

Factors Influencing Smartphone Adoption: A Study in the Indian Bottom of the Pyramid Context

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ABSTRACT

With each every day, the number of people using cellphones grows. In India, the rise of cellular subscriptions has been quite rapid during the previous five years. Low-income persons, on the other hand, have a substantially lower mobile adoption rates. Corporations are attempting to investigate the 'Bottom of the Pyramid' sector of low-income individuals due to the approaching exhaustion and intense rivalry of industries on the top sides of the socio-economic ladder. To investigate the BOP marketplace for cellphones, one must first understand the elements that influence cellphones usage at the BOP. With regard to the actual research on user acceptance, our research investigates these aspects. With 266 reliable information pieces, a logical approach is constructed and evaluated. The suggested methodology is put to the test using hierarchical linear modelling. According to the findings, 'achievement expectation,' 'hedonic motivation,' and 'reported amount of money' all had a beneficial influence on the 'facilitating conditions' of using cellphones at BOP. The effects of 'smartphone anxiety' and 'smartphone personality' on 'facilitating conditions' have been discovered.

KEYWORDS

BOP (Bottom of Pyramid), Consumers, Demand, Smartphone, Technology.

1. INTRODUCTION

The cellphones is also one of the more widely utilized technical gadgets since the invention of telecommunications. There have been 1170.18 million Wi-Fi cellular subscribers in India. Nevertheless, the percentages of cellphone subscriber prevalence in private and public Indian varied significantly. In metro Cities, the mobile subscriber base is 167.97, but in rural Areas, it is just 57.31. Cellphones have aided in the reduction of the information literacy and societal withdrawal. In comparison to the top layers of the socioeconomic system, the reduced relative have a larger sense of socially separation, and as a result, they look to enhance purchasing of contemporary items and technology in attempt to alleviate this separation[1]. With its expanding prominence and decreasing price, the cellphone has the opportunity to infiltrate the 'Bottom of the Pyramid (BOP)' category of low-income individuals, since software consumerism may help them meet their idealistic demands. As a result, it's worth looking at the elements that influence cellphone uptake at the BOP. BOP refers to the world's poorest people, who have a daily per economic status of less than US\$2 and are associated with a low knowledge, failing hygiene, inadequate access to power, a struggle to satisfy basic requirements, and feeling of separation. With a monthly earnings of US\$2.44 or less, 29.5 percent of India's

populace lives in severe distress. We've established the highest limit for BOP at '13,152 for this study, assuming five people per household and a daily living expenditure of US\$5 per person with a GDP (Gross Domestic Product) per capita of 17.536[2].

The author found Prahlad's proposal of US\$2 per individual per day to be too obsolete when determining the maximum income criterion for BOP eligibility. The higher cut-off per population value of US\$3,000 or more per year, from the opposite extreme, is regarded too high for a poor nation. In order to better understanding cellphone uptake at the BOP, our research first investigates the key elements that influence technological acceptance in order to develop a conceptual approach, which is then experimentally tested. The search of the publications, goals, justification for the research, conceptual underpinning, methods, evaluation, discussions, conclusions, management significance, and limits of the investigation are all covered in the succeeding parts[3].

The goal of this study is to determine the influence of non-essential expenditures (particularly cellphones) and consciousness on the psychological health of BOP consumers. It blends conceptual framework and personality theory to find out how consciousness influences the link amongst cellphone intentionality and psychological health. According to psychology, a matter of speculation is group-based and disclosed via cognitively, attitude, or behaviour consequences. Social categorizing is an illustration of a conceptual consequence, where favouring a grouping is an indication of an attitudes conclusion and following group cohesion is an illustration of a mental process[4].

Due to various their consuming inadequacies, bottom-of-the-pyramid consumers are constantly characterized as imperfect and disgruntled consumers in rampant consumerism. Consumers in the BoP divide themselves into categories depending on their spending habits, classifying the impoverished as poor and the wealthy as wealthy. Customers in the lower income bracket strive to be more like the wealthy and gain social inclusion by making expenditures that represent their increased socioeconomic standing. As a result, non-essential expenditures are considered as a way to alleviate the detrimental consequences of characterization and discrimination of BoP consumers in the academic framework of communal attribution theory. The consciousness hypothesis connects people's personalities, motivations, and optimum performance. This economic theories core concept is that motivated may be internal or artificial, because when it mixes with environmental influences, it motivates a person to satisfy their needs for independence, ability, and connectedness[5].

