SemeAd 2024
XXVII Seminários em Administração

05, 06, 07 e 08 de novembro de 2024
ISSN 2177-3866

Unlocking consumer choices: Deciphering delivery app dynamics through Planned Behavior Theory

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UNLOCKING CONSUMER CHOICES: DECIPHERING DELIVERY APP DYNAMICS THROUGH PLANNED BEHAVIOR THEORY

1. INTRODUCTION

The landscape of consumer behavior has been significantly transformed by the advent of delivery applications, revolutionizing the way people consume products and services, offering unparalleled convenience (Kaur et al., 2021). This surge in popularity can be attributed to a combination of factors, encompassing technological advancements, shifts in consumption habits, and the pursuit of more efficient and practical solutions (Nonato, 2023). Globally, the usage of these applications has witnessed a 65% increase, totaling 5.5 billion hours, with a staggering 380% growth in Brazil alone (iFood, 2022). The undeniable trend of delivery applications underscores the necessity to comprehend user behavior in this dynamically evolving market (Scuadra, 2018).

Given the complexity of the delivery application landscape and the application of Planned Behavior Theory (PBT) to understand user decision-making factors, a fundamental question guides this investigation: How do PBT elements, such as attitude, subjective norm, and perceived behavioral control, interact to influence user adoption, usage frequency, and satisfaction in delivery applications? In light of the escalating prevalence of delivery applications, the study aims to investigate the impact of Planned Behavior Theory (PBT) constructs on consumer behavior during transactions within delivery applications.

Planned Behavior Theory, developed by Ajzen, serves as a psychological framework to explain and predict human behavior (Ajzen & Fishbein, 1980). The theory's central concepts—attitude, subjective norm, and perceived behavioral control—play pivotal roles in the intention to use the service, influencing perceptions of delivery process ease, reliability, and efficiency. Social norms also exert significant influence, as recommendations from friends, family, or colleagues can reinforce a customer's intention to use the delivery service. Furthermore, the perceived control over the delivery process, such as choosing delivery times or tracking order status, impacts customer decisions, with greater control leading to increased confidence and satisfaction with the service (Costa, 2015).

This study not only seeks to fill a significant gap in the understanding of consumer behavior concerning the use of delivery applications but also contributes to the ongoing discourse on the value of Planned Behavior Theory as a valuable tool in comprehending human behavior (Moutinho & Roazzi, 2010). Understanding the factors influencing user behavior in this context is essential for optimizing the customer experience, guiding business strategies, and fostering innovation.

2. THEORY

The theoretical foundation of this study will be structured around two main areas: the Theory of Planned Behavior (PBT), and mobile commerce and delivery services. Our focus on delivery services will involve an in-depth analysis of factors influencing consumer choices in the realm of delivery services, including convenience, service quality, reliability, and overall experience. We will explore how these factors correlate with study propositions based on PBT.

2.1. Planned behavior theory

To comprehend behaviors and attitudes, Fishbein and Ajzen (1975) drew inspiration from the multifaceted construct model developed by Rosenberg and Hovland (1960), shaping the foundation for the Theory of Rational Action (TAR). Described by Rosenberg and Hovland

(1960) as comprising emotional, mental, and behavioral elements, this model laid the groundwork for subsequent psychological theories.

The Planned Behavior Theory (PBT) builds upon TAR by incorporating the perceived behavioral control variable (Armitage & Conner, 2001). Criticisms directed at the limitations of TAR in considering only internal or external motivations led to the evolution of TPB (Moutinho & Roazzi, 2010). Perceived behavioral control involves an individual's assessment of the simplicity or challenges associated with executing an action based on their individual perspective. This evaluation considers perceived ease or barriers encountered during the process of performing a specific action (Pinheiro, Sousa, & Reinert, 2021). Therefore, the addition of the perceived control variable plays a crucial role in influencing both purchase intention and behavior. The relative importance of attitude, subjective norm, and perceived behavioral control varies across different behaviors and situations.

According to the Planned Behavior Theory, behavioral intention serves as a measure for actual behavior, representing an individual's motivation or conscious plan to undertake a specific behavior (Conner & Armitage, 1998). The **Attitude** toward Behavior construct establishes a connection between the inclination to engage in a particular behavior and expectations regarding the outcomes. It involves the subjective assessment of the probability that the behavior will lead to a desired outcome (Ajzen, 2006), implying that behavior is influenced by anticipated consequences. Moura et al. (2012) add that these behaviors are shaped by positive and negative assessments while acting.

