

Social media users in the information age: gender-based usage and attitude

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ABSTRACT - With digitalization, everyone has access to internet and its services in the information age. People are now using social media for different kinds of activities and is now playing an integral part of human life. Hence this article focuses on social media users- their usage, types of activities and the attitude towards its advantages (boon) and disadvantages (bane). Gender place an active role when it comes to the attitudinal study. Hence, this study is categorically analyzed based on gender with statistical inferences and validations. There exist an association between the income level and the number of devices they possess. It is quite interesting to know that there is no evidence of difference between male and female's attitude with regard to advantages in the information age. But there exists a difference in their opinion in the case of their attitude that breach of privacy is occurring in the information age.

Keywords: social media handles; usage; type of activities; attitude; gender; the information age; and social media users.

I. INTRODUCTION

During the information age, digital platform gained momentum. The Internet has changed the human experience vastly. People once went online to not reveal their identity. They now more often use the Internet to socialize with people they do know and expand their circle of friends. Increasingly shaped by wider forces of globalization, the digital revolution and reflexive individualism, the concept of the networked citizens gaining importance. Social media is now an important part of everyone's life. We use the Web to find information, contact friends and family online, form groups, buy and sell products, pay online, apply for jobs, watch television shows, listen to music, search for entertainment, donate and petition for social change, participate in social activities and political spheres. Social media helped people to express and share their desires for social change.

Most popular social media handles are facebook, twitter, WhatsApp, mail, LinkedIn and youtube. People use their devices like laptop / personal computer, smartphone, smart watch, and Tablet. People use these social handles for different activities differently.

In spite of all the convenience social media provided as a whole, it also had its own demerits.

II. OBJECTIVES

The following are the objectives of the research.

1. To find out the association between income level and the number of devices they possess
2. To find the association between the frequency of buying online and their attitude towards the convenience of purchase in the information age

3. To assess the difference between male and female social media users with regard to frequency of activities
4. To assess the difference between male and female social media users with regard to the type of activities on different social handles
5. To assess the difference between male and female social media users' attitude regarding 'information age is a boon'
6. To assess the difference between male and female social media users' attitude regarding 'information age is a boon'

III. REVIEW OF LITERATURE

Josh and Eian et.al (2008) suggested that social networking sites may have some ability to encourage social capital and also in addressing declining civic engagement and energizing the Millennial Generation toward greater civic and political participation.

Teresa and Amber et.al (2010) investigated the relationship between these three dimensions of the Big-Five model and social media use and found that individuals' personality traits (extraversion, emotional stability, and openness to experiences) play a role in the uses of interactive social media. The study found that extraversion and openness to experiences were positively related to social media use while emotional stability was a negative predictor, controlling for socio-demographics and life satisfaction. Gender wise analysis found that extraverted men and women were both likely to be more frequent users of social media tools and only the men with greater degrees of emotional instability were more regular users. In general,

this study found that individuals' personality traits played a role in the uses of interactive social media.

Mark and Irina (2011) considered how emergency response organizations utilize available social media technologies to communicate with the public in emergencies and to potentially collect valuable information using the public as sources of information on the ground. The study found that organizations expected to manage both old and new media in an overwhelming capacity. It also found that management is often resistant or wary to implement social media, which they might not fully understand. It also found that the affordances of Twitter and other interactive social media give emergency managers abilities to communicate, interact with, and respond to the public on a hitherto unseen scale.

Sebastia and Arturo et.al (2012) examined the association between social media use and youth protest, as well as mediating and moderating mechanisms of this relationship, using survey data collected in a face-to-face interview with a sample of 1,000 youth represented an 80% completion rate in Chile in 2010. The study found that Facebook use was associated significantly with protest activity by using it for news and socializing. Political grievances, leftist orientations, political interest, and participation in civic groups were all found to be strong predictors of protest activity.

Zeynep and Christopher (2012) conducted 1,050 interviews with a response rate of 60% among those people who participated in the Tahrir demonstrations in Arabic. The study found that more than a quarter of the protestors had first heard of the protests on Facebook and even used it to disseminate pictures and videos of the protests. Twitter, along with blogs, was used by protestors to communicate about the demonstrations. Approximately half of our respondents were actively documenting and sharing images of the protests.

Ignacio Criado and Rodrigo et.al (2013) interrogated the role of social media in the basic areas of e-government - government information flows and the availability of government information. The study revealed that the use of information technology Facebook, Twitter, YouTube, blogs, Flickr, and LinkedIn are the most widespread social media technologies in bureaucracies. They found that linking to social media applications in government are more oriented to the innovation of the external layer of interaction with citizens than the internal area of managerial functions.

Brian and Ariadne et.al (2014) study focussed on social media platforms such as Facebook, Twitter and YouTube for influencing the political department and civic engagement of what we describe as the networked young citizen. It suggested an emerging generational cohort that is more skeptical of politicians and mainstream conventional political institutions. It also found that the networking

young citizen playing a more significant role in reconfiguring our democratic practices.

Ariadne and Michael et.al (2015) critically analyzed how young people in Australia, the USA and the UK from a broad range of existing political and civic groups use social media for sharing information, mobilization and, increasingly, as a means to redefine political action and political spaces with focus groups. The study findings revealed important group-based differences emerging in young people's citizenship norms: between the dutiful allegiance to formal politics and a more personalized, self-actualizing preference for online, discursive forms of political engagement and organizing. The study found that the event organizing, information sharing and everyday political talk via Facebook and other social media were important ways for maintaining political engagement.

Yu-Qian and Houn-Gee (2015) presented a typology of current social media services using the following categories: relationship, self-media, collaboration, and creative outlet. It found that Social media is deeply entrenched in our lives. It reached 82% of the world's Internet population aged 15+ and represented the largest portion of individuals Internet usage. It found that social marketing campaigns are often less than satisfactory. It suggested that social marketing campaign managers should carefully examine and understand the differences between platforms and choose those that better fit the nature of the product and the theme of the campaign.

