

Smartphone Operating System Preference Based On Different Personality & Lifestyle Traits Of The Consumer

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Abstract: With smartphone-based social science research gathering attention, it becomes captivating to study how psychological factors viz., personality & lifestyle can predict the liking of a person's mobile phone operating system. For this two major mobile operating system, iOS & Android were chosen. To study personality Big five factor model, containing 44 items was used & for lifestyle, a lifestyle instrument consisting 19 items was used. For the purpose of this study a sample of 216 was collected which was tested using binary logistic regression to predict the user's preference. The model came out with a very minute statistical differences with just one factor of personality, i.e., conscientiousness showing a significant result. These tiny differences still provides some useful information about the users which has an implication for researchers specifically working in the area of Computational Social Science.

Index Terms: Consumer Behavior, Consumer personality traits, Lifestyle, Smartphone operating system.

1 INTRODUCTION

India has the 2nd largest population in the world, which is the reason that mobile phone usage would also be in billions. India is currently ranked 2nd in the world in terms of mobile phone users with a monthly growth rate of 0.085%, the number has gone up to 1,169 million [1]. Using a mobile phone has become an obsession, when a person is using the mobile phone 85 times a day on an average which results in 5 hours of smartphone usage during a day [2]. The individual user's data derived is important, this additionally gives helpful information regarding the operating system that keeps the individual behind the screen [3]. It was 2007 when Apple came out with an Operating System(OS) that changed the face of the mobile phone industry by launching their iPhone operating system for the iPhone, which was later renamed iOS in 2010 [4]. Though Apple Inc. gained the first mover advantage, it was faced with competition from rival companies viz. Google, Blackberry, Nokia, etc. who all came up with their own version of smartphone operating system. The only competitor remaining till date to iOS is Google's Android operating system, which was also launched in 2007 [5]. Demographics have been an important factor for segmenting the market & marketers have used this method to target their desired audience [6]. As there can be homogeneity in the segment on the basis of demographics for e.g. age, gender, income, but when it comes to psychographic characteristics like personality & lifestyle, heterogeneity is visible [7].

Whenever attitudes, motivations, personality, lifestyle are broken down scientifically or factually to decide groups with significantly unique dispositions, the outcome is the introduction of psychographics [8]. Psychographic variables being studied in this research are personality & lifestyle of the consumer as Psychographic profiles of consumers helps in shedding light on what consumers wants & how their behavior is changing or not changing [9]. Personality is considered as an important trait in consumer behavior while describing an individual [10]. Few studies have focused on predicting the smartphone operating system on the basis of personality[3, 11, 12, 14]. This study emphasizes on the use of Big-Five Personality Model by McCrae & John in 1992 to assess the extent of synergy between individual personality traits & smartphone operating system. Using psychographics will facilitate communicators improve the standard & accountability of their campaigns by narrowing down to the foremost receptive audience for his or her message [7, 15]. In the context of consumer behaviour, lifestyles mirror various ways of living and totally different patterns of consumption. Consumer's lifestyle guide their purchasing decision as it gives a deep insight of how a consumer behaves & what motivates their final purchase decision [8]. [15] defines lifestyles as 'patterns of action that differentiate people'. The basic objective of any lifestyle study is to understand the customer in depth, which eases the job of effective communication & efficiently marketing the product [14, 16, 17, 18]. This study aims to assess the extent of fusion between individual personality & lifestyle traits with smartphone operating system. In Indian context, no study has been conducted to relate the psychographic characteristics with the mobile phone operating system preference. This paper will take Big-Five factor by [10] as a base for personality study & lifestyle scales established by [8] for lifestyle study.

