

Chapter 14

Navigating Mobile Marketing: Unveiling Mobile Game In-App Purchase Intentions of Gen-Ys

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ABSTRACT

In the dynamic landscape of mobile marketing, understanding the intricate factors that drive in-app purchase decisions is pivotal for crafting effective strategies. The sale of virtual objects has become a key driver of revenue in the mobile gaming industry. This study focuses on the Malaysian Gen-Y mobile gamers, exploring the key drivers influencing their in-game purchase intention underpinned by perceived value theory and theory of planned behavior. An online survey was conducted among 470 respondents and analysed using partial least squared structural equation modelling. As the digital realm continues to evolve, decoding these motivations behind consumer behavior becomes paramount for marketers seeking to tailor their approaches. Drawing from the empirical findings, this chapter offers valuable insights that contribute to the academic knowledge of mobile marketing dynamics, including practical implications of this strategic monetization initiative for marketers to resonate with the discerning Gen-Y mobile gamers.

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INTRODUCTION

The global games market has experienced substantial growth, reaching a sales figure of US\$347 billion in 2022 with mobile gaming itself generating an estimated of US\$248 billion. The growing demand for digital entertainment has elevated mobile games to become one of the most favored pastimes for individuals to spend their leisure time as is projected to reach a revenue of US\$627 billion by 2028 (Statista, 2023). The global mobile gaming industry is experiencing significant growth due to various factors, including the increasing purchasing power of young people and the burgeoning internet penetration rate (Salehudin and Alpert, 2022).

As per Marder (2019), the advent of ‘free-to-play’ games marked the onset of a new economy in the internet era, especially as users invest actual money in virtual products. This is commonly known as an in-game purchase facilitated through real-world monetary transactions. In recent years, an increasing number of game developers have embraced the “free-to-play” model, enabling users to download and play games without charge. Meanwhile, developers leverage in-game items and services as a source of revenue or monetization (Syed et al., 2020). What were once online games primarily offering entertainment services have evolved in the contemporary era. They now incorporate features such as selling virtual objects within the game or facilitating item transfers between players, aiming to enhance user engagement and retention (Kosa and Uysal, 2021). As game producers recognized a lucrative opportunity in the online gaming industry, the popularity of in-game purchases within online games has surged. Sambe and Haryanto (2021) emphasized the emergence of a contemporary economy that draws a significant number of individuals to utilize cash for the acquisition of virtual goods. Virtual goods fulfill various roles within the game, such as enhancing the game’s capabilities, fulfilling player needs and desires, and unlocking exclusive elements. These items, ranging from special products to seasonal items, often constitute a vital aspect of the gaming experience (Jang et al., 2018). Over time, virtual commodities have evolved to include aesthetic items like customizable costumes for avatars. Additionally, as highlighted by Newzoo (2021), in-game goods encompass a wide array of digital items within the virtual environment of games including spanning expansion packs, skins, power-ups, time savers, weapons exchange, in-game currency, and more.

Based on Newzoo’s Global Game Market Report (2021), a staggering 87% of the 20.1 million gamers in Malaysia collectively invested US\$673 million through in-game purchases or virtual goods. This substantial expenditure solidifies Malaysia’s position as one of the largest gaming markets in Southeast Asia. The government has actively endorsed and regulated the online gaming industry or e-sports, recognizing its potential for job creation and economic growth, thereby affirming its commitment to supporting this burgeoning sector, particularly for the youth in Malaysia (Ministry of Youth and Sports, 2020). Following the Strategic Plan for Esports Development (2020-2025), the Malaysian government has designated RM30 million in total investment to establish Malaysia as the epicenter of esports in Southeast Asia. Malaysian gaming preferences often align with those of audiences in other Asian countries, including PUBG, Mobile Legends: Bang Bang (MLBB), DOTA 2, League of Legends, and Clash Royale are popular examples of this shared interest. Expanding on this trend, certain higher education institutions in Malaysia and the Philippines are now offering Bachelor’s Degree programs and Short Course Certifications focused on game-based education and esports. According to Statista (2023), Generation Y demographic exhibited the highest percentage of daily engagement with mobile games in Malaysia. Generation Y comprises those who were born between 1981 to 1996 (27 – 42 years old as at

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2023) (Beresford Research, 2023). In Malaysia, this generation is estimated at 10.7 million out of the total 33.5 million population (Department of Statistics Malaysia, 2021).

