



## MOBILE APPLICATIONS PREFERENCES BY THE USERS OF SMARTPHONE

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**“Life without a Smartphone is riskier, lonelier, more vivid.” - Eloisa James**

### ABSTRACT

*Most of us can't imagine leaving home without mobile phones. With their rich features and capabilities, these devices have been fertile ground for the growth of mobile apps. The main objective of this research paper is to find out various factors affecting selection and usage of mobile application. The researchers also have attempted to explore those factors which lead to deletion of mobile application which was installed early. A survey has been used to collect primary data and 172 questionnaires were used in final analysis, 37 responses were deleted due to many tick, inappropriate answers, incomplete information, on 172 respondents data set, all data analysis was performed giving response rate equal to 82%. Questionnaire items were developed through a two stage process involving a review of the measurement scale employed in previous studies and two pilot study of focus group to identify the user preferences of applications for Smartphone. SPSS and Microsoft Excel have been used to analyze and interpret the data. Statistical techniques like t-test, ANOVAs and Cross tabs have been used. With the widest usage of different kind of applications, there is a good scope for development of an application which can have long shelf-life in user's Smartphone. Various factors like size of an application, Internet Consumption, Compatibility of an application have the greatest impact in terms of using an application and recommend it. This research will help to application developers to screen out preferences and liking of Smartphone users. Various applications need to be target audience specific else it would be just a part of list of play stores. This paper makes*

*a valuable contribution given the fact that there are only a limited number of comprehensive studies dealing with preferences of applications among Smartphone users in state in Gujarat.*

**Keywords** Smartphone, Applications, OS

***Paper type*** Research paper

## **INTRODUCTION**

Most of us can't think of leaving home without mobile phones. With their rich features and capabilities, these devices have been fertile ground for the growth of mobile apps. The main objective of this research paper is to find out various factors affecting selection and usage of mobile application. The researchers also have attempted to explore those factors which lead to deletion of mobile application which was installed early.

## **REVIEW OF LITERATURE**

<sup>1</sup>Mobile phones have been widely used for several decades, but the smartphones are a more recent advance. The latest generations of smartphones is increasingly viewed as handheld computers rather than as just phones, due to their powerful on-board computing capability and open operating systems that encourage application download and development. The level of smartphone usage by medical students and professionals is increasing day by day with the extensive availability of downloadable medical applications related to medical education and health.

<sup>2</sup> Today's smart phone application markets host an ever increasing number of applications. The sheer number of applications makes their review a daunting task.. Apps Playground integrates multiple components comprising different detection and an automatic exploration technique for this purpose.

<sup>3</sup>People are satisfied with the use of smartphone apps, and their satisfaction level was affected by factors such as needs fulfillment, performance improvement, ease of use, security/privacy, and peer influence. It is also found out that consumers of younger age, frequent users, frequent

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<sup>1</sup> K.V. Vinay, Vishal K.(2013), SMARTPHONE APPLICATIONS FOR MEDICAL STUDENTS AND PROFESSIONALS, NUJHS Vol. 3, No.1, March 2013, ISSN 2249-7110, PP 59-62.

<sup>2</sup> KAVITHA, T.N.R., YOGESWARI, K., A Study On Customer Attitude Towards Smartphones With Special References To Chithode, Erode District., *IOSR Journal of Business and Management (IOSR-JBM)* e-ISSN : 2278-487X, p-ISSN : 2319-7668, PP 33-36

<sup>3</sup> Chun, S.G., Chung, D., Shin, Y.B.(2013), ARE STUDENTS SATISFIED WITH THE USE OF SMARTPHONE APPS? *Issues in Information Systems Volume 14*, Issue 2, pp.23-33, 2013

downloader, having more number of apps on their smartphones, and choosing Android and iOS as their future smartphone platforms were more satisfied while gender, longer years of owning smartphone, preference for free apps and smartphone platforms currently used did not significantly affect consumers' satisfaction.

<sup>4</sup>To address users' mistrust of smartphone applications, it is proposed the addition of new security indicators into centralized application markets. The researchers find that participants often install a large number of applications from unfamiliar brands without reading the applications' privacy policies, which likely contributes to their mistrust of applications. The researchers believe that this mistrust could be addressed by augmenting centralized markets with information about trusted brands and trusted application reviewers.