IV. METHODOLOGY

a. Research design

The research is mainly focussed on the usage and the attitude of social media users of different media handles. For the study, types of devices – laptop and smartphone, types of social handles chosen are facebook, e-mail, LinkedIn, WhatsApp and youtube. To examine the type of activities on the social media handles, a five-factor approach is considered which consists of a. socializing (contacting family and friends, forming groups), getting information (political news, health and government services), career and commerce (applying for job, online courses, buying and paying online), morality (social activities, donation and petitions for change) and entertainment (music, films, adventure, comedy and gaming) on a 5-point Likert scale. To study the attitude of the social media users whether they opine it as a boon or bane, statements for boon like (I feel information age enabled - freedom of speech and expression, time-saving, convenience of purchase, transparency in governance and public awareness) and statements for bane like (I feel in the information age – breach of privacy, leakage of personal data, misleading information, health issues, damage to the environment and bad effect to the relationships – are occurring) are framed on a 5-point Likert scale.

b. Sample size determination

The sample size is calculated according to **Cochran's formula** for calculating sample size when population size is infinite. Sample size for infinite population is $n = (z^2 pq / e^2) = 40$ where $z = 1.64$ at 10% (alpha) of significance with 90% level of confidence, $p = 50\% = 0.5$ (maximum variability in the population is taken), $q = 1 - p = 50\% = 0.5$ and $e = 13\% = 0.13$ (taken) the margin of error

c. Sampling method

The study area selected is Nellore district in Andhra Pradesh in India, which has a very large population in lakhs. As the population is infinite, probability sampling is not possible. Hence the convenience sampling method is used. A structured questionnaire is framed and face-to-face interviews are conducted. Cross-sectional analysis is done.

Purposive sampling method with equal allocation of strata for both male and female social media users of 20 sample size each is chosen for the gender wise comparison and analysis.

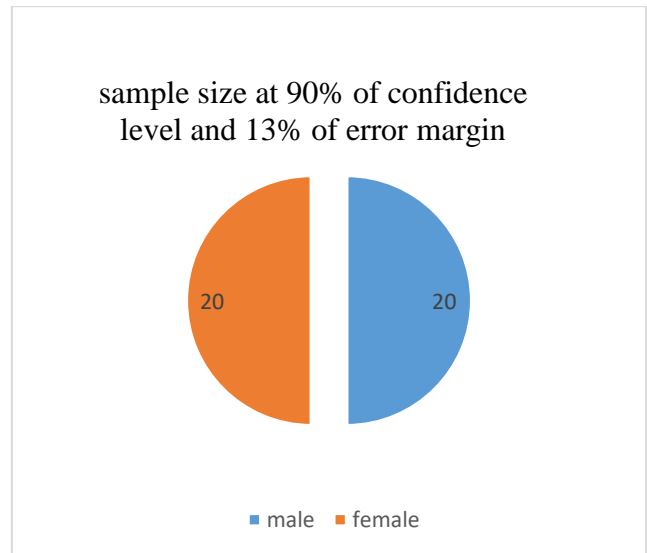
d. Tools used and tests conducted

SPSS version 25 is used for statistical testing. Means, percentages, Cronbach alpha, Chi-square test with cross tabulation and one way ANOVA are the tests conducted for statistical inference.

V. FINDINGS (ALL THE FINDINGS ARE GIVEN BY CONSIDERING MARGIN OF ERROR)

1.1. DEMOGRAPHIC FACTORS

Chart 1: sample size gender wise



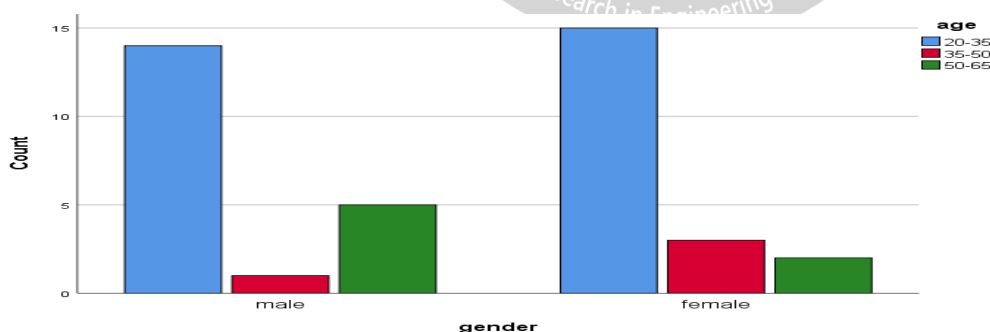
i. age

Of the total social media users responded for data collection, 72.5% \pm 13% of them are of the age between 20-35 years. 10% \pm 13% of them are of the age between 35-50 years and 17.5% \pm 13% of them are of the age between 50-65 years.

Of the total male social media users responded, 70% \pm 13% of them are between 20-35 years. 5% \pm 13% of them are of the age between 35-50 years and 25% \pm 13% of them are of the age between 50-65 years.

Of the total female social media users responded, 75% \pm 13% of them are between 20-35 years. 15% \pm 13% of them are of the age between 35-50 years and 10% \pm 13% of them are of the age between 50-65 years.

Chart 2: gender vs. age



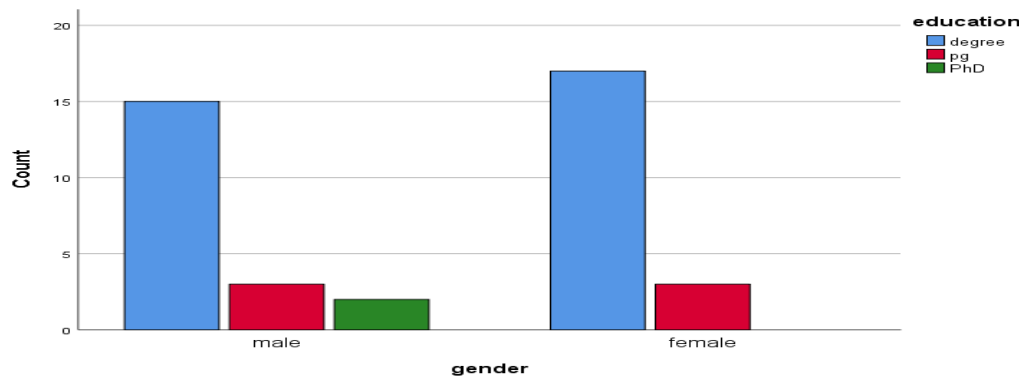
ii. Education

Of the total social media users responded for data collection, 80% \pm 13% of them are degree holders. 15% \pm 13% of them are Post Graduates and 5% \pm 13% of them are Doctorates.

Of the total male social media users responded, 75% \pm 13% of them are degree holders. 15% \pm 13% of them are Post Graduates. 10% \pm 13% of them are Doctorates.

Of the total female social media users responded, 85% \pm 13% of them are degree holders and 15% \pm 13% of them are Post Graduates.