In recent decades, numerous academic scholars and practitioners have concentrated on emerging information systems (IS) and information and communication technologies (ICTs) approaches to guarantee the advantages in various economic activities (Rondan-Cataluña et al., 2015). Various determinants that impact consumers' online purchasing behavior have been recognized by experts, such as security measures, e-store content, fraud concerns, user-friendliness, payment procedures, and associated hazards (Waheed et al, 2021). Nevertheless, further investigation is necessary, particularly regarding social applications and the online purchasing behavior of consumers, as various researchers have recommended in-depth research on this topic (Floh & Madlberger, 2013; Harwit, 2017). Historically, the majority of the development of social apps has taken place in developed countries such as the United States, the United Kingdom, and other advanced economies (Logan, 2017). It will be beneficial to explore developing nations as the growth of information systems (IS) and information and communication technologies (ICTs) is rampant in such nations. Furthermore, previous research has primarily focused on analysing the impact of various social applications on different elements of consumer behavior (Thelwall et al., 2017). As such, it is important to focus on the impact of perceived value and various factors from theory of planned behavior on in-app consumers' purchasing attitudes in a developing nation such as Malaysia.

The mobile game popularity and the parallel growth of in-app purchases especially among this significant generation cohort presents an intriguing avenue for exploration. Despite the rising interest in the subject, conflicting findings persist regarding the elements that influence in-app purchases within mobile games due to the complexity and shifts in Gen-Ys' behavior. Werenowska and Rzepka (2020) stated that technical innovation in marketing is strongly related to Generation Y and is a strong indicator of their existence in the world. Kamalasena and Sirisena (2021) indicated the relevance of Generation Y in current technological advancement especially in social media to assess the relevance of any market offerings. Thus, this study endeavors to explore the determinants of perceived value, attitude, subjective norms, and perceived behavioral control towards in-app purchase intentions of Generation Y to provide valuable insights for marketers and game developers eager to customize their strategies that resonate with this tech-savvy and discerning demographic of consumers.

BACKGROUND OF LITERATURE

Mobile Marketing and Mobile Gaming

Mobile marketing involves the promotion of products, services, or brands through customized strategies designed specifically for mobile devices (Hofacker et al., 2016). This marketing approach utilizes the distinctive features of mobile phones, tablets, and similar handheld devices to connect with and engage target audiences. Strategies encompass mobile advertising, in-app marketing, mobile websites, SMS marketing, mobile apps, and geolocation-based marketing. The aim is to connect with consumers on their mobile devices, where they frequently spend their time, delivering pertinent content or messages that align with their preferences and behaviors. With the prevalence of smartphones and the increasing emphasis on mobile-centric lifestyles, mobile marketing has become a crucial aspect of contemporary promotional efforts for many companies and industries. Mobile marketing can increase value for consumers and retailers as it was uncovered that consumers potentially develop new shopping behaviors

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based on mobile devices (Strom et al., 2014). Mobile marketing is an effective method of increasing brand awareness, customer engagement, and sales due to its ability to remain personalized, interactive, and relevant to consumers (Dinh et al., 2021).

Research on mobile gaming, especially in terms of its influence on consumers, is increasing. A recent study by Duttagupta and Poddar (2020) investigated the rationality of consumer behavior as in-game purchases has triggered irrationality such as impulse, conspicuousness, and habit among gamers. From a developer standpoint, mobile games present enticing opportunities for various monetization strategies. Core games predominantly depend on in-app purchases and subscription-based monetization strategies. Nevertheless, an increasing number of makers of In-App Purchase (IAP) games have also begun to embrace in-game advertising. Not only do they provide an extra source of income, but they can also enhance in-app purchases (Udonis, 2023). Numerous games draw in a large player base initially by offering free downloads and subsequently generating revenue through in-game purchases or advertisements. Nonetheless, in new and developing markets, such as the gaming industry, understanding and aligning with customer preferences and acceptance is crucial until the sector reaches maturity (Shukri and Johar, 2020).

Certain game developers encounter difficulties as Malaysian consumers show reluctance to make in-game purchases in free-to-play games (Akbar et al., 2018). Game companies that lack awareness or control over in-game purchasing factors may find it challenging to engage, generate, and enhance their revenues (Pena-Garcia et al., 2020). In general, gamers engage in online games for diverse reasons and allocate varying amounts of time to gaming activities (Entwistle et al., 2020). Even individuals with higher incomes exhibit hesitancy in spending on in-game items if they perceive the online gaming services or in-game items as lacking value for money (Hsiao and Chen, 2016). Thus, comprehending purchasing intentions and related characteristics can significantly influence the transformation of players into paying customers.