The **Subjective Norm** refers to the perception of expectations held by individuals or groups regarding a person's behavior (Ajzen, 2006). It encompasses influences stemming from social pressure exerted by parents, friends, reference groups, culture, public opinion, and institutions on individual behavior (Heidemann, Araujo, & Veit, 2012). This factor is crucial for understanding how individuals are encouraged or discouraged to act in a certain way (Heidemann, Araujo, & Veit, 2012; Moura et al., 2012).

Beliefs about **Perceived Control** encompass elements that can either facilitate or obstruct behavior execution. It refers to an individual's perception of how easy or difficult performing the behavior is (Beck & Ajzen, 1991). Behavior increases when individuals perceive they have more resources and confidence (Ajzen, 1985; Hartwick & Barki, 1994; Lee & Kozar, 2005). The combination of control beliefs and the power of each control factor is believed to determine the level of perceived behavioral control (Ajzen, 2006).

Over the past four decades, researchers have relied on the rational action approach (Fishbein & Ajzen, 2010), particularly PBT, as their theoretical framework to explain, predict, and change behaviors. Studies attest to the effectiveness of PBT in justifying human actions. Santos (2009) conducted a study to identify underlying factors explaining the intention of bank customers to adopt mobile banking. Iwaya (2020) also employed the Theory of Planned Behavior to examine the impact of factors influencing the intention to purchase organic food, concluding that both the intention to purchase organic food and perceived behavioral control have the capacity to predict past behavior.

2.2. Mobile commerce and delivery services

Mobile commerce (m-commerce), a subset of electronic commerce (Coursaris & Hassanein, 2002; Jelassi, Enders, & Martínez-López, 2014), has seen significant growth due to advancements in mobile communication technology. This growth is particularly evident in applications encompassing various services, including location-based, streaming, reading, and notably, delivery services (Huang, Sheng-Wei, & Fan, 2015).

Within mobile commerce, food delivery services extend their reach, allowing customers to explore multiple restaurants, menus, place orders, and make payments, all within

a single mobile application (Gomes, 2023). Despite the increasing literature reflecting the growing popularity and relevance of m-commerce, certain aspects such as consumption habits and experiences still warrant investigation (Schneider, Buzzi, & Muzy, 2018).

2.3. Propositions for evaluation

According to the Planned Behavior Theory (PBT), a positive attitude toward using delivery services increases the likelihood of the individual intending to use them (Santos, Veiga, & Souza, 2011). Attitude, in this context, reflects an individual's overall evaluation of a specific behavior (Ajzen, 2011). Positive attitudes can stem from positive past experiences, convenience, and perceived benefits associated with delivery services. Thus, a positive attitude is likely to result in a favorable intention towards using delivery services. However, the translation of intention into actual behavior is contingent on various individual and situational context elements.

P1: The attitude towards delivery services significantly and positively influences the intention to use the application.

The PBT posits that subjective norm, representing the perception of social expectations regarding a behavior, influences an individual's intention to engage in that behavior (Santos & Almeida, 2016). Social pressure, observed behavior, conversations, and the perception of common practice within a social group contribute to social norm influence (Limeira, 2016). The perception of social norms and peer pressure can significantly impact an individual's intention to use delivery services. Those perceiving frequent usage of delivery services among their peers are more likely to adopt them due to perceived social influence.

P2: The perception of social norms and external pressure directly influences an individual's intention to utilize delivery services.

Per the Planned Behavior Theory, an individual's belief in having control over using delivery services increases their intention to use them (Ajzen, 1991). Perceived control relates to the belief that an individual possesses the resources, skills, or capacity to execute a particular behavior. In the context of delivery services, perceived control includes factors like accessing the service, placing orders, making payments, and tracking the delivery process. This perception of control over expected outcomes influences the intention to use delivery services.

P3: Perceived control over the utilization of delivery services directly influences the intention to use these services.