<sup>5</sup>The researchers have introduced two contextual variables that condition the use of smartphone applications, namely places and social context. The study shows strong dependencies between phone usage and the two contextual cues, which are automatically extracted based on multiple built-in sensors available on the phone.

<sup>6</sup>The researches have worked on ISO 9126 forms and quality aspect of mobile phone applications. The researches founded that the main factors of ISO 9126, those majorly affects the performance n and quality of smartphones are Functionality, Usability, Efficiency, Maintainability and Portability. It is advised that an application must be developed with the said factors in order to gain wide usage of an application.

<sup>7</sup>The researchers have done survey on students and their smatphone application usage, major respondents were using Android based OS followed by iOS. Games, Music and Socia Media related applications were mostly used by the students. Students also believed that Native Applications are more useful (in terms of usage) than web based Applications.

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<sup>4</sup> Chin,E., Felt,A.F., Sekar,V., Wagner,D.,(2012), Measuring User Confidence in Smartphone Security and Privacy, Symposium on Usable Privacy and Security (SOUPS) 2012, July 11-13,2012, Washington, DC, USA.

<sup>5</sup> Tri Do,T.M., Blom,J., Gatica-Perez,D.,(2011), Smartphone usage in the wild: a large-scale analysis of applications and context, ICMI'11, November 14–18, 2011, Alicante, Spain.

<sup>6</sup> Priestersbach, A., Springer, R., Quality Attributes in mobile Web Application Development

<sup>7</sup> Pistilli,M.D.,Bowen,K.,(2012), Student Preferences for Mobile App Usage, EDUCAUSE, Research Bulletin, PP 1-13

<sup>8</sup>Students appear to have no loyalty to a specific application, and are prepared to use whatever App is required to connect to their friends. The most preferred IM App is Mxit, possibly because it is accessible on most OS and Smartphone platforms, and can be installed on the cheaper handsets for which there are more users. The cost of the handset, data package or application, seems to be a factor in adoption of a particular IM or chat application amongst these students.

### **OBJECTIVE OF THE RESEARCH**

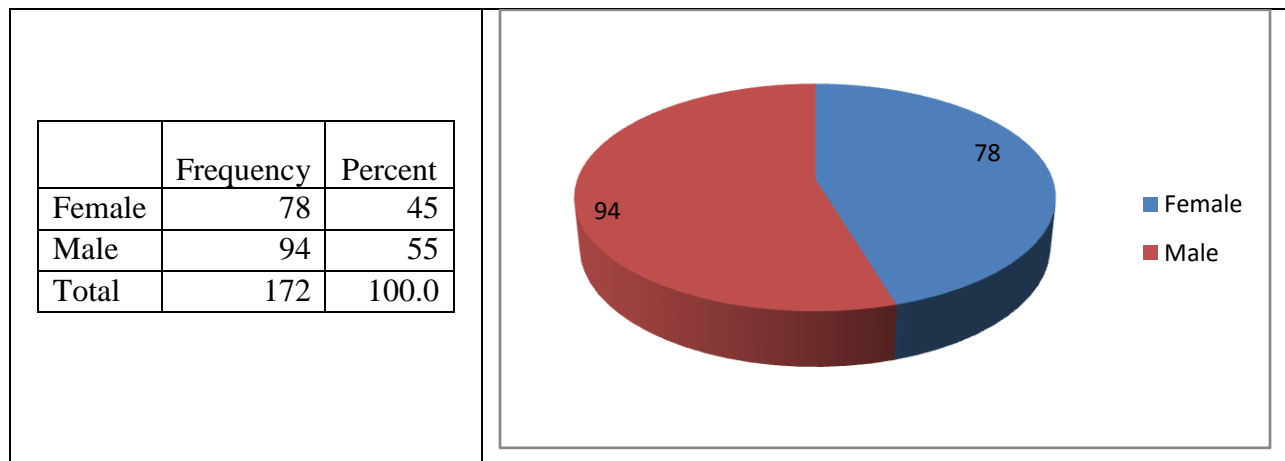
The main objective of this research paper is to find out various factors affecting selection and usage of mobile application. The researchers also have attempted to explore those factors which lead to deletion of mobile application which was installed early.

### **METHODOLOGY**

This is an empirical study based on the primary data collected through scientifically developed questionnaire. The questionnaire has been administered on sample size of 172, respondents through online survey method. Single Cross Sectional Descriptive Research Design has been used in the research. Secondly, a questionnaire was constructed and piloted. Questionnaire was prepared keeping in mind the various outcomes possible. Care was taken to minimize the possibility of wrong interpretation and biased views.