2 LITERATURE REVIEW

In psychographic studies, apart from structural barriers, inherent behavioural patterns of individuals may also predict the use of smartphone [12]. Personality is a steady arrangement of attributes and tendencies that decide peoples' shared characteristics and contrasts in thoughts,

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feelings, and actions [19]. Big five personality factors gives a deep & meaningful insight of the major personality differences, as its dimensions include extraversion, agreeableness, conscientiousness, neuroticism & openness to experience [20]. It is a hierarchical model representing personality at the broadest level of abstraction [21]. People that are extraverted will in general act in an all the more cordial and social way. The quality of agreeableness alludes to examples of behaviour set apart with general concern for other people and consistence with requests. Conscientiousness alludes to the propensity to be organized, trained, and by and large reliable. Neuroticism or emotional stability means having steady dimensions of nervousness, hostility, or discouragement compared to emotional fluctuation. Openness to experience refers to the inclination to be imaginative, creative, or scholarly [12]. Past studies have been conducted to study relationship between individual's personality traits with mobile phone / mobile phone operating system. It is more likely that iPhone users are female, younger in age who view their phone as a status symbol. When it comes to Honesty-Humility levels, iPhone users scored less on that and high on emotionality levels [3]. [11] established a relationship between smartphone usage & Big-Five personality traits & inferred Big-Five personality traits can be indicated by obtaining the aggregate features gathered from smartphone usage of the individual. As these studies used HEXACO-60 along with avoidance similarity scale model of personality & the Ten Item Personality Inventory (TIPI), there remains a gap to use the most used personality testing approach, i.e., Big Five Inventory (BFI) to study the relationship between personality traits & smartphone operating system. In the past studies have been conducted in terms of personality & mobile phone preference [22, 23, 24], but all these found relationship between mobile phone usage & personality. There remains an unexplored arena of how an individual's personality lets him choose between the two major mobile phone operating system available in market. Therefore, the proposed hypothesis are as follows:

H0: There is a significant difference in the personality factors of the iOS & Android OS users.

H1: There is no significant difference in the personality factors of the iOS & Android OS users.

As demographic segmentation is the most sought after procedure used by the marketers, there exists a need to go beyond this traditional approach & explore different psychographic factors as individual within a same demographic segment might differ in psychographic makeup [16]. In most people, the connections between personality and lifestyle practices are generally steady, which proposes that the connections are likewise unsurprising, somewhat. Lifestyle estimates individuals' activities as far as how they invest their energy, where they place significance on in their environment, their perspectives of themselves and their general surroundings and some fundamental attributes, for example, their phase in the lifecycle, income, education and where they live [16]. How a consumer makes the final purchase decision is somewhat decided by his/her lifestyle. So in order to maintain a certain lifestyle, consumers are motivated to buy certain products [25]. Consumer lifestyles have been contended to be an essential antecedent in anticipating

consumer shopping behaviour [26, 27, 28]. Lifestyle is a key influencer of consumption behaviour and will, in general, give more knowledge about why goods and services are bought, along these lines upgrading the ability of management in viably segmenting their target market and conveying to them [8]. To measure lifestyle of an individual, the Activities, Interest, and Opinion (AIO) developed by [29] is the most used approach as lifestyle consist of patterns in which a consumer behaves, & these behavioural patterns are represented by consumers' AIO [30]. Sports, work, entertainment, and hobbies comes under the heading of Activities; house, job, family, fashion and food comes under the heading of Interest; social issues, politics, education, business, and outlook about the future comes under the heading of Opinions. [31]. AIO approach, though being a widely used approach when it comes to lifestyle study [6, 14, 16, 29, 32, 33], the limitation in using this scale comes when the study is not too extensive or in-depth lifestyle analysis. As AIO scale contains 75 items which becomes too extensive for this research, a 20-item lifestyle scale developed by [8] is being used so as to keep the research concise. Orientation towards a particular fashion trend impacts an individual's lifestyle as they need latest & excellent things throughout their life. Lifestyle is not always about one's own life as it includes how conscious an individual is towards his/her family & when it comes to decision making process it is considered one of the major factors, especially in India [34]. How much adventure or excitement does an individual seeks in his/her life helps in identifying the lifestyle of that person [35]. In the Indian context, tradition plays a crucial role & is considered important while studying lifestyle & consumer behaviour [36]. Many people like to surround themselves with visible cues that make them stand apart from others. Such people are called status seekers. This dimension gives a lot of information about the lifestyle of an individual & was reviewed on Indian consumers by [38]. Therefore, the proposed hypothesis are as follows:

H0: There is a significant difference in the lifestyle factors of the iOS & Android OS users.