While it has been indicated that comprehensive deficiencies lower subjectively well-being, Martin and Hill argue that if the

mental requirements of agency, competence, and belongingness are met, the negative effect of poverty on subjectively well-being may be mitigated. Market analysis has focused on the behavioural outcomes connected with consuming for medium and higher income sectors, but the cognitive result linked with purchase for Consumers especially remains elusive[6]–[8]. As a result, this study investigates how non-essential items increase the perceived well-being of BoP consumers, who are often stereotyped as dissatisfied. This research intends to assess the influence of forbearance on psychological well-being of BoP consumers in the setting of misfortune, in addition to exploring the link amongst non-essential expenditures, personality, and subjectively well-being[9].

Perseverance an under topic in Foreign management scholarship, thus examining its influence on BoP consumers' consciousness and emotional well-being contributes to the current body of knowledge. Individuals in the lower income bracket are a fascinating group even though, notwithstanding their financial limits, they buy ambitious goods and often sell off essential requirements to do so. Even increasingly wealthy people make business amongst required and non-essential things, the crucial significance of the exchange makes it important to research this occurrence among BoP clients[10].

2. LITERATURE REVIEW

Q. Jiang and Y. Li had discussed about the knowledge transfer is influenced by a number of variables. Modules called to a user's own judgement call processes when it comes to purchasing and using new goods. According to preceding studies, 'perception utility' and 'ease of use' are important elements in tech innovation. In the Mechanistic Explanation of Reception and Use of Information, the researcher used the words 'actual behavior' and 'customer satisfaction' for 'assessed value' and 'ease of use,' accordingly. Performance expectancy (PE) is explicitly labelled as a person's experience that using a technological mesh topology will support him or her improve job productivity. 'Performance expectancy,' 'external motivations,' 'job fit, "relative advantages," and 'output expectancies' are all characteristics that have been linked to PE in prior research. The quantity of ease related with the usage of the systems or technique has been characterized as Effort expectancy (EE). The phrase 'usefulness and simplicity of use' was coined by the authors from the Innovation Diffusion Theory. It is possible to enhance the development of m applications by providing them simple to use and understand. In several technological acquisition studies across a range of areas, 'subjective norm of use' is considered as an important element[11].

C.-H. Nam has discussed about the introduction that has been linked to the expressed intention to use in a variety of surveys. Adaptation follows a good behavioural desire to employ a technology. The authors considered 'behavioural intention' (BI) as the extent to which a person has made deliberate arrangements to carry out or deny a future behavior. The cognitively approach has a significant notion that worry and

personality play a big role in human 'BI.' When it comes to completing a behavior, nervousness is described as triggering nervous or physiological emotions. Adults' ideas about their skills to manage their behaviours to create desired results are referred to as "self-efficacy." Bandura was the first to pioneer this concept. According to Puglisi, consciousness has received a lot of attention in recent years. Self-efficacy has been established as an important study concept in the field of Data Warehousing. Furthermore, the author discovered that self-efficacy is linked to an e-learning platform's quality and performance. The influence of system functioning on education efficiency is moderated by academic self, according to the author. People in the BOP section's behaviours are constantly influenced by pecuniary restrictions[12].

M. Mufingatun has discussed about the budgetary constraint forces people to seek for better 'value for money.' They are more likely to look for higher-quality items at lower costs. In the buying judgement call process, impression of monetary worth is particularly important for the BOP, since this group of individuals anticipates a higher 'reported dollar amount'. The author characterized PMV as a participant's perception of the cost's acceptability in proportion to their observed advantages and preferences for the service. In a variety of circumstances, modernization has been studied both philosophically and experimentally. The majority of innovation acquisition experimental investigations are conducted in industrialized nations. In emerging nations, assessments on tech innovation need more emphasis. Scientists argue that research on the deployment of innovative mobile-based applications at the BOP is necessary. There is no major research that we are aware of that specifically examines cellphone uptake at the BOP. As a result, our research aims to fill this vacuum by investigating and experimentally assessing the variables that influence cellphone use at the BOP inside this Asian setting[13].

Research Question:

- What are the factors of smartphones adoption?
- What is Empirical model?

3. METHODOLOGY

3.1 Design

For experimental verification of the conceptual foundation, we employed structurally equations modelling (SEM). SEM is carried out in R using the 'Lavaan' program. To ensure that the constructions are trustworthy, we assessed Cronbach's alpha value and composites durability. To verify for multivariate normality, composite reliability ratings are utilized. Typical deviation is used to assess the measurements woman's inductive and deductive validity. Several indexes, notably as the results show errors of approximations, normalized root mean square residual, chi-square, coefficient of determination index (CFI), and Gordon index, are used to assess the model's accuracy of the framework. Figure 1 shows the Theoretical Framework of smartphone adoption.