Chart 3: gender vs. education



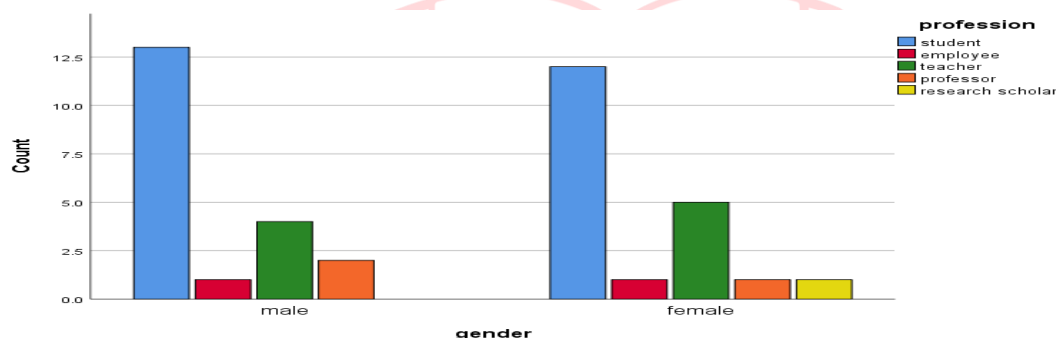
iii. Profession

Of the total social media users responded for data collection, 62.5% \pm 13% of them are students. 5% \pm 13% of them are employees, 22.5% \pm 13% of them are teachers, 7.5% \pm 13% of them are professors and 2.5% \pm 13% of them are research scholars.

Of the total male social media users responded, 65% \pm 13% of them are students. 5% \pm 13% of them are employees, 20% \pm 13% of them are teachers and 10% \pm 13% of them are professors.

Of the total female social media users responded, 60% \pm 13% of them are students. 5% \pm 13% of them are employees, 25% \pm 13% of them are teachers, 5% \pm 13% of them are professors and 5% \pm 13% of them are research scholars.

Chart 4: gender vs. profession



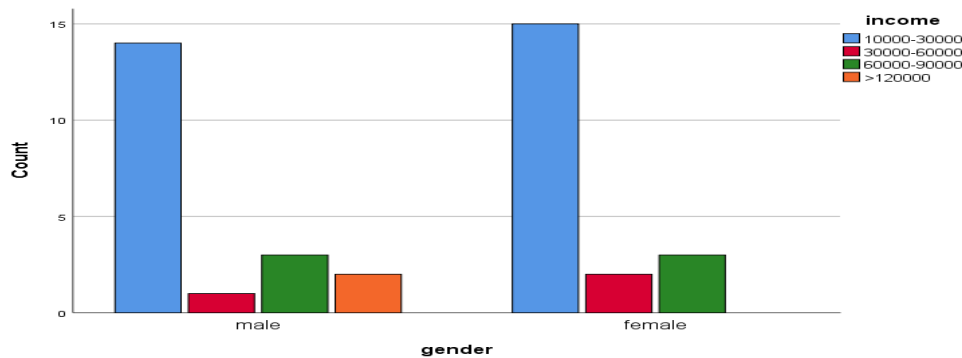
iv. Income

Of the total social media users responded for data collection, 72.5% \pm 13% of them are having Rs.10,000- Rs.30,000 monthly income, 7.5% \pm 13% of them are having Rs.30,000- Rs.60,000 monthly income, 15% \pm 13% of them are having Rs.60,000- Rs.90,000 monthly income and 5% \pm 13% of them are having more than Rs.120,000 monthly income.

Of the total male social media users responded, 70% \pm 13% of them are having Rs.10,000- Rs.30,000 monthly income, 5% \pm 13% of them are having Rs.30,000- Rs.60,000 monthly income, 15% \pm 13% of them are having Rs.60,000- Rs.90,000 monthly income and 10% \pm 13% of them are having more than Rs.120,000 monthly income.

Of the total female social media users responded, 75% \pm 13% of them are having Rs.10,000- Rs.30,000 monthly income, 10% \pm 13% of them are having Rs.30,000- Rs.60,000 monthly income and 15% \pm 13% of them are having Rs.60,000- Rs.90,000 monthly income.

Chart 5: gender vs. monthly income



1.2. Usage

i. Type of devices used

Of the total social media users responded for data collection, 90% \pm 13% of them are having a smartphone while 10% \pm 13% of them are having both laptop and smartphone. Same is the case with gender-wise distribution.

Chart 6: gender vs. type of devices used

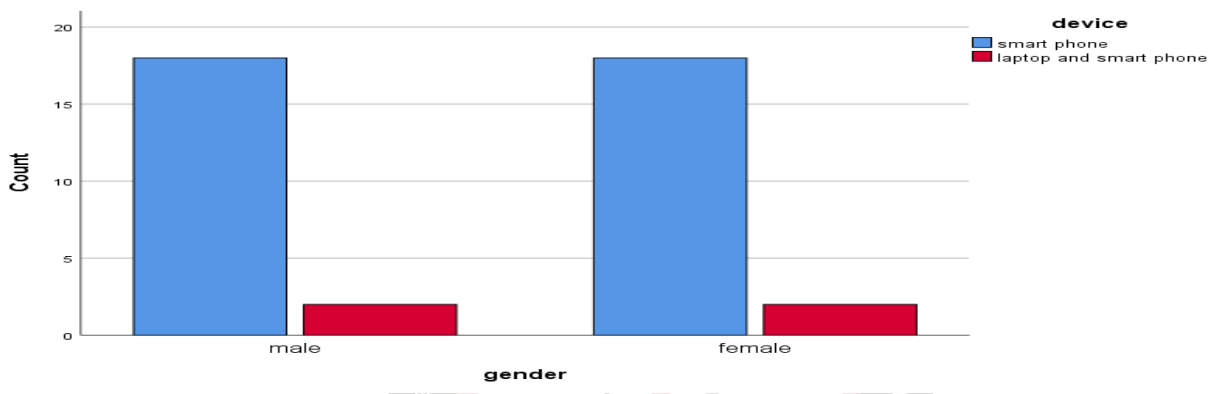


Table 1: Chi-Square Test - the association between the income level and the number of devices the respondents have

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.594 ^a	6	.002
Likelihood Ratio	8.442	6	.207
N of Valid Cases	40		

a. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .05.

H₀: there exists no association between the income level and the number of devices they have.

H₁: there exists some association between the income level and the number of devices they have.

From the output, the Pearson chi-square value is 20.294 with $p = 0.002 < 0.1$. Hence the null hypothesis is rejected and hence there exists some association between the income level and the number of devices they have.

Table 2: Reliability Statistics of the Likert scales				
5 point Likert scale		Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
The attitude of social media users	boon	.701	.702	5
	bane	.823	.826	6
The types of activity and the frequency of usage by social media users		.734	.729	17

From the output of the reliability test on the attitude of social media users towards the advantages/ boon of the information age, the Cronbach's alpha is $0.701 > 0.7$. Hence this 5 point Likert scale is reliable.