H1: There is no significant difference in the lifestyle factors of the iOS & Android OS users.

A mobile operating system(OS) is a platform on which application programmes can run on mobile devices such as smart phones or tablets. Mobile OS design has evolved from PC-based OS to an embedded OS to the latest smart phone based operating system [38]. Technological advancement in hardware, software & internet are the major driving force in this evolutionary growth in mobile OS [39]. As per the reoport published by stats counter GlobalStats, two major players in mobile OS are Google's Android & Apple's iOS. In it's early days, iOS captured a mere market share (world wide) of 1.49% (Jan. 2011), whereas Android was at a meagre 0.63%. The reason for this difference could be possible of previous success of Apple's Macintosh & iPods & Android was trying to walk on an uncharted territory, therefore gaining less market share as compared to iOS. With the passage of time & as the technology became more advanced, Android OS picked up the speed & stands tall as the market leader with 37.55% (Jan. 2019) market share (word wide) whereas Apple captures 14.05% market share for the same period.

Android's OS rise can be credited to it being an open source software & most of the mobile phone companies opt for Android OS for their devices. iOS on the other hand being exclusive to iPhone, lacks in gaining market share on this basis. When it comes to Indian market, there was a huge difference in the market share of these two operating systems. Android OS captured major chunk of the market with 44.33% (Jan. 2016) of share as compared to Apple's iOS with a mere share of 1.62% (Jan. 2016). By the end of 2016, android OS moved further ahead in capturing the market with a staggering 61.24% market share, eventually becoming the market leader. iOS on the other hand captured 2.07% market. As iPhone was never made for masses, it was considered owing an iPhone was a status symbol & a sign of moving up in the world [40], therefore market share of 2.07% is self-explanatory. Whenever someone talks about Apple as a brand, luxury & wealth are the words people like to associate it with [41]. The latest data shows that Android OS has further captured more market share & stands tall at 70.22% (Dec. 2018) market share whereas, Apple's iOS share is only 2.18%. With more mobile phone manufacturers coming in the market, major chunk being Chinese manufacturer, has helped Android climb up the tree. iOS exclusivity hinders its market growth, but that does not mean Apple is not a preferred brand, as the brand image & brand identity Apple has built over the years, makes it the most sought after mobile phone [41].

3 RESEARCH METHODOLOGY

3.1 Sampling

The tool used to collect the responses for this study is a questionnaire, which was distributed using online as well as offline methods amongst 352 respondents living in NCR. Sample size was selected on the basis of study done by [42], therefore, a total of 352 respondents were considered as fair enough for this research out of which 216 were complete & found fit for use. 103 (47.7%) out of these were women & 113 (52.3%) were men. Data related to operating system preferences shows that 52.8% of the respondents use iOS & 47.2% use Android OS. A further bifurcation reveals that Android OS preference amongst women is higher (52%) as compared to men (48%) whereas men prefer using iOS (44%) as compared to women (56%).

3.2 Measures

On the basis of rationale of study, two measures are used to predict the Operating System preferences amongst respondents. Firstly, we used Big Five Personality traits by [43] to measure the personality traits of the respondents. Secondly, Lifestyle scale by [8] was used to give a more detailed insight of the respondents. A pilot study was conducted before distributing the full fledged questionnaire. The basic purpose of this pilot study was to decide if the instrument could be easily understood by respondents and guarantee the reliability quality of the instrument. 25-40 sample size is recommended while conducting pilot study [44], thereby, researcher conducted a pilot study on a sample of 30 individuals. It was suggested to ease the language of question & reduce the length of the questionnaire. Summary statistics & reliability coefficients are discussed in details in table 1. Reliability of each variable is above 0.7 except Openness (0.575) under big

five personality trait. However, [45] has argued for the value of Cronbach Alpha being an estimator of reliability.