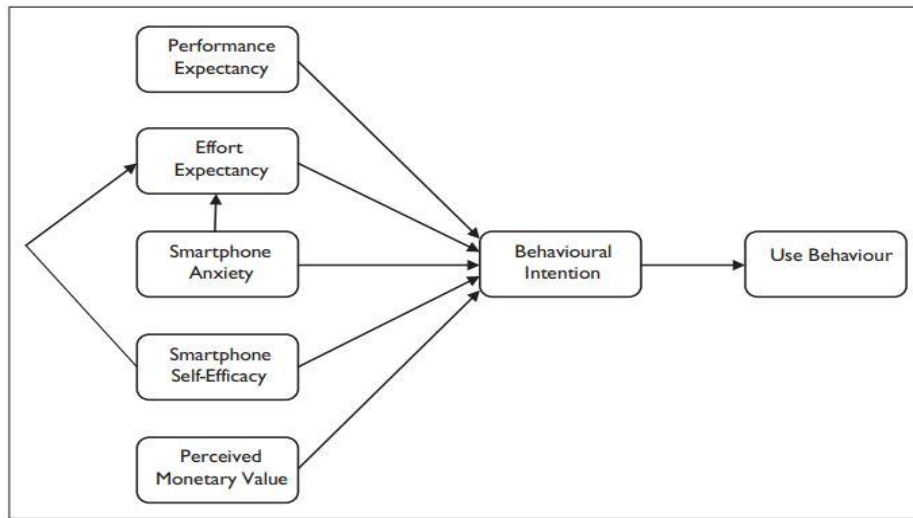


Figure 1: The above figure shows the Theoretical Framework of smartphone adoption

3.2 Instruments

3.2.1 Performance Expectancy

The degrees whereby an individual's believes that employing a technique will assist human in improving work effectiveness is referred to as efficiency expectation.

3.2.2 Effort Expectancy

"The degrees of easy connected with the usage of the technology" is how effort expectation is described.

3.2.3 Smartphone Anxiety

The relentless assault of textual notifications and our frequent digital networking involvement on our cellphones, according to professionals, might have a negative impact on our mentally wellbeing. From the COVID-19 epidemic to the 2020 election, our smartphones can serve as a natural pipeline to worry by providing a constant supply of disturbing material at a time when we are already stressed.

3.2.4 Smartphone Self-Efficacy

A person's conviction and judgement about their abilities to use a smart telephone for a certain activity is referred to as mobility consciousness.

3.2.5 Perceived Monetary Value

A company's opinion of a commodity or provider's quality or attractiveness to them, particularly when compared to a supplier's offering, is known as consumer opinion. The price that the audience is prepared to spend for a commodity or services is used to determine consumer perception.

3.2.6 Behavioural Intention

This applies to the motivating elements that impact a certain activity, with the greater the purpose to conduct the behaviour, the most probable it will be accomplished. Attitude and psychological new standard - This is the notion that the majority of individuals accept or disapproval of a particular conduct.

3.2.7 Use Behaviour

Because use behaviour alludes to a company's ongoing commitment, "degree of use" (Black 1982) is just as essential

as original acceptance. The volume of use (use regularity) and the grade of utilization are referred to as degree of use.

3.3 Data Collection

The author has used the criterion of a home expenditure of less than \$13,152 per monthly and an aged limit of 18 years to pick the responders. Data was obtained in Assam and Delhi, India, from either socioeconomic locations. The greatest attempt is required to address the sectors where individuals confront difficulties in terms of discretionary money, energy, informational exchange, and secondary education.

In SEM, a sample size of 200 is recommended as a maximum (Kline, 2005). In SEM, Bentler and Chou (1987) said that a study sample of ten per good psychometric item is sufficient. We have 23 valid measuring scale items in our investigation, which necessitates a statistical power of 230. On a Likert scale of 1-5, each item is rated. The questionnaire was given to 278 people, and 266 data points were deemed to be legitimate, resulting in an acceptable reply rate of 95.68 percent. We were able to get a high percentage of legitimate responses by using a face-to-face information gathering approach.

3.4 Data Analysis

3.4.1 Empirical Model

We used 266 genuine sets of data to test the suggested hypothesis. The suggested version is put through its paces in two stages: construct validity testing and architectural modelling development. The concepts and related measuring scale items' dependability, composite dependability, and divergent accuracy are all confirmed using an estimation procedure. Because the outer loadings of these items is less than 0.5, our research instrument has discarded one item of PE (PE3), one article of SA (SA5), and two items of SSE (SSE2 and SSE4). The requirements of consistency, concurrent validation, and divergent veracity are met by all of the additional measuring sections measuring. The internal consistency reliability verifies the required construct-to-construct linkages. At the 95% certainty interval, all of the assertions excepting from the third ('SA' is adversely associated to 'BI') and fourth ('SSE' is positively related to 'BI') have adequate 'p' values. Our study's experimental framework is

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divided into two sections: the measurements framework and the confirmatory factor.