From the output of the reliability test on the attitude of social media users towards the disadvantages/ bane of the information age, the Cronbach's alpha is $0.823 > 0.7$. Hence this 5 point Likert scale is reliable.

From the output of reliability test on types of activity and the frequency of usage by the social media users, the Cronbach's alpha is $0.734 > 0.7$. Hence this 5 point Likert scale is reliable

H₀: there exists no significant difference between male and female social media users with regard to the frequency of using social media for different activities

H₁: there exists a significant difference between male and female social media users with regard to the frequency of using social media for different activities

Table 3: ANOVA – gender vs. frequency of using social media for different type of activities

Type of activities	Mean (m)	Std. Deviation	N	ANOVA (gender vs. type of activities)	
				F	Sig.
Contacting family and friends	3.98 (frequently)	1.121	40	1.639	.208
Forming groups	2.98(less frequently)	1.310	40	1.185	.283
political news	2.73(less frequently)	1.154	40	1.541	.222
Health	3.28 (frequently)	1.281	40	.134	.716
Government services	3.48 (frequently)	1.396	40	8.009	.007
Apply for job	2.35(less frequently)	1.369	40	.052	.821
Online courses	1.88 (rarely)	1.362	40	.119	.733
Buying products online	2.63(less frequently)	1.390	40	.013	.911
Paying online	2.95(less frequently)	1.395	40	8.898	.005
Social activities	2.55(less frequently)	1.358	40	14.241	.001
Donation	1.63 (rarely)	1.005	40	.613	.439
Petitions for social change	1.28 (rarely)	.640	40	.543	.466
Music	3.78 (frequently)	1.074	40	.191	.665
Films	3.15 (frequently)	1.312	40	6.655	.014
Adventure	2.28(less frequently)	1.176	40	.018	.895
Comedy	3.43 (frequently)	1.152	40	.018	.893
Gaming	3.53 (frequently)	1.240	40	2.880	.098

NOTE: For mean values, $0 < m < 1$ response will be coded as never

$1 < m < 2$ response will be coded as rarely

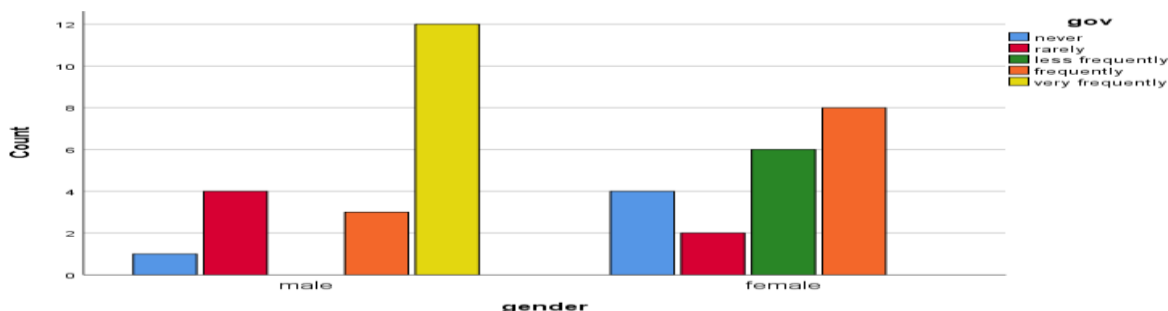
$2 < m < 3$ response will be coded as less frequently

$3 < m < 4$ response will be coded as frequently

$4 < m < 5$ response will be coded as very frequently

From the output, $F = 2.880$ with $p\text{-value} = 0.098 < 0.1$, hence null hypothesis rejected. Therefore there exists a significant difference between the male and female social media users with regard to the frequency of gaming. Likewise for the social activities, paying online, seeing news on government services and films online there exists a difference in the frequency of usage between male and female social media users.

Chart 7: gender vs. frequency of using social media for government services

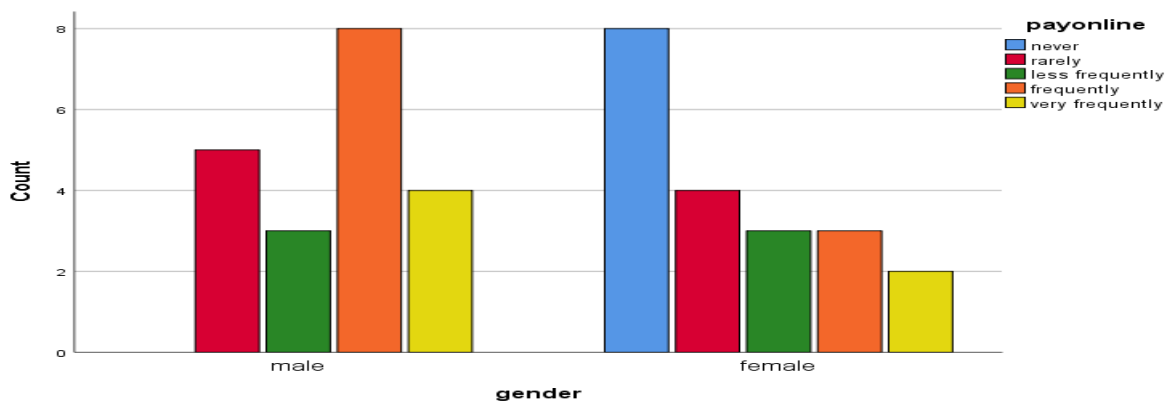


Of the total social media users responded for data collection, 0% - 25.5% of them are not using social media for news on government services, 2% - 28% of them are using social media rarely, 2% - 28% of them are using social media less frequently, 14.5% - 40.5% of them are using social media frequently and 17% - 43% of them are using social media very frequently for news on government services.

Of the total male social media users responded, 0% - 18% of them are not using social media for news on government services, 7% - 33% of them are using social media rarely, 2% - 28% of them are using social media frequently and 47% - 73% of them are using social media very frequently for news on government services.

Of the total female social media users responded, 7% - 33% of them are not using social media for news on government services, 0% - 23% of them are using social media rarely, 17% - 43% of them are using social media less frequently and 27% - 53% of them are using social media frequently for news on government services.