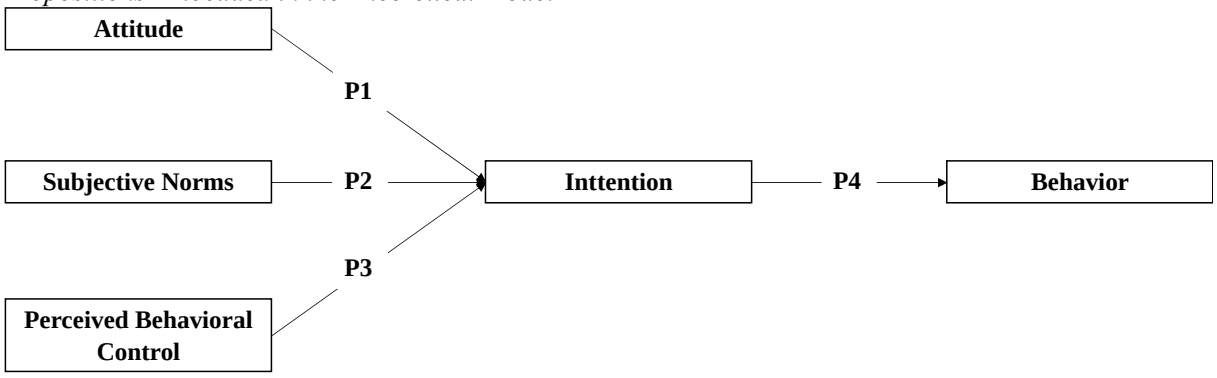
As outlined by the Planned Behavior Theory, behavioral intention serves as an indicator of actual behavior, reflecting an individual's conscious willingness or deliberate decision to execute a specific behavior (Conner & Armitage, 1998). Ajzen (1991) emphasizes that a stronger and more determined intention increases the likelihood of the individual executing the planned behavior. In other words, higher intention indicates a higher probability of the individual making orders through a delivery app.

P4: The higher an individual's intention to use a delivery app, the greater the likelihood that they will effectively place orders through this application.

The adaptation of Beck and Ajzen's (1991) model to the propositions articulated in this study is depicted in Figure 1.

Figure 1

Propositions Embedded in the Theoretical Model



Note. Adapted from Beck and Ajzen (1991, p. 287)

These propositions suggest that the Planned Behavior Theory can effectively analyze the relationship between this theoretical model and delivery services.

3. METHODOLOGY

The methodology employed in this investigation is characterized by a quantitative approach (Gil, 2010; Michel, 2005). Regarding the research method, this study falls under the category of descriptive research (Malhotra, 2001). Field research was conducted with the aim of analyzing the factors influencing the behavior of consumers in the context of delivery services. The deductive method was applied (Barros & Lehfeld, 2007; Gil, 2010).

While the target audience comprises individuals of any gender, aged between 21 and 66, who actively engage in social media and possess a strong interaction with digital technologies in the micro-region of the Community of Municipalities in the Region of Campo Mourão - PR (COMCAM), it is essential to note that the specific age range may introduce limitations to the research. Variability in participant age could influence responses and perceptions, considering the diverse experiences and perspectives that may arise at different stages of life. This consideration should be taken into account when interpreting questionnaire results.

The questionnaire script was adapted from the study conducted by Santos, Veiga, and Souza (2011), which undertook a similar investigation grounded in the Planned Behavior Theory (Ajzen, 2011). Data collection was carried out through a form utilizing the Microsoft Forms tool, consisting of twenty questions. These included nine questions prompting respondents to define their perception of the Attitude construct (Ajzen, 2006), three questions defining Subjective Norms (Ajzen & Madden, 1986), two on Perceived Control (Ajzen, 1991), three on Intention (Conner & Armitage, 1998), and three justifying past behavior, all graded on a Likert scale of 1 to 5. Data collection spanned 14 days (18/09/2023 to 28/09/2023 for the initial collection and 16/11/2023 to 20/11/2023 for the complementary collection), yielding 120 respondents out of 477 response requests. After data treatment, a total of 107 valid responses were retained for analysis.

The data underwent processing and tabulation, enabling the preliminary execution of a descriptive analysis. At this stage, means and standard deviations of the employed scales were calculated, along with the examination of relevant statistical values, such as the Shapiro-Wilk test, among others.

