

EFFECT OF PUSH-UP NOTIFICATIONS BY ONLINE FOOD DELIVERY APPS (OFD) ON CUSTOMER BEHAVIOUR IN CHENNAI

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ABSTRACT

This study aims to investigate the impact of promotional mobile direct marketing campaigns sent via push-up notifications from online food delivery apps on purchase behaviour in Chennai, India. With the increasing number of smartphone users and the rise of fintech, e-healthcare, and internet-based learning services, push notifications have become a popular tool for companies to engage with their customers. The study focuses on consumer behaviour in the business-to-consumer segment and examines the effects of push notifications on customer retention, frequency of purchase, and amount spent by using the RFM Model. Results of the study may be useful for companies to improve their marketing strategies and increase customer engagement.

Keywords: Push-Up Notifications, Online Food Delivery Apps (OFD), Customer Behavior, RFM.

INTRODUCTION

According to Deloitte 2026 there will be 1 billion smartphone users in India by 2026, which means the internet enabled devices that once existed only in the urban markets will penetrate into rural markets as well in India. From 2021 to 2026, the rural sector is expected to develop at a compound annual growth rate (CAGR) of 6%, outpacing the urban sector's growth at a CAGR of 2.5%. This is coupled with higher internet adoption, propelling adoption of fintech, internet-based learning and e-healthcare services Balaraman (2021).

With the introduction of 5G services across India, the numbers are expected to increase. Throughout the years 2022 to 2026, the nation's cumulative smartphone sales are projected to exceed 1.7 billion, generating a market worth around USD 250 billion, of which roughly 840 million 5G devices are anticipated to be sold in that time Chai & Yat (2019).

Corporations have led on to the growth of smartphones users and introduced a variety of ways to monetize, such as mobile advertising, in app purchases, subscription services, mobile commerce, mobile payments, location-based services etc. All this is possible due to the rising usage of apps in smartphones which users download to make their lives better.

The increase in usage of smartphones has helped companies communicate more easily with their customers through mobile direct marketing (MDM), which allows asynchronous engagements with mobile devices using a variety of channels, such as email, SMS, or mobile applications push notifications, allowing shops to communicate with both present and future consumers with meaningful and pertinent messages whenever and wherever they are.

One of the techniques within MDM is push notifications, According to Onesignal, push notifications are the pop-up messages that one receives in their device from a mobile app, when the app isn't open. These notifications help gather the attention of the user, and they can be of various forms such as discounts, updates or reminders etc. Companies are increasingly using push notifications to engage their audience.

LITERATURE REVIEW

Online Food Delivery services have grown in popularity in recent years, giving clients the ease of ordering food from their preferred restaurants whenever and wherever they choose. These applications' core feature, push notifications, alerts users to deals, sales, new menu items, and other promotional information. Examining the impact of push notifications by online meal delivery applications on consumer behaviour is the goal of this evaluation of the research Hari & Subramanian, (2019).

Push Notifications and their Impact on Customer Retention

In order to keep users engaged with the app and enhance customer retention, push notifications have been highlighted as a potent technique. According to research by, push notifications have a favourable impact on customer retention by boosting app usage, order placements, and general app satisfaction Israel, et al. (2022).

Influence of Push Notifications on Purchase Behaviour

Push notifications that contain individualised offers and promotions can have an impact on how customers behave while making purchases. According to research by. Push notifications significantly affected users' decisions to order meals from an online delivery service, and they were more likely to buy goods that were advertised through push notifications.

Effect of Push Notifications on Customer Loyalty

Taking into consideration users' interests and preferences, personalized push notifications by apps may help increase client loyalty. According to push notifications can improve user engagement and promote loyalty to the online meal delivery service.

Push Notifications and the Role of timing

Push notification efficacy is greatly influenced by timing. In contrast to push notifications delivered during non-peak hours, research indicated that push notifications sent during the busiest ordering times significantly influenced consumer behaviour. Push notifications received during peak hours were more likely to be opened and responded to by customers.

Impact of Push notification content on Customer Behaviour

Push notification content can also affect how customers behave. According to research by, push notifications containing tailored content—such as suggestions based on previous purchases—were more successful than generic messages at boosting user engagement and order placement.

