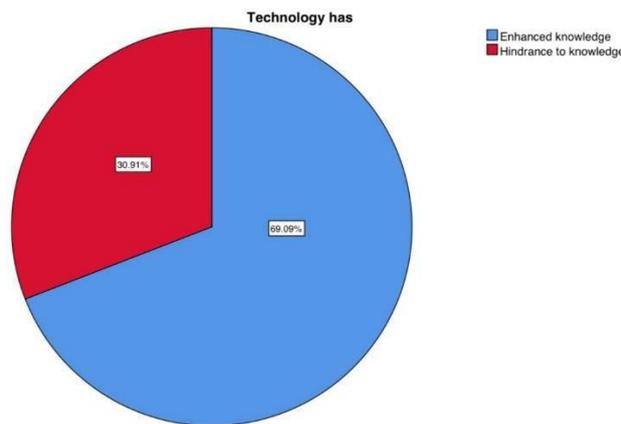


Figure 28: Pie chart shows the percentage distribution of the responses on impact of technology for knowledge enhancement. 69.09% of the participants responded as technology enhanced knowledge (blue) and 30.91% responded as hindrance to knowledge (red). Higher number of participants had responded that technology has enhanced knowledge (69.09%).

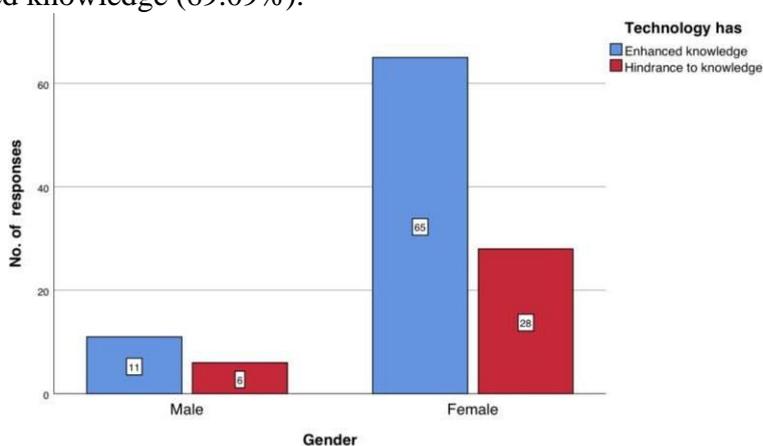


Figure 29: Bar chart represents the association between gender of college students (X axis) and responses on impact of technology for knowledge enhancement (Y axis). Blue denotes enhanced knowledge, red denotes hindrance to knowledge. Higher number of females (65 of 110 responses) and a higher number of males (11 of 110 responses) responded that technology has enhanced knowledge. Majority of both genders responded that technology has enhanced knowledge but on analysis there were no statistical significance between the gender and impact of technology on knowledge enhancement. Chi square value = 0.181, p value= 0.6 ( $p > 0.05$ , statistically not significant).