Subsequently, a reliability analysis was conducted. Reliability analysis is an assessment tool that allows determining the probability of failure by considering the random variation of variables in the problem (Netto, 2019). The collected data were input into the JAMOVI software for this analysis.

Lastly, a Structural Equation Modeling (SEM) was developed (Field, 2009; Hair et al., 1998). The construction of an SEM model originates from a predefined theoretical framework, enabling the determination of various dependent (or causal) relationships among the model variables. A theoretical model consists of a systematic set of relationships offering consistent and comprehensive explanations of the phenomena under consideration (Amorim et al., 2012).

4. RESEARCH RESULTS

Descriptive statistics are crucial in data analysis, providing a clear and concise synthesis of the fundamental characteristics of a dataset. Table 1 presents the results of Descriptive statistics for the variables AT, NS, CP, IT, and CO. The values include observation count (N), omitted values, mean, median, standard deviation, minimum, maximum, and statistics from the Shapiro-Wilk normality test (Shapiro-Wilk's W and Shapiro-Wilk's p). For instance, concerning the variable AT, the mean is 4.30, the median is 4.44, and the standard deviation is 0.583. The normality test results indicate that all variables have p-values significantly below 0.001, suggesting a departure from a normal distribution. These statistics are instrumental in understanding the central tendency, dispersion, and normality of the data for each variable.

Table 1
Descriptive Statistics

	AT	NS	CP	IT	CO
N	120	120	120	120	120
Missing	0	0	0	0	0
Mean	4.30	3.55	4.65	4.33	4.77
Median	4.44	4.00	5.00	4.83	5.00
Standard Deviation	0.583	1.14	0.690	0.972	0.296
Minimum	2.33	1.00	1.00	1.00	4.00
Maximum	5.00	5.00	5.00	5.00	5.00
Shapiro-Wilk W	0.914	0.926	0.588	0.726	0.694
Shapiro-Wilk p-value	< .001	< .001	< .001	< .001	< .001

Note. Developed by authors (2023)

The correlation matrix (Table 2) presents Pearson correlation coefficients between the variables IT (Intention), AT (Attitude), NS (Subjective Norm), CP (Perceived Control), and CO (Behavior). The results indicate significant relationships between the variables. The correlation between IT and AT is strong, with a coefficient of 0.578 ($p < 0.001$), suggesting a positive association between Intention and Attitude. Similarly, IT has significant and positive correlations with NS (0.592, $p < 0.001$) and CP (0.527, $p < 0.001$), indicating a positive relationship between Intention and Subjective Norm and Perceived Control. The correlation between NS and CP is also strong (0.549, $p < 0.001$). In contrast, correlations involving CO are weaker, suggesting that Behavior is less linearly related to the other variables. The p-values associated with the coefficients indicate the statistical significance of the correlations.

Table 2
Correlation Matrix

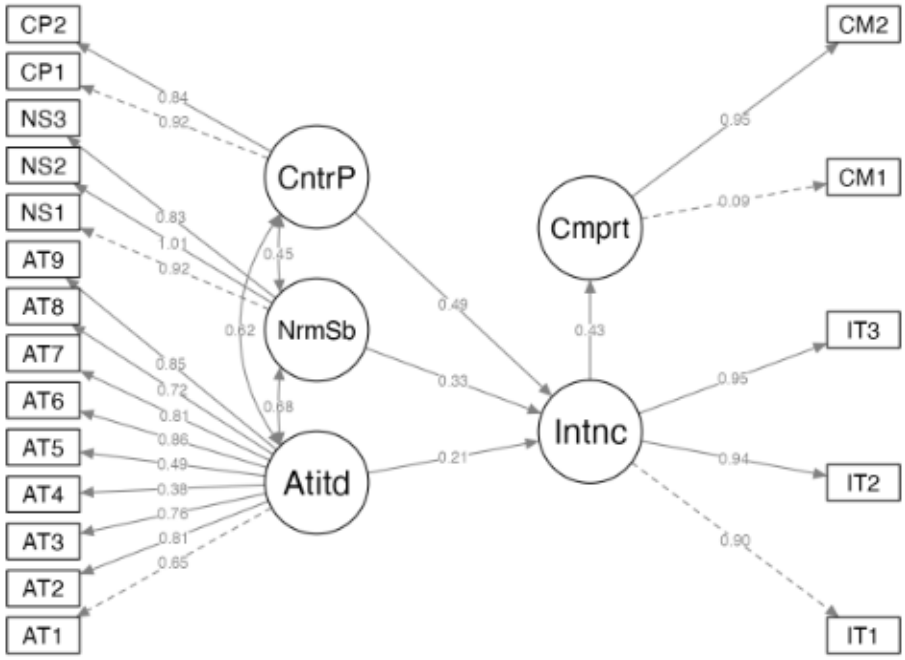
		IT	AT	NS	CP	CO
IT	R de Pearson	—				
	gl	—				
	p-value	—				
AT	R de Pearson	0.578 ***	—			
	gl	118	—			
	p-value	< .001	—			
NS	R de Pearson	0.592 ***	0.549 ***	—		
	gl	118	118	—		
	p-value	< .001	< .001	—		
CP	R de Pearson	0.527 ***	0.422 ***	0.317 ***	—	
	gl	118	118	118	—	
	p-value	< .001	< .001	< .001	—	
CO	R de Pearson	0.175	0.135	0.051	0.042	—
	gl	118	118	118	118	—
	p-value	0.055	0.142	0.581	0.653	—