Gen-Y's In-App Purchase Intention

Purchase intentions of gamers especially among Gen-Y are mostly affected by their attitude and subjective norms (Tan et al., 2019). This cognitive process explores what influences a consumer's product purchase (Lim and An, 2021). Retaining relevant brand information helps influence buying decisions, and future purchasing plans are developed (Alberta and Jony, 2021).

In-app purchases (IAP), often known as microtransactions, allow gamers to buy extra products, premium content, or virtual goods (Firdaus and Rahadi, 2021). Instead of using real money, in-game purchases usually involve virtual currency to buy products. These virtual things have performance, utility, emotional, and social attributes like personalization, rarity, look, and origin (Wu and Andrizal, 2021). Therefore, in-game mobile purchases are more immersive and emotional than other online transactions (Hsiao and Chen, 2016). Such features will be interesting since the effect may be different on diverse consumers.

According to a study on Malaysian purchasers' online group buying purchase intentions, perceived utility, pricing, and e-WOM had a significant impact (Rahman et al., 2020). Various researchers have found that perceived usefulness, ease of use, and enjoyment positively affect mobile app purchase intention (Kaur et al., 2023; Lu et al., 2016). The UTAUT model accurately represents a large chunk of behavioural intention and usage behaviour, particularly regarding information technology acceptance and use. It ignores external elements like societal impact (Venkatesh et al., 2003). Soh et al. (2017) stated that Generation Y is driven by social influence, vanity, and distinctiveness.

According to Ad Tech Daily (2021), 70% of Generation Y have bought mobile games in the past six months. In contrast, 52% of Gen X and 29% of Baby Boomers spent money on games during the same period. Generation Y has more purchasing power than previous generations, thus they can afford virtual items in online games (Kowang et al., 2018). This makes Generation Y a relevant scope of the study as it may generate new insights and address the generational gaps in the study of purchase behaviour.

Theory of Planned Behavior

The Theory of Planned Behaviour (TPB) is a psychological framework devised by Icek Ajzen, building upon the Theory of Reasoned Action (TRA). It posits that individuals' intentions to partake in a behaviour are influenced by three crucial factors: their attitudes towards the behaviour, subjective norms or the perceived social pressures associated with the behaviour, and perceived behavioural control or the individual's belief in their capability to carry out the behaviour. As per the Theory of Planned Behaviour (TPB), these elements collectively impact an individual's intentions to behave in a certain way, which, in turn, can predict the probability of their actual participation in that behaviour. The idea is extensively utilised in diverse domains like psychology, business, health, and social sciences to comprehend and forecast human behaviour. The TPB framework offers a thorough perspective for examining and comprehending the decision-making procedures (Mehraboun, 2024) and will be appropriate to assess the buying behavior of Generation Y within the realm of mobile commerce as TPB has an enhanced explanatory power and are extensively used (Bhutto et al., 2022).

The Theory of Planned Behaviour (TPB) posits that individuals make deliberate and logical choices by considering their attitudes, subjective norms, and perceived behavioural control. Personal attitudes refer to our personal attitude towards a certain activity, which is the sum of all our information, attitudes, and prejudices, positive and negative, that we think about when we contemplate the behavior (Kan and Fabrigar, 2017). Subjective norms pertain to our perception of others' opinions of a certain behaviour, while perceived behavioural control refers to our belief in our ability to regulate our own behaviour (Ajzen, 2020).

When customers are placed in a different environment, their behaviour changes, whereby external and internal motivations may influence the purchasing process (Liu et al., 2020). Distinct characteristics or attributes can influence a consumer's choice to buy a product, leading to potential shifts in product preferences over time (Tan et al., 2019). Hussein and Nabsiah (2018) justified that the attitude had a substantial positive impact on the intention to participate in in-game purchases among Malaysians because of the interactive feature and attractive advertisement which encouraged re-visit of consumers. In addition, Alzahrani et al., 2017 demonstrated perceived behavioural control has a substantial positive impact on the intention to participate in in-game purchases due to the influence of online games on consumers' feelings and capacity to make decisions. Furthermore, Lee et al. (2023) conducted a study on Malaysian Gen-Y consumers on e-wallet usage intention and their study found that perceived interactivity and subjective norm had a positive influence due to interpersonal and media influence from friends, peers, colleagues, and influencers. Similarly, Hamari (2020) also found that positive subjective norms and attitudes toward acquiring virtual products positively influenced social networking gamers' purchase intentions. In a similar vein, it was found that attitude, subjective norm, and perceived behavioural control had a substantial influence on the purchase intention of Generation Y in the context of mobile purchasing (Abdullah et al., 2023; Kim and Park, 2017; Kim et al., 2017; Jain, 2020; Sun et al., 2020).