Factors Affecting Customer Behaviour

Social Factors: Social elements including culture, family, and peer groups have a big influence on how people behave as consumers. Since it affects consumer values, beliefs, and attitudes toward various goods and services, culture is a key component in shaping consumer behaviour. Family is also a major influence on how consumers behave, especially when it comes to home decisions. Moreover, reference groups like friends and co-workers have an impact on consumer behaviour by giving knowledge and social validation Jaroenwanit et al. (2022).

Psychological Factors: Psychological elements like learning, motivation, and perception have a big impact on how consumers behave. The motivating force that prompts customers to perform in a certain way is referred to as motivation. Consumer perception is the way they

organize and interpret information about goods and services. Learning entails behavioural adjustments brought on by knowledge and experience Nambi et al. (2014).

Economic Factors: The availability of loans, prices, and other economic factors like income have an impact on consumer behaviour. The kinds of goods and services that people can afford depend heavily on their income. Pricing is also a crucial consideration since people like to purchase goods and services that provide the most value for their money. The ability to obtain credit is also essential since it allows customers to buy goods and services, they otherwise would not have been able to afford Nanaiah, (2020).

Research Problem

The purpose of this study is to investigate the impact of promotional MDM campaigns sent via push notifications from the mobile applications of Online Food Delivery apps, with the goal of identifying the existence of an effect on purchase behaviour. The study is situated in the consumer behaviour area, specifically on the business-to-consumer segment Remenyi et al. (2007).

The research problem of the research is:

Is there an influence of push-up notifications from Online Food Delivery apps in the purchase behaviour of people in Chennai?

Conceptual Framework and Research Hypothesis

The research is focussed towards understanding the role of direct marketing by Online Food Delivery apps on customer purchase behaviour. The purchase behaviour is studied using the RFM model Rosegrant & Msangi, (2014).

A popular technique for examining consumer behaviour based on the recency, frequency, and monetary value of purchases is the RFM model. Recency, frequency, and money, or RFM as it is known, are the three factors that are used to divide customers into groups according to their purchasing habits claim that "The RFM model has been employed in a variety of industries, including retail, online shopping, and hospitality, and is a frequently used tool for evaluating consumer behaviour. The methodology helps firms discover their most important consumers and create tailored marketing strategies to keep them by segmenting clients based on their recent, frequent, and financial worth of purchases".

These factors form the basis for the conceptual model of the present study, which is shown in Figure 1, adapted from the conceptual models.

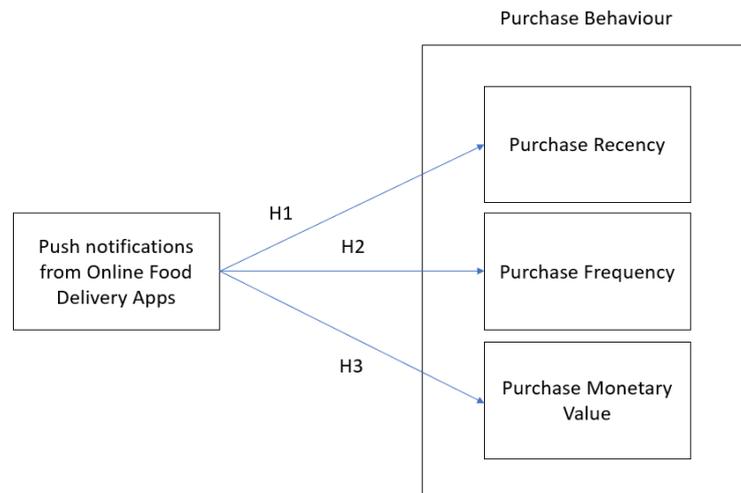


FIGURE 1
PURCHASE BEHAVIOUR

Taking into consideration the above literature, the hypothesis for the research has been formulated as follows:

Hypothesis 1

H1a: Reading push-up notifications has no impact on when your last purchase (days) happened. H1b: Reading push-up notifications has an impact on when your last purchase (days) happened. Hypothesis 2

H2a: Reading push-up notifications has no impact on how often you use an online food delivery app.

H2b: Reading push-up notifications has an impact on how often you use an online food delivery app.