Nota. * p < .05, ** p < .01, *** p < .001

Note. Developed by authors (2023)

According to the Structural Equation Modeling (SEM) framework (Figure 2), it is evident that Attitude (Atitd) is influenced by nine observed latents, namely AT1 to AT9. It is also observed that Subjective Norms, represented by NrmSb, are directly influenced by latents NS1, NS2, and NS3, while Perceived Control (CntrP) is observed by latents CP1 and CP2. Additionally, it is noted that Intention (Intnc) is shaped by latents IT1, IT2, and IT3, similar to Behavior represented by Cmprt, influenced by CM1 and CM2. The β value depicted in Figure 12 represents the significance a latent variable holds over the constructs. Figure 12 outlines the latent measurement model defining construct constructions.

Figure 2
Structural Equation Modeling



Note. Developed by authors (2023)

In the measurement model (Table 3), data such as Lower (lower value) and Upper (upper value) are reported as a confidence interval (95%). The observed latents have estimated values noted in the Estimate column. The β value, as previously measured, signifies the significance of the latent variable in the figure, while the p-value represents the strength of the significance of the latent variables under the construct.

Table 3
Model Measurement

				95% Confidence Intervals				
Latent	Observed	Estimate	SE	Lower	Upper	β	z	p
Atitude	AT1	1.000	0.0000	1.000	1.000	0.6477		
	AT2	1.250	0.1145	1.025	1.474	0.8094	10.919	< .001
	AT3	1.176	0.1208	0.939	1.413	0.7617	9.739	< .001
	AT4	0.584	0.1487	0.293	0.876	0.3784	3.930	< .001
	AT5	0.762	0.1389	0.490	1.035	0.4937	5.486	< .001
	AT6	1.327	0.1292	1.074	1.580	0.8597	10.274	< .001
	AT7	1.248	0.1181	1.016	1.479	0.8081	10.568	< .001
	AT8	1.116	0.1237	0.873	1.358	0.7227	9.021	< .001
	AT9	1.309	0.1177	1.078	1.539	0.8477	11.121	< .001
NormaSub	NS1	1.000	0.0000	1.000	1.000	0.9234		
	NS2	1.091	0.0535	0.986	1.195	1.0070	20.392	< .001
	NS3	0.895	0.0353	0.825	0.964	0.8260	25.339	< .001
ControlePercebido	CP1	1.000	0.0000	1.000	1.000	0.9191		
	CP2	0.914	0.1215	0.676	1.152	0.8401	7.524	< .001
Intencao	IT1	1.000	0.0000	1.000	1.000	0.9008		
	IT2	1.038	0.0343	0.971	1.106	0.9353	30.229	< .001
	IT3	1.058	0.0325	0.994	1.121	0.9526	32.543	< .001
Comportamento	CM1	1.000	0.0000	1.000	1.000	0.0866		
	CM2	10.956	34.1321	−55.942	77.854	0.9490	0.321	0.748

Note. Developed by authors (2023)

Parameter estimation (Table 4) was necessary to analyze the data and create the theoretical model through SEM. Observing the intention being influenced by attitude, the estimate is 0.2926, with a standard error (SE) of 0.1616. The 95% confidence interval for this estimate ranges from -0.0242 to 0.609. The associated p-value is 0.07, indicating that this relationship is not statistically significant at a common significance level of 0.05. Therefore, consider Proposition 1: Attitude toward delivery services directly and positively influences the intention to use the application, not statistically confirmed.