The following hypotheses are provided based on the above discussions:

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H1. Attitude has a significant and positive influence on mobile app in-game purchase intention.

H2. Subjective norm has a significant and positive influence on mobile app in-game purchase intention. H3. Perceived behavioral control has a significant and positive influence on mobile app in-game purchase intention.

Perceived Value

Perceived value refers to the assessment of the expenses borne by consumers in obtaining particular goods and services, weighed against the advantages obtained from those items or services (Wuryandari et al., 2021). The perceived value of a customer is commonly understood as a transaction between two parties, where one party earns from the purchase and the other benefits from consuming the product or service (Javeed et al., 2017). It is often referred to as an individual's evaluation of a product or service based on the benefits obtained compared to the expenditures involved and the consumer's overall assessment of the usefulness of a product or service (Hsiao and Chen, 2016).

Perceived Value Theory (PVT) focuses on individuals' assessments of the benefits received relative to the costs incurred, which can be used in complement with TPB, especially in the context of purchasing decisions. The theory as established by Sheth et al. (1991), suggests that an individual's ultimate decision is influenced by functional, emotional, social, and epistemic factors, which are all related to attitude. PVT brings an economic perspective by explicitly considering the perceived benefits and costs associated with a behavior as it also involves understanding these trade-offs that can provide insights into how individuals prioritize factors in decision-making, offering a nuanced perspective that complements TPB's broader constructs (Itani et al., 2019). Perceived value theory encompasses not only utilitarian aspects but also emotional and hedonic dimensions. This is particularly relevant in consumer behavior where emotional responses and hedonic experiences play a crucial role. Combining the elements of PVT with TPB can provide a more comprehensive view of the consumer decision-making process.

Previous studies highlighted that customers' decision to purchase a product or service is significantly influenced by the perceived value of the product and recommendations from other consumers (Tjokrosaputro and Cokki, 2020; Zhang et al., 2018). In addition, empirical evidence indicates that the explicit display and augmented advantages of a product enhance the attitude to make purchases (Fu et al., 2018). Past studies on Generation Y indicated that perceived value has a significant impact on attitudes related to green consumerism (Riva et al., 2022); social media advertising (Arora and Agarwal, 2019); and travelling (Caber et al., 2020).

Based on PVT, functional value refers to the perceived usefulness of a product based on its functional or physical performance. It depends on how users perceive its usability (Sheth et al., 1991). The study on Generation Y's inclination to make in-game purchases found that their intention is influenced by functional value, emotional value, and social value (Ruangkanjanases and Sahaphong, 2015). Conversely, a study conducted by Jitprasong and Tarnittakorn (2018) found that the value of performance did not influence the intentions of Generation Y gamers to make in-app purchases while Bleize and Antheunis (2019) identified that users' attitude toward purchasing virtual items in mobile games included character competency, and mission system requirements. Such functional and utilitarian values associated with goal achievement and economic outcomes often exert a positive attitude (Pang, 2021). In gaming context, the value for money in acquiring functional items is defined as the ratio of the increase in player effectiveness to the investment made, particularly for items like new weapons, spells, or abilities (Park and Lee, 2011).

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This economic trade-off is integral to the utilitarian motivation behind functional item purchases confer a competitive advantage, level the playing field, or enhance the player's ability for game progression.

On the other hand, emotional value, in the context of marketing, refers to the emotional advantages that consumers obtain from a product or service (Akram et al., 2021). It is commonly linked to hedonistic products, which are products that offer pleasure and happiness to the consumer (Sheth et al., 1991). Emotional value was similarly identified as a significant influencer of Gen Y in-game purchase intentions in a study by Moreno et al. (2017). Moreover, perceived value, such as hedonic and utilitarian value, is positively related to consumers' attitude, which can, in turn, affect purchase intention context (Yang, 2022). One study found that emotional value in mobile games is important for creating a positive experience for players (Cheung et al., 2023). Generation Y consumer attitude has been said to be influenced by their hedonic emotions such as pleasure, fantasy, imagination, and thrill (Pang, 2021). It is also found that among this generation, their emotional triggers are more influential than the utilitarian benefits (Hsu and Lin, 2016).