Table 1- List of Measures, Variables, Summary Statistic & Reliability Coefficients(N=216)

Measures	No. of items	Variables	M	SD	α
Big Five Personality Traits	8	Extraversion	3.24	0.84	0.768
	9	Agreeableness	3.4	0.49	0.711
	9	Conscientiousness	3.41	0.52	0.705
	8	Neuroticism	2.91	0.53	0.717
	10	Openness	3.36	0.49	0.575
Lifestyle Scale	5	Fashion oriented lifestyle	3.78	0.96	0.939
	3	Family oriented lifestyle	3.97	0.86	0.89
	4	Attitude driven lifestyle	3.61	1.09	0.942
	2	Traditions driven lifestyle	3.72	1.13	0.884
	3	Status seeking lifestyle	3.90	0.98	0.911

Descriptive statistics on the basis of different operating system is given in table 2. There are differences but not significant amongst iOS & Android users. iOS users are slightly more extraverted, open to new experiences, i.e., iOS users tend to be more imaginative, curious & come up with original ideas. According to the results mentioned in table 2, iOS users are less emotionally stable (neuroticism), which confirms the findings of [3]. Looking at the lifestyle aspect of users of two different OS users, it is found that iOS users have a more fashion oriented & status seeking lifestyle. They are slightly less in terms of living a family oriented lifestyle & pay slightly more emphasis on attitude driven lifestyle.

Table 2- Descriptive Statistics of iOS & Android users

Variable	iOS(n=114)		Android(n=102)	
	M	SD	M	SD
Extraversion	3.2522	0.8317	3.2267	0.8715
Agreeableness	3.4024	0.5046	3.4105	0.4773
Conscientiousness	3.3246	0.546	3.5	0.4844
Neuroticism	2.9287	0.5101	2.9044	0.5515
Openness	3.3404	0.5053	3.3912	0.4925
Fashion oriented lifestyle	3.8561	0.9356	3.6882	0.976
Family oriented lifestyle	3.9649	0.8395	3.9706	0.8852
Attitude driven lifestyle	3.625	1.0815	3.6029	1.1032
Traditions driven lifestyle	3.7412	1.1016	3.7059	1.176
Status seeking lifestyle	3.9298	0.937	3.8595	1.0228

3.3 Personality & Lifestyle traits

Before running the test for personality & lifestyle traits, samples were investigated on their demographic composition, in which it was detected that there is neither any significant difference for gender of the participants ($\chi^2 = 1.416$, $df = 1$, $p=0.23$) nor for the monthly income of participants ($\chi^2 = 1.752$, $df = 4$, $p = .0781$), but the cross tabulation showed iOS users having access to more financial resources as compared to android users. The technique used to analyse the personality & lifestyle aspect of the respondents is binary logistic regression where operating system of smartphone was predicted by Big five personality traits & Lifestyle traits along with gender & income. Hierarchical analysis approach was applied, featuring two stages. In the first stage we entered the demographic variable (gender & income) to predict the operating user preference. In the second stage, we entered demographic variables, personality traits & lifestyle traits, to check whether this addition to the model will lead to a significant improvement of the model's fit. Differences were largely absent between iOS & Android users in the data presented in table 3. Model 1 accounts for 0.9% of variance (Nagelkerke $R^2 = 0.009$). After that we entered the personality & lifestyle constructs in the second step which showed an improved result in the predictive power of the model, but was not statistically significant ($\chi^2 = 11.73$, $df = 12$, $p=0.468$). Variance explained by the Model-2 rose to 7.1% (Nagelkerke $R^2 = 0.071$). The only variable that came out to be statistically significant was Conscientiousness amongst the big five personality factors. Higher monthly income did not predict the likelihood of using iOS (OR = 0.99). Women are more likely to opt for iOS, but that effect did not come out to be statistically significant ($p = 0.17$). An overall weak relationship exists in both cases as Odds ratio were either close to or less than 1, which is far away from the thresholds of strong effect, as positive associated value comes around 3.0 (Behling & Law, 2000).