Chart 8: gender vs. frequency of using social media for paying online

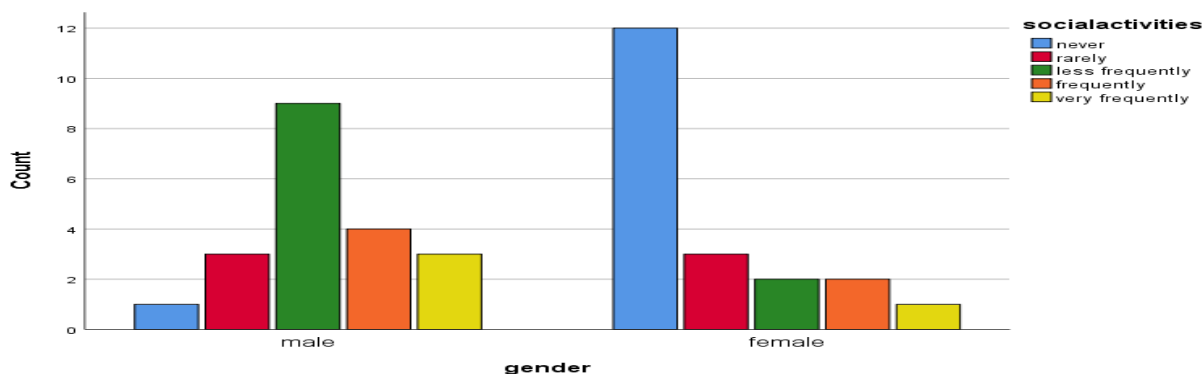


Of the total social media users responded for data collection, 7% - 33% of them are not using social media for paying online, 9.5% - 35.5% of them are using social media rarely, 2% - 28% of them are using social media less frequently, 14.5% - 40.5% of them are using social media frequently and 2% - 28% of them are using social media very frequently for paying online.

Of the total male social media users responded, 12% - 38% of them are using social media rarely, 2% - 28% of them are using social media less frequently and 27% - 53% of them are using social media frequently and 7% - 33% of them are using social media very frequently for paying online.

Of the total female social media users responded, 27% - 53% of them are not using social media for paying online, 7% - 33% of them are using social media rarely, 2% - 28% of them are using social media less frequently and frequently and 0% - 23% of them are using social media very frequently for paying online.

Chart 9: gender vs. frequency of using social media for social activities

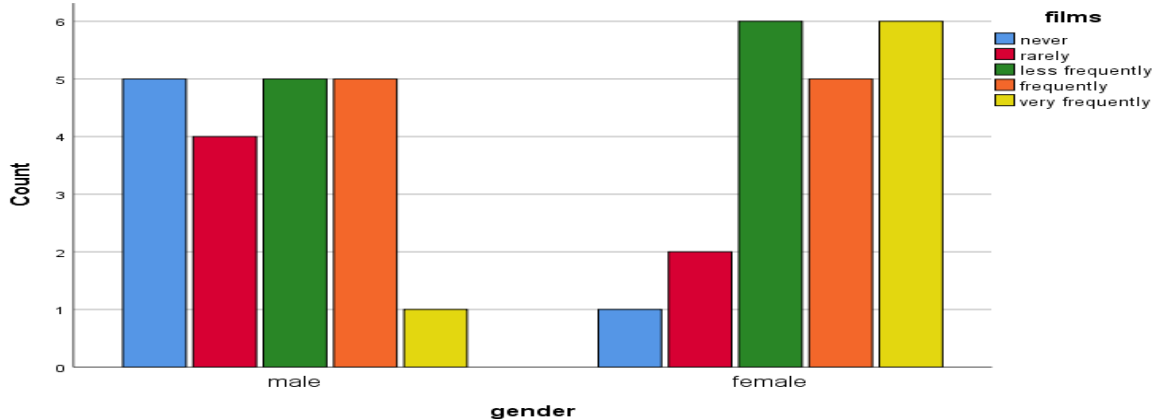


Of the total social media users responded for data collection, 19.5% - 45.5% of them are not using social media for social activities, 2% - 28% of them are using social media rarely, 14.5% - 40.5% of them are using social media less frequently, 2% - 28% of them are using social media frequently and 0% - 23% of them are using social media very frequently for social activities.

Of the total male social media users responded, 0% - 18% of them are not using social media for social activities, 2% - 28% of them are using social media rarely, 32% - 58% of them are using social media less frequently, 7% - 33% of them are using social media frequently and 2% - 28% of them are using social media very frequently for social activities.

Of the total female social media users responded, 47% - 73% of them are not using social media for social activities, 2% - 28% of them are using social media rarely, 0% - 23% of them are using social media less frequently and frequently and 0% - 18% of them are using social media very frequently for social activities.

Chart 10: gender vs. frequency of using social media for watching films

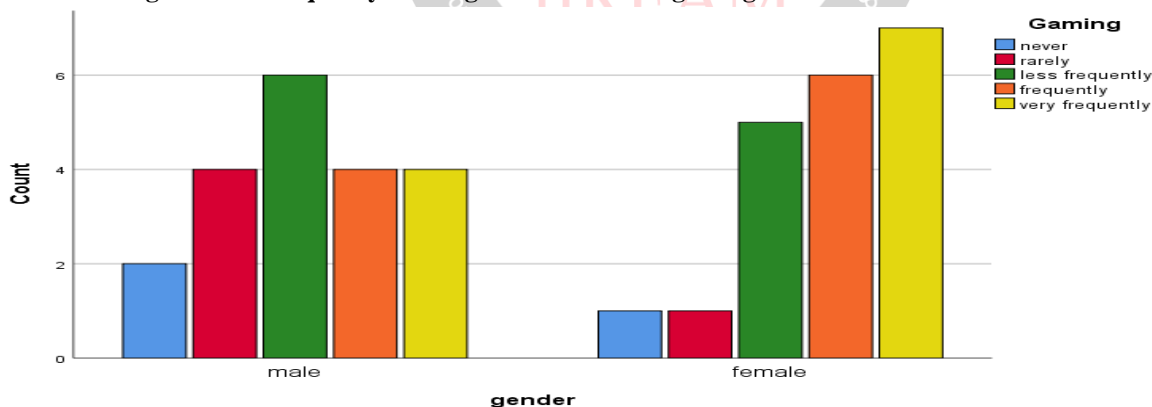


Of the total social media users responded for data collection, 7% - 33% of them are not using social media for watching films online, 9.5% - 35.5% of them are using social media rarely, 2% - 28% of them are using social media less frequently, 14.5% - 40.5% of them are using social media frequently and 2% - 28% of them are using social media very frequently for watching films online.

Of the total male social media users responded, 12% - 38% of them are not social media for paying online and responded less frequently and frequently, 7% - 33% of them are using social media rarely and 0% - 18% of them are using social media very frequently for watching films online.