### **DATA ANALYSIS AND INTERPRETATION -Descriptive Statistics**

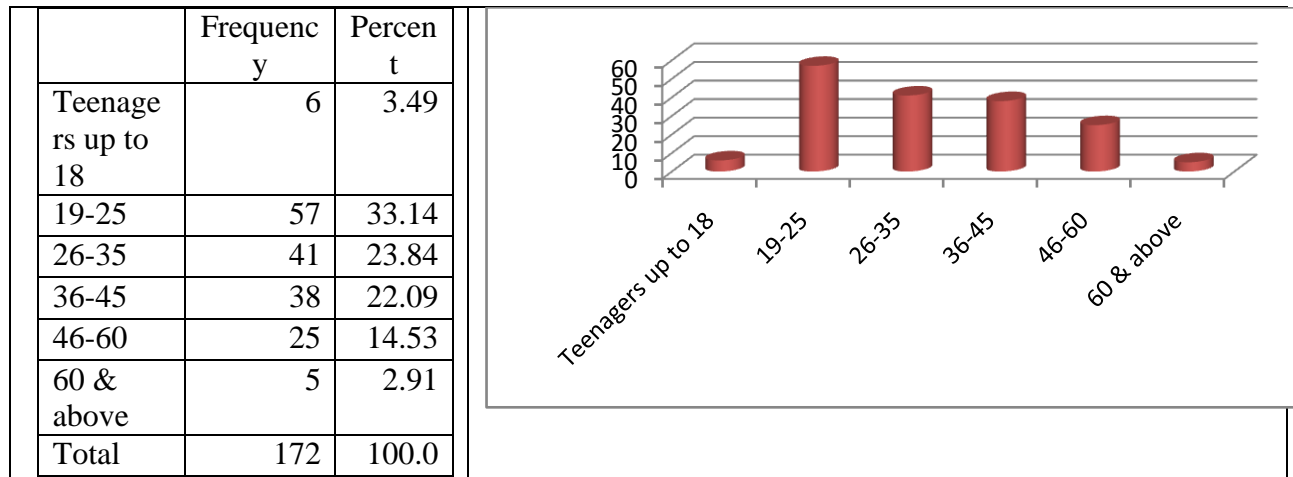
**Table/Figure:1 - Gender of the respondents**



From total respondents 45% were female and 55% were male.

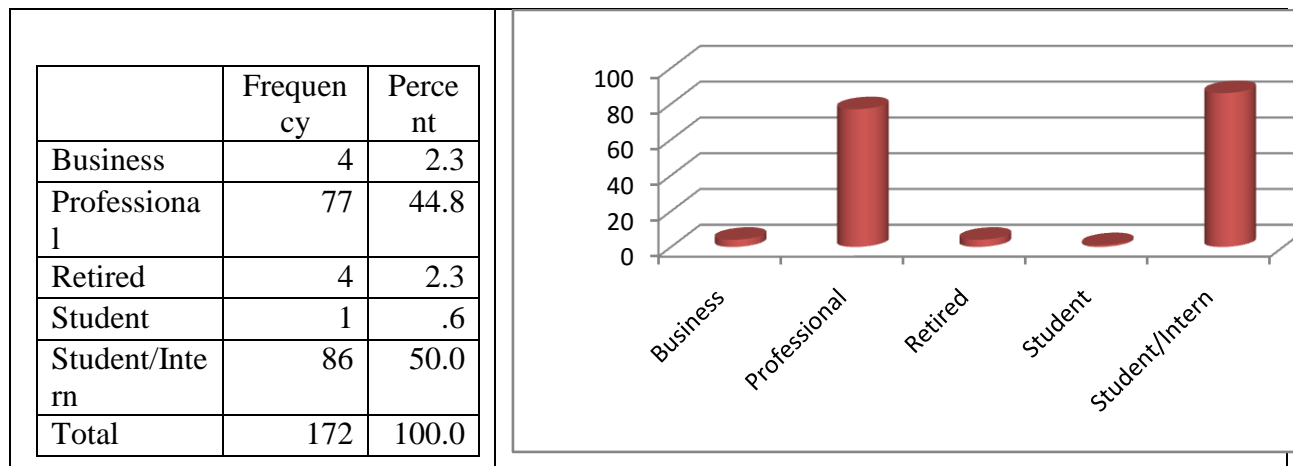
<sup>8</sup> Anonymous, Smartphone Application Usage amongst Students at a South African University [www.IST-Africa.org/Conference2012](http://www.IST-Africa.org/Conference2012)