Table 4
Parameter Estimation

				95% Confidence Intervals				
Dep	Pred	Estimate	SE	Lower	Upper	β	z	p
Intencao	Atitude	0.2926	0.1616	−0.0242	0.609	0.210	1.810	0.070
Intencao	NormaSub	0.3236	0.1082	0.1115	0.536	0.332	2.990	0.003
Intencao	ControlePercebido	0.4771	0.0874	0.3059	0.648	0.487	5.460	< .001
Comportamento	Intencao	0.0416	0.1297	−0.2126	0.296	0.432	0.320	0.749

Note. Developed by authors (2023)

Subsequently, the intention influenced by subjective norms has an estimate of 0.3236, with a standard error of 0.1082. The 95% confidence interval ranges from 0.1115 to 0.536. The

p-value is 0.003, suggesting that this relationship is statistically significant. Therefore, we can assert that the perception of social norms and pressure from others directly and positively influences, with a low effect, a person's intention to use delivery services.

Proposition 3 refers to the influence of perceived control on intention. The estimate is 0.4771, with a standard error of 0.0874. The 95% confidence interval ranges from 0.3059 to 0.648. The p-value is < 0.001, indicating a statistically significant relationship. Thus, we affirm that perceived control over the use of delivery services directly and positively influences, with a medium effect, the intention to use these services.

Finally, the behavior influenced by intention was assessed. The estimate is 0.0416, with a standard error of 0.1297. The 95% confidence interval ranges from -0.2126 to 0.296. The p-value is 0.749, suggesting that this relationship is not statistically significant. Therefore, Proposition 4, which states that the higher a person's intention to perform a specific action, the more likely they are to actually execute that action, cannot be statistically confirmed.

5. FINAL CONSIDERANTIONS

The analysis of the Planned Behavior Theory constructs proves to be of paramount importance in understanding consumer decision dynamics in this specific scenario. For industry managers and professionals, the results offer valuable insights. Conclusions point to the crucial importance of social norms and perceived control in shaping usage intention, indicating that marketing strategies emphasizing social approval and providing a sense of control can be effective. Understanding these elements can guide business practices, optimize customer experience, inform business strategies, and promote innovation, especially in a scenario where the use of delivery applications is continually growing.

This study investigated the Planned Behavior Theory constructs concerning the adoption of delivery services, assessing their influence on user intention and, by extension, subsequent behavior. Initially, the analysis revealed that the attitude toward delivery services did not exhibit a statistically significant relationship with the intention to use. Conversely, social norms emerged as a significant factor, indicating that the perception of social norms has a direct and positive influence on the intention to use delivery services, supporting the importance of social influences in user decision-making. This suggests that marketing strategies emphasizing social approval can be effective.

Perceived control also proved to be a relevant element, with a statistically significant relationship with the intention to use. This implies that the perception of control over the use of delivery services directly and positively influences the user's willingness to adopt these services. This underscores the importance of providing users with a sense of autonomy and control in their interactions with the applications, which can be achieved through intuitive interfaces and customization options.

However, when evaluating the relationship between intention and subsequent behavior, the analysis did not find statistical significance. Although intention is an essential factor in explaining purchasing behavior, it is not the sole determining element. Other factors can influence consumer decisions in various ways, such as influence, external pressure, and emotional impacts.

We highlight cultural limitations, considering that the research was conducted in a single geographic region. Temporal contextualization may impose limitations on the research, as changes in the economic, social, or technological environment have the potential to influence consumer attitudes and behaviors.

To deepen the understanding of variables that did not show significance in the study on the adoption of delivery services based on the Planned Behavior Theory, we suggest conducting new research specifically focused on the more detailed analysis of consumer

attitudes toward services. The investigation could explore specific components of attitude, such as perceived quality, trust, and convenience, to identify nuances that may not have been captured initially.

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