Of the total female social media users responded, 0% - 18% of them are not using social media for paying online, 0% - 23% of them are using social media rarely, 17% - 43% of them are using social media less frequently and very frequently and 12% - 38% of them are using social media frequently for watching films online.

Chart 11: gender vs. frequency of using social media for gaming



Of the total social media users responded for data collection, 0% - 20.5% of them are not using social media for gaming, 0% - 25.5% of them are using social media rarely, 14.5% - 40.5% of them are using social media less frequently, 12% - 38% of them are using social media frequently and 14% - 40.5% of them are using social media very frequently for gaming.

Of the total male social media users responded, 0% - 23% of them are not using social media for gaming, 7% - 33% of them are using rarely, frequently and very frequently, 17% - 43% of them are using social media less frequently for gaming.

Of the total female social media users responded, 0% - 18% of them are not using social media and rarely using it for gaming, 12% - 38% of them are using social media less frequently and 17% - 43% of them frequently and 22% - 48% of them are using social media very frequently for gaming.

Table 4: frequency of buying online * convenience of purchase Cross tabulation

			I feel information age enabled convenience of purchase						Total
			strongly disagree	Disagree	neither disagree	agree	nor	agree	
Buying online	never	Count	2	0	4			5	13
		Expected Count	.7	.3	4.2			5.5	13.0
	rarely	Count	0	0	2			4	6
		Expected Count	.3	.2	2.0			2.6	6.0
	less frequently	Count	0	1	2			4	7
		Expected Count	.4	.2	2.3			3.0	7.0
	Frequently	Count	0	0	5			3	11
		Expected Count	.6	.3	3.6			4.7	11.0
	very frequently	Count	0	0	0			1	3
		Expected Count	.2	.1	1.0			1.3	3.0
Total		Count	2	1	13			17	40
		Expected Count	2.0	1.0	13.0			17.0	40.0

H_0 : there exists no association between the frequency of buying online and the opinion/attitude that information age enabled convenience of purchase

H_1 : there exists an association between the frequency of buying online and the opinion/attitude that information age enabled convenience of purchase

There are 5.5 observations where the **frequency of buying online** response is never and **I feel information age enabled convenience of purchase** response is agree could explain that there is no association between them.

Table 4a: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.397 ^a	16	.249
Likelihood Ratio	19.805	16	.229
Linear-by-Linear Association	3.034	1	.082
N of Valid Cases	40		

a. 24 cells (96.0%) have expected count less than 5. The minimum expected count is .08.

The relationship between the categorical variables, **buying online** and **I feel information age enabled convenience of purchase** was examined to look for associations. A chi-square test with 16 degrees of freedom was performed resulting in the test statistic of 19.397. This results in an asymptotic p-value which is greater than 0.1 (0.249) and therefore we have the strong evidence to accept the null hypothesis that ‘there exists no association between buying online and feeling that information age enabled convenience of purchase’.

Table 5: ANOVA- gender vs. Type of activities in different social handles

Social handles	F	Sig.
Facebook	.272	.605
Email	.167	.685
Linkedin	2.064	.159
whatsapp	5.800	.021
Youtube	3.659	.063

H_0 : there exists no significant difference between male and female social media users with regard to the type of activities on different social handles

H_1 : there exists a significant difference between male and female social media users with regard to the type of activities on different social handles

Since from the output, it is evident that there is no significant difference between the male and female facebook, email, LinkedIn users with regard to the types of activities conducted. But in the case of WhatsApp and youtube, it is different. From the output, $F=5.80$ with $p\text{-value} = \text{significance} = 0.021 < 0.1$. Here the null hypothesis is rejected and hence there exists a significant difference between the male and female WhatsApp users with regard to the types of activities conducted. Likewise $F=3.659$ with $p\text{-value} = 0.063 < 0.1$. Therefore the null hypothesis is rejected and hence There exists a significant difference between male and female youtube users with regard to the types of activities conducted.

Chart 12: gender, age vs. types of activities on youtube

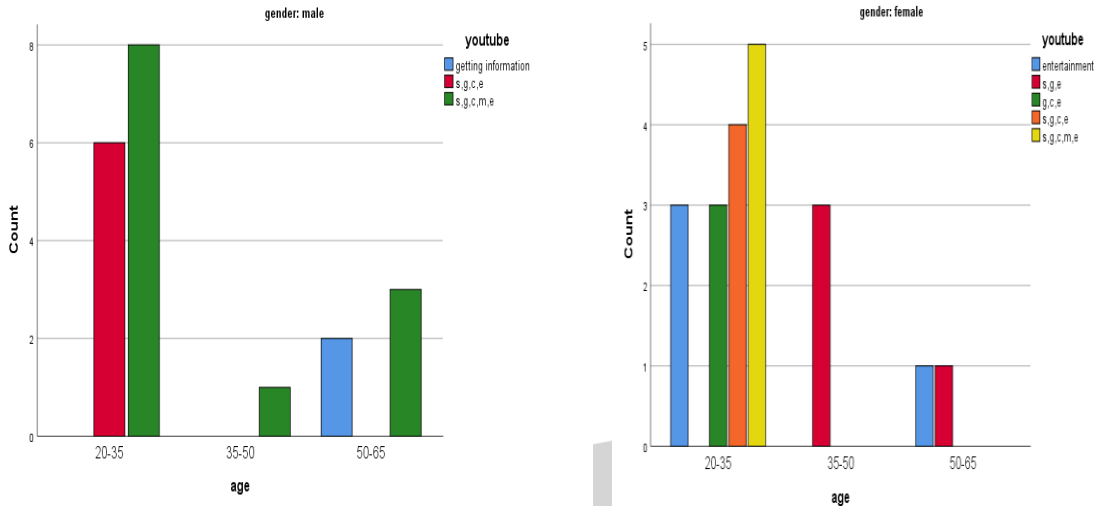
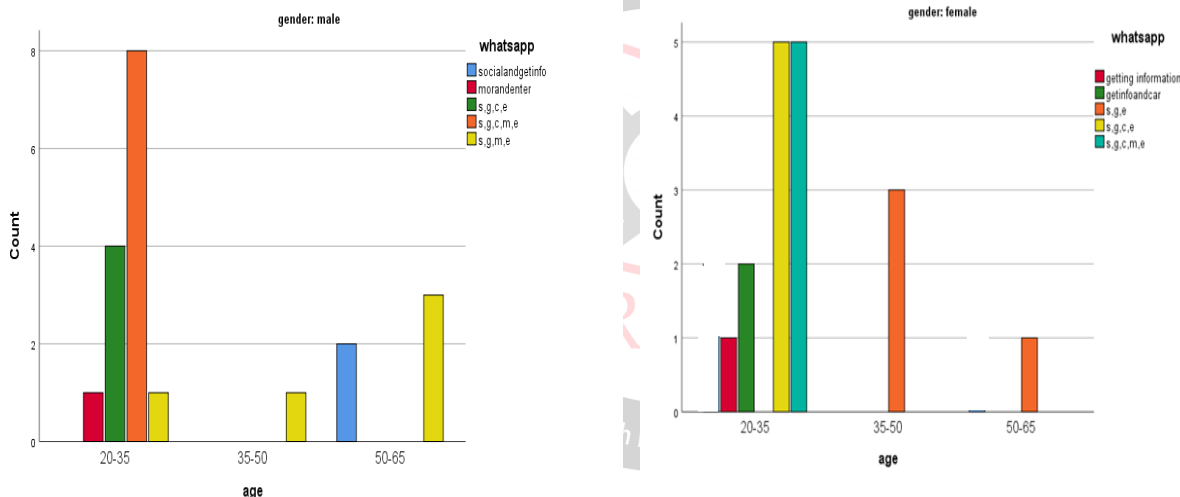