**Table/Figure: 2 Age of the respondents**



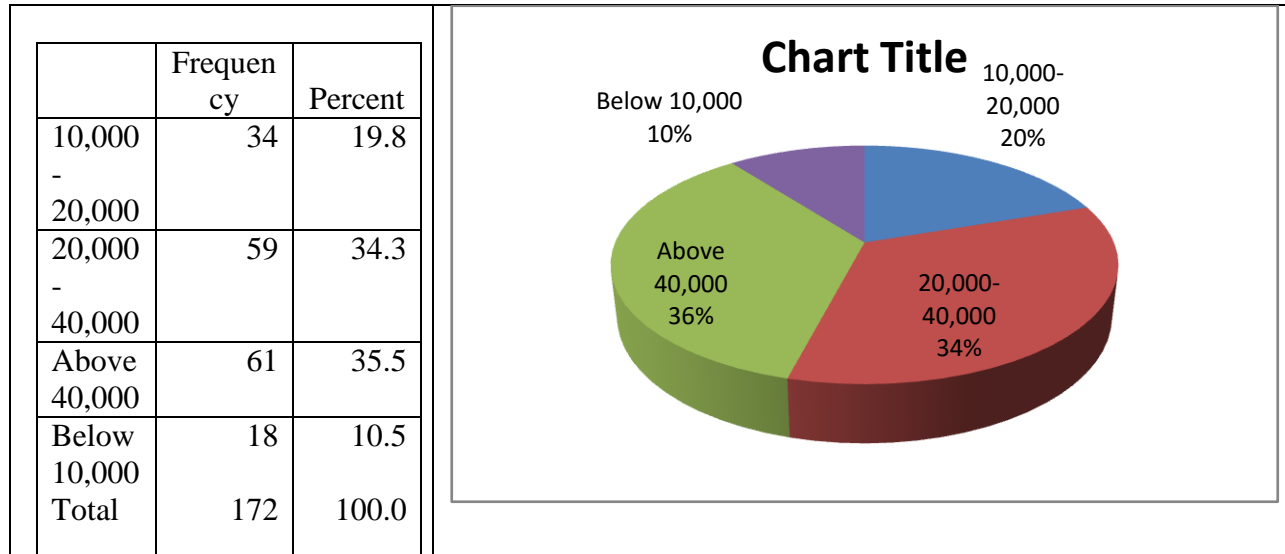
It is found that 33% of our respondents are from age group of 19 to 25 years followed by 36 to 45 years.

**Table/Figure:3 Occupation of the respondents**



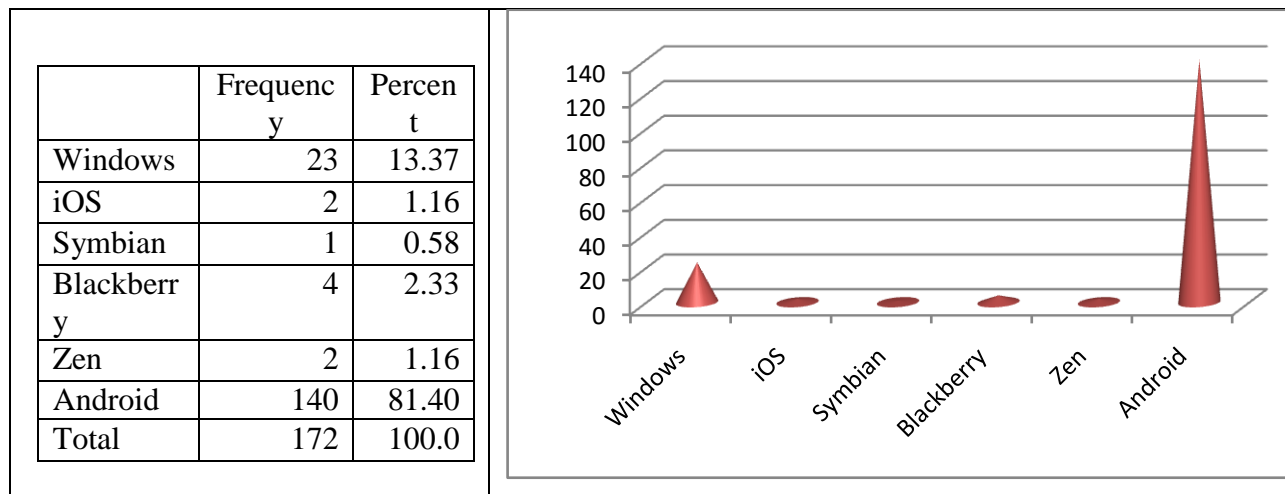
Professionals and Students as respondents are the major users of smartphone.