Hypothesis 3

H3a: Reading push-up notifications has no impact on the average amount spent on online food delivery apps

H3b: Reading push-up notifications has no impact on the average amount spent on online food delivery apps

Measurement Scales

According to, who are experts in MDM, push notifications can replace other direct marketing strategies and improve communication efficiency for low engagement categories?

According to research on RFM variables and SMS on mobile phones, which connected MDM channels and the RFM model, there was a smaller average of the time since a customer's last purchase, a higher average of the number of past purchases the customer made over the data period, and a higher average of the purchase value amount at the most recent transaction on the group who received a coupon via SMS compared to the lot who did not receive them Shah, (2009).

Research Design

A deductive strategy was utilised in the research, with a hypothesis derived from theory, articulated in operational terms, and tested, followed by an analysis of the results to determine whether or not the theory was confirmed. A questionnaire survey was employed as the research method since it allows for easy analysis and comparison as well as providing a definitive response to the study questions.

Sampling Technique

A Purposive sampling was used to collect data through the survey. Purposive sampling was used due to the benefit of enabling the researcher to choose individuals who are most pertinent to the study subject, potentially enhancing the reliability and value of the findings. Respondents were chosen on the basis of their education, with those owning a smartphone as the author shared the questionnaire through WhatsApp and other social media apps like Instagram.

Data Collection

The research is categorized as a quantitative study. The study utilised google forms to collect data. The survey was shared among known contacts who meet the criteria set for the basis of the research.

Measurement and Scale

The constructs used in the survey, as well the construct of push notification was adapted.

Analysis: Impact of Push Notifications in the purchase behaviour

Hypothesis 1

H1a: Reading push-up notifications has no impact on when your last purchase (days) happened. H1b: Reading push-up notifications has an impact on when your last purchase (days) happened.

Based on the given information, the calculated t-statistic value is -7.991292308, and the p-value is 1.57795E-12 for the two-tailed test. The degrees of freedom (df) are 108. As the p-value (1.57795E-12) is less than the level of significance of 0.05, we reject the null hypothesis, which states that reading push-up notifications has no impact on the last purchase of food through an Online Food Delivery App (OFD). Therefore, we can accept the alternative hypothesis that reading push-up notifications has an impact on when the last purchase (days) happened.

In conclusion, the statistical test suggests that there is a significant relationship between reading push-up notifications and the last purchase of food through an Online Food Delivery App (OFD).

Hypothesis 2

H2a: Reading push-up notifications has no impact on how often you use an online food delivery app.

H2b: Reading push-up notifications has an impact on how often you use an online food delivery app.

The computed t-statistic, based on the results, is -20.59667042, with a two-tailed p-value of 1.51769E-39. This p-value is far below the significance level of 0.05, therefore the null hypothesis that reading push-up alerts has no effect on how frequently a person uses an online food delivery app is rejected.

Due to this, we accept the alternative hypothesis that reading push up notifications affects how frequently a person uses an online meal delivery app. In other words, there is data that suggests how frequently consumers make purchases through an online food delivery service may be influenced by reading push-up messages.

Hypothesis 3

H_{3a} : Reading push-up notifications has no impact on the average amount spent on online food delivery apps

H_{3b} : Reading push-up notifications has no impact on the average amount spent on online food delivery apps

The computed t-statistic for the given findings is -11.51689383, and the corresponding p-value is 1.51843E-21. We can rule out the null hypothesis that reading push-up alerts has no effect on the typical amount spent using online food delivery applications since the p-value is less than the standard alpha threshold of 0.05. Hence, we agree with the alternate hypothesis that reading push notifications affects average spent using online food delivery applications.

Also, there is strong evidence that the null hypothesis is false because the t-value is much lower than both the one-tailed and two-tailed critical values. Hence, we may draw the conclusion that there is a statistically significant difference between those who read and those who do not read in terms of the average amounts spent on online food delivery applications.

Limitations of the Study

The study is a preliminary study conducted to understand the impact of push up notifications on customer behaviour using the RFM model. It does not take into account how the impact of customer behaviour can be used to fuel sales growth in OFD companies, the future research can be conducted to understand how the impact on RFM model can be used to interact with customers in a better to increase business.

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