Chart 13: gender, age vs. types of activities on WhatsApp



NOTE: s – socializing, g- getting information, c- career and commerce, m- morality, e- entertainment

Table 6: Chi-Square Tests (cross-tabulation of age and type of activities on email and WhatsApp gender wise)

Gender	age and types of activities on email gender wise				age and type of activities on WhatsApp gender wise			
		Value	Df	Asymptotic Significance (2-sided)	Value	df	Asymptotic Significance (2-sided)	Significance
Male	Pearson Chi-Square	14.438 ^a	18.057 ^a	.071	18.057 ^a	8	.021	
	Likelihood Ratio	16.520	20.339	.036	20.339	8	.009	
	Linear-by-Linear Association	1.157	2.739	.282	2.739	1	.098	
	N of Valid Cases	20	20		20			
female	Pearson Chi-Square	22.933 ^b	19.944 ^b	.061	19.944 ^b	10	.030	
	Likelihood Ratio	19.721	20.906	.139	20.906	10	.022	
	Linear-by-Linear Association	3.706	1.344	.054	1.344	1	.246	
	N of Valid Cases	20	20		20			

- a. 15 cells (100.0%) have expected count less than 5. The minimum expected count is .15.
- b. 24 cells (100.0%) have expected count less than 5. The minimum expected count is .10.

H₀: there exists no association among the age group with regard to the type of activities on email and WhatsApp

H₁: there exists association among the age group with regard to the type of activities on email and WhatsApp

From the chi-square tests, there is some relation between age and email usage activities among the male (the value of the Pearson chi-square is 14.438 with $p=0.071 < 0.1$) and female respondents (the value of the Pearson chi-square is 22.933 with $p=0.061 < 0.1$)

Likewise for the WhatsApp also, there is some relation between age and WhatsApp usage activities among the male (the value of the Pearson chi-square is 18.057 with $p=0.021 < 0.1$) and female respondents (the value of the Pearson chi-square is 19.944 with $p=0.030 < 0.1$)

Table 7: Chi-Square Tests (cross-tabulation of age and youtube usage activities gender wise)

Gender		Value	df	Asymptotic Significance (2-sided)
Male	Pearson Chi-Square	8.857 ^a	4	.065
	Likelihood Ratio	10.066	4	.039
	Linear-by-Linear Association	4.696	1	.030
	N of Valid Cases	20		
Female	Pearson Chi-Square	19.000 ^b	8	.015
	Likelihood Ratio	20.226	8	.010
	Linear-by-Linear Association	2.307	1	.129
	N of Valid Cases	20		

a. 8 cells (88.9%) have expected count less than 5. The minimum expected count is .10.

b. 15 cells (100.0%) have expected count less than 5. The minimum expected count is .30.

H₀: there exists no association among the age group with regard to the type of activities on youtube

H₁: there exists association among the age group with regard to the type of activities on youtube

Likewise for the youtube also, there is some relation between age and youtube usage activities among the male (the value of the Pearson chi-square is 8.857 with $p=0.065 < 0.1$) and female respondents (the value of the Pearson chi-square is 19.00 with $p=0.015 < 0.1$)

Table 8: ANOVA -gender vs. attitude on information age

Attitude	Mean	Std. Deviation	ANOVA (gender vs. attitude)	
			F	Sig.
I feel information age enabled freedom of speech and expression	3.98 (agree)	.733	2.357	.133
I feel information age enabled time-saving	4.33 (strongly agree)	.917	.739	.395
Boon I feel information age enabled convenience of purchase	3.65 (agree)	.975	.414	.524
I feel information age enabled transparency in governance	4.10 (strongly agree)	.672	.884	.353
I feel information age enabled public awareness	3.78 (agree)	1.000	.024	.877

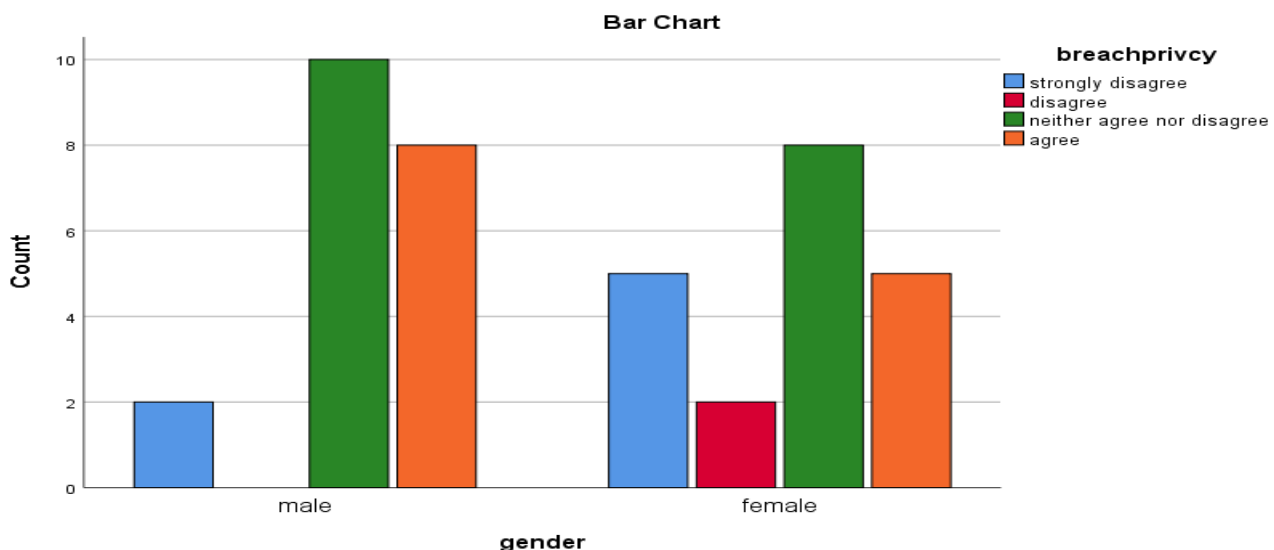
Bane	I feel in the information age, breach of privacy is occurring	2.93 (neutral)	1.047	2.892	.097
	I feel in the information age, leakage of personal data is occurring	3.30 (agree)	1.344	2.843	.100
	I feel in the information age, misleading information is also present	3.55 (agree)	1.176	.645	.427
	I feel in the information age, health problems are increasing due to increased usage	3.75 (agree)	1.080	.000	1.000
	I feel in the information age, damage to the environment is taking place due to radiation	4.15 (strongly agree)	.975	.103	.750
	I feel in the information age, relationships are badly affecting	3.70 (agree)	.992	.400	.531