**Table/Figure: 4 Income of the respondents**



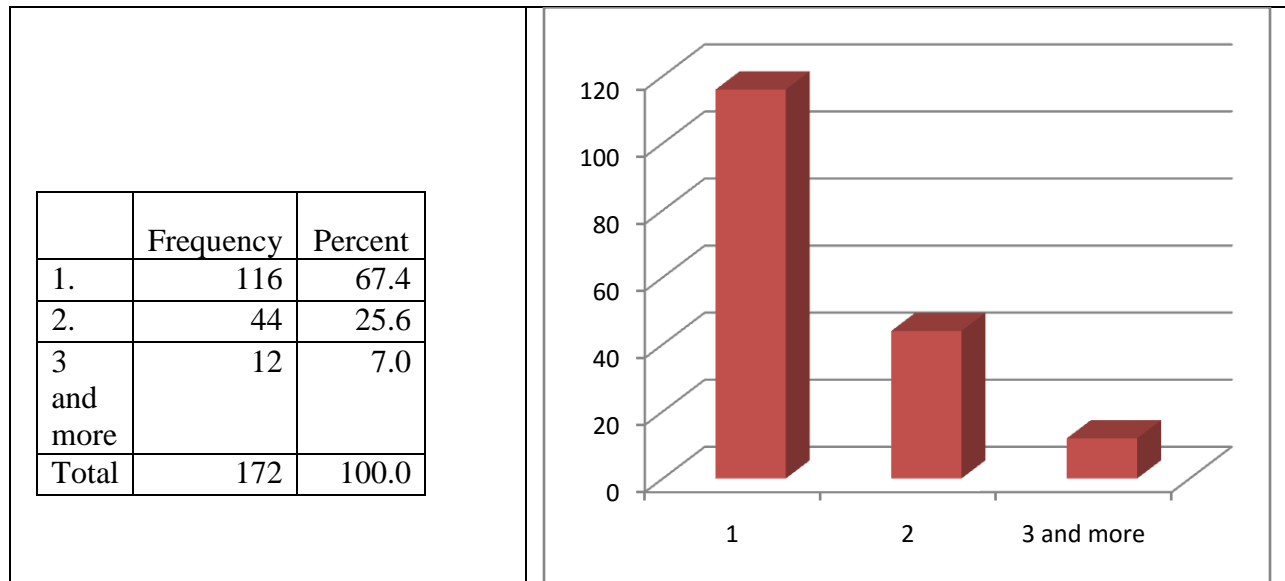
The responders have monthly family Income ranges between INR 20000 to 40000 and above INR 40000.

**Table/Figure: 5 Operating System**



Almost 81% of total respondents are using Android as operating system of smartphone followed by Windows and iOS

**Table/Figure: 6 Usage of Smart phone (in hours)**



67% of our respondents are having single smartphone. 25% have said that they are having two smartphones.

**Table: 7 Cross-tabs: Monthly Income and No. of Smart Phones**

<b>Monthly Family Income (Rs.) * How-many smart phones do you own ?</b>					
		How-many smart phones do you own ?			Total
		1.	2.	3 and more	
	Below 10,000	18	0	0	18
Monthly Family Income (Rs.)	10,000-20,000	19	13	2	34
	20,000-40,000	40	16	3	59
	Above 40,000	39	15	7	61
<b>Total</b>		<b>116</b>	<b>44</b>	<b>12</b>	<b>172</b>

**Table: 8 Cross-tabs: Occupation and hours spends on smart phone**

<b>Occupation * Approximately How-much time do you spend on your Smartphone for various purposes?</b>						
		Approximately How-much time do you spend on your smartphone for various purposes?				Total
		1-3 hours	3-5 hours	Less than 1 hour	More 5 hours	
Occupation	Business	2	2	0	0	4
	Professional	36	6	16	19	77
	Retired	2	0	0	2	4
	Student	0	0	0	1	1
	Student/Intern	35	30	8	13	86
Total		75	38	24	35	172