3.4.2 Measurement Model

The alpha coefficient of every object is checked first in the measuring items. In attempt to match the measuring tool, Hu and Bentler (1999) recommended a maximum latent construct of 0.5 for each component. Except for PE3, SA5, SSE2, and SSE4, all of our elements measuring have a correlation value greater than 0.5. The next stage in the measuring method is to ensure that the constructions are reliable. Convergent validity is confirmed by a Cronbach's alpha value of 0.7 or above for every construct's approved measuring components measuring (Churchill, 1979). All constructions' aggregate dependability is determined to be greater than the minimal allowed value of 0.7.

The structure validity, Cronbach's alpha, and internal consistency scores for the subjects and structures. The author utilized the AVE of the approved components measuring to validate the correctness of the constructions.

To meet the criteria of construct validity, fixed the minimum value of AVE as 0.5. The square root of AVE (average variance extracted) of each concept should be larger than the correlations among components, according to the requirements for verifying psychometric properties. In our sample, both the converging and discriminatory validation conditions are met. Overall estimates of AVE, square root of AVE, and correlations among components. All of the aforementioned scores are determined to be adequate, validating the model's reliability of the items. The convergent validity indexes and their eventually introduced shown in Table 1.

Table 1: Constructs and Measurement Scale Items

Construct	Measurement Scale	Source
Performance expectancy (PE)	Using smartphone enables me to accomplish tasks more quickly (PE1)	Venkatesh et al. (2003)
	I believe that using smartphones would help me to communicate faster (PE2)	Contextual
	Smartphones would be a great device to access public services easily (PE3)	Contextual
	Using smartphones increases my productivity (PE4)	Venkatesh et al. (2003)
	I would find smartphones useful in life (PE5)	Venkatesh et al. (2003)
Effort expectancy (EE)	I would find smartphones easy to use (EE1)	Venkatesh et al. (2003)
	I am confident to learn any application installed in smartphones (EE2)	Venkatesh et al. (2003)
	My interaction with smartphones would be clear and understandable (EE3)	Venkatesh et al. (2003)
	I think smartphones are user friendly (EE4)	Contextual
	It would be easy for me to become skilful at using smartphones (EE5)	Venkatesh et al. (2003)
Smartphone anxiety (SA)	I feel apprehensive about using smartphones (SA1)	Venkatesh et al. (2003)
	I feel nervous to use smartphones (SA2)	Venkatesh and Bala (2008)
	Using smartphones is somewhat intimidating to me (SA3)	Venkatesh et al. (2003)
	I hesitate to use smartphones for fear of making mistakes I cannot correct (SA4)	Venkatesh et al. (2003)
	It scares me to think that I could lose a lot of information using smartphones by hitting the wrong key (SA5)	Venkatesh et al. (2003)
Smartphone self-efficacy (SSE)	I could complete a job or task using a smartphone if there was no one around to tell me what to do as I go (SSE1)	Venkatesh and Bala (2008)
	I have the ability to explore smartphone applications for easing my work (SSE2)	Contextual
	I could complete a job or task using smartphones if I could call someone for help if I get stuck (SSE3)	Venkatesh and Bala (2008)
	I could complete a job or task using smartphones if I had just the built-in help facility for assistance (SSE4)	Venkatesh and Bala (2008)
	I could complete a job or task using smartphones if I had a lot of time to complete the job for which the application was provided (SSE5)	Venkatesh and Bala (2008)
	I could complete a job or task using smartphone applications if I found the application interesting (SSE6)	Contextual
Construct	Measurement Scale	Source
Perceived monetary value (PMV)	I think smartphones are reasonably priced (PMV1)	Dood et al. (1991), Kang and Maity (2012), Kim et al. (2008)
	I think smartphones offer value for money (PMV2)	Dood et al. (1991), Kang and Maity (2012), Kim et al. (2008)
Behavioural intention (BI)	I intend to use smartphones in future (BI1)	Venkatesh et al. (2003)
	I predict I would use smartphones in future (BI2)	Venkatesh et al. (2003)
	I plan to use smartphones in future (BI3)	Venkatesh et al. (2003)

4. RESULT AND DISCUSSION

The author has discussed about the Factors influencing smartphone adoption: A study in the Indian bottom of the pyramid context. Manufacturers must strive continue providing commodities which have become parts of the consuming goods comprising of nutrition, excellent healthcare, protection, social connection, autonomy, and spiritually, which are extremely essential for reaching the purpose of comprehensive human happiness. The conclusions of this study have societal implications since, offered a decision, a BoP client would buy things that are sometimes restricted nor unlawful and assist him or her achieve his or her goals, and perseverance would not allow that individual despairing in the approach.