H₀: there exists no significant difference between male and female social media users with regard to their attitude on the information age

H₁: there exists a significant difference between male and female social media users with regard to their attitude on the information age

From the output, $F = 2.892$ with $p\text{-value} = 0.097 < 0.1$ resulting in rejecting null hypothesis. Hence there exists a significant difference between the male and female social media users with regard to their attitude that breach of privacy is occurring. For all the other attitudes there is no evidence of statistical significance.

Chart 14: gender vs. opinion on breach of privacy in the information age



Of the total social media users responded for data collection, 4.5% - 30.5% of them strongly disagree that breach of privacy is occurring in the information age, 0% - 18% of them disagree that breach of privacy is occurring in the information age, 32% - 58% of them are neutral about breach of privacy is occurring in the information age, 19.5% - 45.5% of them agree that breach of privacy is occurring in the information age.

Of the total male social media users responded, 0% - 23% of them strongly disagree that breach of privacy is occurring in the information age, 37% - 63% of them are neutral about breach of privacy is occurring in the information age, 27% - 53% of them agree that breach of privacy is occurring in the information age.

Of the total female social media users responded, 12% - 38% of them strongly disagree that breach of privacy is occurring in the information age, 0% - 23% of them disagree that breach of privacy is occurring in the information age, 27% - 53% of them are neutral about breach of privacy is occurring in the information age, 12% - 38% of them agree that breach of privacy is occurring in the information age.

Table 9: list of tests performed and their results

Variables	Test (at 90% confidence)	Null hypothesis	Alternative hypothesis
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level)			
Income level and the number of devices	Chi-square	-- Rejected --	Accepted
			There exists an association between the income level and the number of devices
Gender and the frequency of usage for different activities	ANOVA	Accepted	Accepted
		There exists no significant difference between the male and female social media users with regard to the usage frequency of watching online for comedy, adventure, listening music online, donations, petitions for social change, buying products online, online courses, applying for job online, getting news on health and politics and contacting family, friends and forming groups online	There exists a significant difference between male and female social media users with regard to the usage frequency of gaming, social activities, paying online, watching the news on government services and films online
Age and activities on youtube, WhatsApp and email handles between gender		-- Rejected --	Accepted
			There is some relation between age and youtube usage activities among the male and female of email, WhatsApp and youtube users
The frequency of buying online And the opinion that information age enabled convenience of purchase	Chi-square Cross-tabulation	Accepted	-- Rejected --
		there exists no association between buying online and feeling that information age enabled convenience of purchase	
Gender and the type of activities done on different types of social handles	ANOVA	Accepted	Accepted
		there exists no significant difference between the male and female social media users with regard to the types of activities conducted by using Facebook, email, and LinkedIn	There exists a significant difference between male and female social media users with regard to the types of activities conducted by using WhatsApp and youtube.
Gender and attitude on information age is a boon	ANOVA	Accepted	--Rejected--
		There exists no significant difference between the male and female social media users with regard to their attitude that information age is a boon- freedom of expression, time-saving, the convenience of purchase, transparency in governance and public awareness	
Gender and attitude on information age is a bane	ANOVA	Accepted	Accepted
		There exists no significant difference between the male and female social media users with regard to their attitude that information age is also resulting in the leakage of data and misleading information, increased health issues, damage to the environment and badly affecting the relationships	There exists a significant difference between male and female social media users with regard to their attitude that breach of privacy is occurring.

VI. CONCLUSION

The study concludes that there exists an association between the income level and the number of devices. There exists no significant difference between the male and female social media users with regard to the usage frequency of watching online for comedy, adventure,

listening music online, donations, petitions for social change, buying products online, online courses, applying for job online, getting news on health and politics and contacting family, friends and forming groups online. There exists a significant difference between male and female social media users with regard to the usage frequency of gaming. Social activities, paying online, watching the news

on government services and films online. There is some relation between age and youtube usage activities among the male and female of email, WhatsApp and youtube users there exists no association between buying online and feeling that information age enabled convenience of purchase. There exists no significant difference between the male and female social media users with regard to the types of activities conducted by using Facebook, email, and LinkedIn. There exists a significant difference between male and female social media users with regard to the types of activities conducted by using WhatsApp and youtube. There exists no significant difference between the male and female social media users with regard to their attitude that information age is a boon- freedom of expression, time-saving, the convenience of purchase, transparency in governance and public awareness. There exists no significant difference between the male and female social media users with regard to their attitude that information age is also resulting in the leakage of data and misleading information, increased health issues, damage to the environment and badly affecting the relationships. There exists a significant difference between male and female social media users with regard to their attitude that breach of privacy is occurring.

The government should make effective policies for anti-hacking and innovations should be carried out to create eco-friendly digital media to overcome the bad effects in the information age. On the social media users' front, there should be a time allotment for their activities to have a balanced life and good relations not only in the virtual life but also in real life.

VII. LIMITATIONS OF THE STUDY

The study is limited only to social media users - usage and attitude. It is categorized based on gender. The sample taken is with 90% of confidence level and 13% error margin. The study is carried out in a single district, but testing validated the study.

VIII. FUTURE RESEARCH

The scope for further research is we can do research with more confidence level by a less error margin to draw more conclusions, considering other categories like age, education and income levels. There is also a scope to study on social media usage in education, medicine, management, government, and political organizations.

IX. ACKNOWLEDGEMENTS

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