**INFERENTIAL STATISTICS**

Hypothesis1: There is no significant difference between Gender and Deletion of Smartphone Application

Table: 9 Mean differences between genders wrt deletion of Smartphone application

	<b>Female</b>	<b>Male</b>
When more advertisements are shown during usage	3.56	1.91
When more space is required and more battery is consumed	3.35	2.65
When there is OS support problem for given App	3.46	1.98
Limit of FREE TRAIL Version is over( and you dont want to purchase it)	3.46	1.96
When an App gets crashed frequently	3.42	1.98
When You find it is useless now	3.47	2.71
When an App has complexity in Usage	3.28	2.11
When Apps require Social/Other website Logins	3.40	2.10
When there is issue regarding Privacy and Security	3.59	2.19
When you are frustrated (or other personal reasons)	3.40	2.31



Table:10 Independent *t*-test (gender & deletion of Smartphone application)

		Levene's Test for Equality of Variances		Independent <i>t</i> -test			
		F	Sig.	t	Sig. (2-tailed)	Result	Decision
When more advertisements are shown during usage	Equal variances assumed	113.819	0	11.371	0	0.00 < 0.05	Reject
	Equal variances not assumed			10.62	0	0.00 < 0.05	Reject
When more space is required and more battery is consumed	Equal variances assumed	0.773	0.381	3.59	0	0.00 < 0.05	Reject
	Equal variances not assumed			3.581	0	0.00 < 0.05	Reject
When there is OS support problem for given App	Equal variances assumed	92.088	0	9.631	0	0.00 < 0.05	Reject
	Equal variances not assumed			9.092	0	0.00 < 0.05	Reject
Limit of FREE TRAIL Version is over( and you don't want to purchase it)	Equal variances assumed	96.52	0	10.061	0	0.00 < 0.05	Reject
	Equal variances not assumed			9.482	0	0.00 < 0.05	Reject
When an App gets crashed frequently	Equal variances assumed	99.927	0	9.556	0	0.00 < 0.05	Reject
	Equal variances not assumed			9.018	0	0.00 < 0.05	Reject
When You find it is useless now	Equal variances assumed	0.042	0.838	3.972	0	0.00 < 0.05	Reject
	Equal variances not assumed			3.984	0	0.00 < 0.05	Reject

When an App has complexity in Usage	Equal variances assumed	48.86	0	7.183	0	0.00 < 0.05	Reject
	Equal variances not assumed			6.932	0	0.00 < 0.05	Reject
When Apps require Social/Other website Logins	Equal variances assumed	56.971	0	7.955	0	0.00 < 0.05	Reject
	Equal variances not assumed			7.64	0	0.00 < 0.05	Reject
When there is issue regarding Privacy and Security	Equal variances assumed	34.853	0	7.998	0	0.00 < 0.05	Reject
	Equal variances not assumed			7.751	0	0.00 < 0.05	Reject
When you are frustrated (or other personal reasons)	Equal variances assumed	18.729	0	6.137	0	0.00 < 0.05	Reject
	Equal variances not assumed			6.002	0	0.00 < 0.05	Reject

Hypothesis2: There is no significant difference between age group and application preferences.

Table:11 Age and application preferences (ANOVA)

Particulars	F cal	Sig.	Result	Decision
Social Networking	5.121	.000	0.00 < 0.05	Reject
Music and Entertainment(Movies, Videos )	1.170	.326	.326 > 0.05	Do not Reject
Weather and Map/Navigation Search	2.507	.032	0.03 < 0.05	Reject
News and Banking & Finance	1.023	.406	0.40 > 0.05	Do not Reject
Food/Drink(Including Dining/Restaurant)	1.550	.177	0.17 > 0.05	Do not Reject
Shopping/Retail	1.829	.110	0.11 > 0.05	Do not Reject
Household/Personal Care	1.807	.114	0.11 > 0.05	Do not Reject
Lifestyle/Health	1.374	.237	0.23 > 0.05	Do not Reject