BoP clients boosted their consciousness by acquiring non-essential things, mainly cellphones, in order to minimize socially isolation. Non-essential buys have already been shown to aid BoP consumers in adhering to publicly appropriate consuming behaviours, which enhance societal comparisons with those who are higher situated. In other respects, deficiencies cause persons to want for items that improve the identity and allow individuals to join a more affluent social relationships. They are attempting to meet their behavioural demands for freedom and close relationships to someone while also obtaining a sense of achievement in controlling their fewer finances in this manner. As a result, it is argued that purchasing of non-essential commodities, notably cellphones, aid in the improvement of BoP consumers' self-determination. Cellphones are considered as a publicly recognised need, and BoP users buy them to display their improved identity and get out of poor. As a result, some expenditure clients seek to satisfy their lifetime ambitions but instead of actual fundamental requirements, in an attempt to reclaim command of your lives. It has been proven that marginalised customers' desire to acquire cellphones improves their objective fellow human. That is to saying, buying expenditures can help improve one's self-esteem and aesthetic well-being. Additionally, such transactions meet the demand for BoP customers to reclaim their independence and identity, resulting in a rise in personal satisfaction. As a result, those studies back up the results that non-essential expenditures impair identity and, in turn, subjectively fellow human. To put it another way, consciousness requirements act as a mediator among the desire to buy a cellphone and psychological well-being.

5. CONCLUSION

The author has concluded about the Factors influencing smartphone adoption: A study in the Indian bottom of the pyramid context. According to this study, BoP clients purchase non-essential items to increase their consciousness and psychological fellow human. Patient does not allow the individual to worry whenever unfavourable circumstances tend to impair self-determination and objective fellow human. Perseverance might be investigated more in the future to see when it appears as a personality component and when it develops as a condition variable for expenditure people. More research might be done to see whether conscience and perseverance have a moderate influence on the link between BoP consumers' willingness to buy non-essential things and their subjective well-being. These research will delve further into the aspect of identity and perseverance in the achievement of BoP consumers' hedonic and monetary desires. Cellphones are getting more common as their prices fall. It has been noted that individuals from all walks of life have progressively begun to use cellphones. Despite the fact that cloud computing is stronger at the top of the money pyramids, the marketplace in

those sectors is increasingly getting exhausted. As a result, at the BOP, marketing are attempting to discover fresh demographics. If the cellphone can be modified to meet the demands of the BOP, it has a lot of promise in this market. Secondly, the BOP's use of cellphones may result in a societal shift. If the lots of folks begin to use cellphones even at the BOP, the governments may consider giving a variety of activities to residents through cellphone apps, leading in enhanced management. Conversely, commercial institutions, such as institutions, may boost worker efficiency if a useful tool, such as mobile money services, is embraced even by BOP clients. As a result, entrepreneurs and politicians alike must have a deeper knowledge of the barriers to and facilitators of cellphone usage at BOP.

Our theory adds to the intellectual foundation of the BOP's innovation deployment research. In order to determine the likely elements that may affect acceptance of digital at the BOP, we studied the knowledge on information acceptance, operant conditioning, and BOP features. By introducing components relating to total production costs (PMV) to the framework, it improves comprehension of innovation adoption at the BOP. Most of the prominent technologies acceptance, such as TRA, TAM, and UTAUT, did not examine any construct connected to monetary issues, hence the incorporation of this concept is a conceptual addition to the discipline. The paradigm is extensive since it takes into account issues from a variety of perspectives, encompassing user acceptance (PE and EE), social cognition theory (SA and SSE), and BOP qualities (PMV). Future study on technologies uptake at the BOP might be guided by the suggested analytical model. Future research on tech innovation at BOP may utilize this methodology as a foundation for some further development and modification since it is clear and appropriate to the BOP.

Empirical information on research linked to innovation deployment at the BOP is lacking in the present discourse. Our research aims to close this gap by offering a mathematical examination of the variables that influence BOP cellphone use intentions. We discovered that PE, EE, and PMV had a direct beneficial influence on the BI with using a smartphones utilizing 266 data sets from Indian BOP category. Unlike some earlier research, we were unable to find a direct link between SA and SSE and the BI of using a cellphone at the BOP. Furthermore, EE seems to moderate the influence of these two structures on BI.

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