Table 3- Binary Logistic prediction Model(0=iOS, 1=Android)

	Model 1		Model 2	
	$R^2=0.009$; $\chi^2=1.445$		$R^2=0.071$; $\chi^2=11.730$	
	N=216		N=216	
	b	OR[95% CI]	b	OR[95% CI]
Gender	0.32	1.37[0.802,2.363]	0.401	1.493[0.835,2.670]
Income	0.017	1.01[0.832,1.244]	-0.001	0.999[0.808,1.236]
Extraversion	-	-	0.146	1.158[0.760,1.763]
Agreeableness	-	-	0.264	1.302[0.698,2.427]
Conscientiousness	-	-	-0.755	0.470[0.248,0.890]
Neuroticism	-	-	-0.76	0.927[0.521,1.649]
Openness to Experience	-	-	-0.92	0.912[0.423,1.966]
Fashion Oriented Lifestyle	-	-	0.29	1.336[0.945,1.888]
Family Oriented Lifestyle	-	-	-0.181	0.835[0.521,1.338]
Adventure Driven Lifestyle	-	-	-0.007	0.993[0.759,1.300]
Traditions Driven Lifestyle	-	-	-0.041	0.960[0.697,1.322]
Status Seeking Lifestyle	-	-	0.081	1.084[0.751,1.564]

4 DISCUSSION

Today, the rise of cell phones is as of now changing our lives and will in all likelihood keep on doing as such in the following years to come, as mobile technology turns out to be increasingly more pervasive all around the globe. The ever so happening innovation presently impacts on different spaces of our lives, yielding complex results that reverberate all through society [47]. With advancement in technology & social science research benefiting from the potential this field offers, there are number of topics which needs to be discussed beforehand for e.g. privacy of data [48]; transmission of data [49]; quality of apps [50]. With these major issues related to mobile & science apps , the present study aims to predict the operating system preference of the users based on their personality & lifestyle traits. For the study we conducted a step-wise analysis procedure & it came out with a significant result for conscientiousness. Along with socio-demographic variables, four out of five variables in personality & five variables of lifestyle did not yield a significant result. The outcome of the effects observed is very small, in other words did not have a big effect size, which is in accordance to the study of [47]. Therefore, hypothesis assuming differences in personality & lifestyle traits of the users of two different OS (iOS & Android) are rejected. According to [3], iOS users are younger when compared to those using Android OS, which was confirmed by our study. Only 32% respondents were willing to switch their OS platform in near future as only 37% of them have faced lag sometimes in their mobile phones.

5 CONCLUSION

It would not be wrong to say that, with rapid growth in the area of smartphone research, innovation occurs according to the consumer's psychological variables like personality & lifestyle. This study was conducted to unify the smartphone - based social science research. As it is believed that

personality & lifestyle of different mobile phone OS is different, this research tried to imply that prospective customers & OS specific apps needs to be target accordingly. But our research concludes that psychological factors play a negligible or very minute role in identifying a person's mobile OS preference. Only factor of personality that showed a significant result was conscientiousness. Differences, though minor are visible in terms of iOS users being slightly more extraverted & neurotic along with having a status seeking & fashion oriented lifestyle.

6 LIMITATIONS & FUTURE SCOPE

Despite using well accepted & widely used model of personality, the Big Five model, there remains a limitation of generalizing the result on the basis of the model used for testing, similarly for lifestyle traits, a newly developed scale by [8] was used which did not give a statistically significant result. Another limitation is related to how the mobile phone was purchased, as it is possible that the mobile phone may have been gifted or parents might have bought the phone for younger respondents. Many respondents may have bought a certain brand just to get closer to their actual or ideal self. So, establishing cause & effect relationship becomes troublesome. Restricting the study to a limited number of sample (N = 216) & too as specific geographic area poses as a limitation to generalize the study of personality & lifestyle. With mobile phone becoming an imperative part of everyone's life, research related to this area is picking up the speed & becoming more complex with the passing day, it is noteworthy point that preference for that mobile phone can be influenced by the person's personality & lifestyle traits. Though our study failed to prove any significant relationship between mobile phone OS & personality & lifestyle, future study holds the scope to factor in different personality models (for e.g., Allport's trait theory or Cattell's 16PF trait theory) & lifestyle models (for e.g., AIO model) to predict the user's preference of a specific operating system not only for mobile phones but for laptops/PCs also. Apart from considering psychological aspect of consumer, future research can aim at identifying socio-demographic factors that can affect a person's mobile OS preference.

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