### Hypothesis: 3 There is no relation between OS of a Smartphone and Application Selection.

Table:12 ANOVA : OS of a Smartphone and Application Selection

Particulars	F cal	Sig.	Result	Decision
Games	.630	.677	0.67 > 0.05	Do not Reject
Social Networking	1.935	.091	0.09 > 0.05	Do not Reject
Music and Entertainment(Movies, Videos )	1.648	.150	0.15 > 0.05	Do not Reject
Weather and Map/Navigation Search	2.313	.046	0.04 < 0.05	Reject
News and Banking & Finance	1.639	.152	0.15 > 0.05	Do not Reject
Food/Drink(Including Dining/Restaurant)	2.615	.026	0.026 < 0.05	Reject
Shopping/Retail	4.281	.001	0.001 < 0.05	Reject
Household/Personal Care	.789	.559	0.55 > 0.05	Do not Reject
Lifestyle/Health	1.522	.185	0.18 > 0.05	Do not Reject

### MAJOR FINDINGS

- Majority of the respondents are having single device with Android as Operating System.
- Brand, OS, Good Value of Money and easy to use- are major criteria for selecting a mobile device.
- On an average respondents are spending 1 to 3 hours on a smartphone.
- Calling & Texting, E-mail, Social Networking , web browsing are the major tasks done with smartphone.
- Because majority of respondents are using android device and playstore for the same, they are not facing much problems with an application as compared to those who are having iOS or Windows.
- Social Media, Games, Music and Videos are major categories of application being used by respondents .
- When it was ask on what bases you select an application, majority of the respondents said that Ease of Usage, Availability of an App (Free v/s Paid), Size of an App, Reviews and Internet Data Consumption are concerned factors.
- 40% of respondents complete the required procedure to use an app as soon as they have downloaded an application, followed by the choice of Delete it later on as you found it not useful.

- It was asked to respond for the application that has been deleted in last 30 days, the major responses were for Games, Music and Entertainment, News Banking and Finance, and Shopping/Retails are given the choices.
- More advertisement in application, OS support issue, Social Network Logins and Securities- these are major factors that leads to deletion of mobile app.

## **LIMITATIONS OF RESEARCH AND FUTURE RESEARCH DIRECTIONS**

Few limitations must be acknowledged that suggest caution in generalization. The present study is based on a moderate sample size and conducted online. Therefore the results of this study cannot be generalized. The current study focused on customers living in largest cities of Gujarat, it therefore has not covered residents of smaller towns/villages. However, this study provides an opportunity for the researchers to use larger sample size and arrive at generalization. As mentioned above the research is just a small step in understanding the various constructs related to smart phone applications, correlation/cause effect study has not been covered, future researcher can find a causal link between the variables discussed and their effect. Future research could examine a wider respondent base across the cities of Gujarat state with more diversified sample.

## **CONCLUSION AND IMPLICATIONS**

In this paper we have presented our work-in-progress research and user study towards preferences of various applications in smartphone. Our approach is a blend of both quantitative and qualitative procedures. The range and accessibility of mobile applications is expanding rapidly. Issues such as the small screen size and poor connectivity have an effect on the usage of mobile applications. Apps users value the references of third parties, including service offering ratings and reviews. Those looking for to market mobile apps would be well advised to focus on Word-of-mouth marketing majorly on social media.

## **REFERENCES**

- Anonymous, Smartphone Application Usage amongst Students at a South African University [www.IST-Africa.org/Conference2012](http://www.IST-Africa.org/Conference2012)
- Chin,E., Felt,A.F., Sekar,V., Wagner,D.,(2012), Measuring User Confidence in Smartphone Security and Privacy, Symposium on Usable Privacy and Security (SOUPS) 2012, July 11-13,2012, Washington, DC, USA.

Chun, S.G., Chung, D., Shin, Y.B.(2013), ARE STUDENTS SATISFIED WITH THE USE OF SMARTPHONE APPS? *Issues in Information Systems Volume 14*, Issue 2, pp.23-33, 2013

K.V. Vinay, Vishal K.(2013), SMARTPHONE APPLICATIONS FOR MEDICAL STUDENTS AND PROFESSIONALS, *NUJHS Vol. 3*, No.1, March 2013, ISSN 2249-7110, PP 59-62.

KAVITHA, T.N.R., YOGESWARI, K., A Study On Customer Attitude Towards Smartphones With Special References To Chithode, Erode District., *IOSR Journal of Business and Management (IOSR-JBM)* e-ISSN : 2278-487X, p-ISSN : 2319-7668, PP 33-36

Pistilli,M.D.,Bowen,K.,(2012), Student Preferences for Mobile App Usage, *EDUCAUSE, Research Bulletin*, PP 1-13

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