Sheth et al. (1991) defined social value as "the perceived utility acquired from an alternative's association with one or more specific social groups." The social value refers to the perceived benefit gained by customers in terms of improving their self-image and gaining social approval. This encompasses a more comprehensive perception of value that transcends the reliance on monetary measures, placing greater emphasis on including individuals in comprehending the consequences of decisions on their well-being. In a recent study conducted by Kusumawardani et al (2023), the researchers examine how gamification, social, hedonic, and utilitarian values all have impacted the utilisation of e-commerce platforms. The study also reveals that network exposure resulting from gamification has a considerable influence on social influence, recognition, and reciprocal benefit.

Epistemic value, in general, refers to knowledge or understanding benefits that relate to the value obtained from learning or gaining information (Sheth et al., 1991). The term refers to the value that is attributed to an option based on its ability to generate curiosity, offer something new, and fulfill a desire for knowledge (Lin and Dong, 2023). In relation to the mobile gaming world, this can include learning new skills, acquiring information about the game world, or gaining insights related to strategy and problem-solving. Positive epistemic curiosity and experiences related to knowledge gain or learning within the game can contribute to a favorable attitude (Smiderle et al., 2020).

Given the above discussions, the following hypothesis is posited:

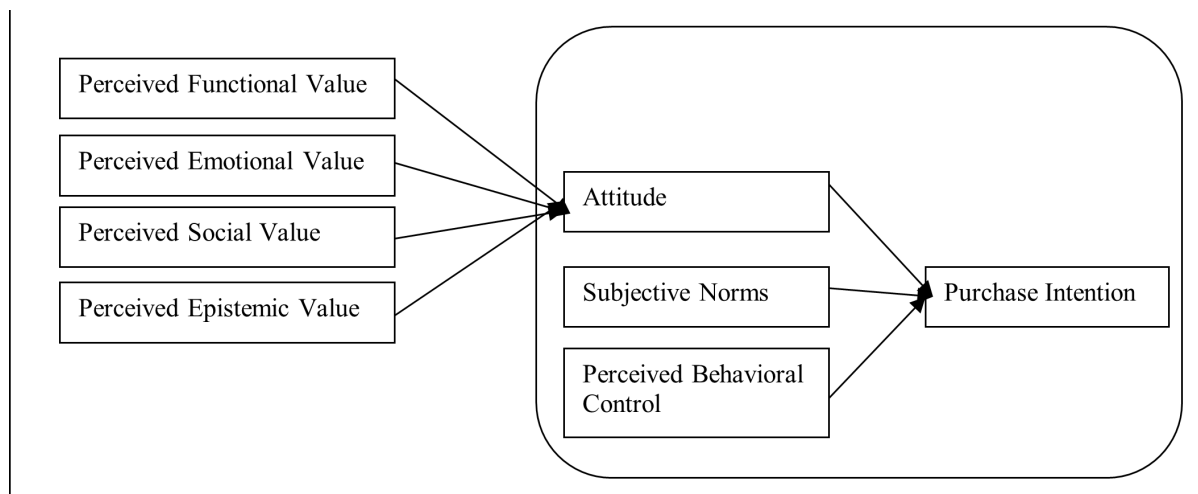
H4. Perceived functional value has a significant and positive influence on attitude towards mobile in-app game purchase intention.

H5. Perceived emotional value has a significant and positive influence on attitude towards mobile in-app game purchase intention.

H6. Perceived social value has a significant and positive influence on attitude towards mobile in-app game purchase intention.

H7. Perceived epistemic value has a significant and positive influence on attitude towards mobile in-app game purchase intention.

Based on the integration of PVT and TPB, below conceptual model is presented in Figure 1.

Navigating Mobile Marketing*Figure 1. Research conceptual model***METHODOLOGY OF STUDY**

The data collection in Malaysia for this study was conducted via a self-administered online survey targeting individuals born between 1981 and 1996. This study utilised the measuring items from previous research and evaluated these items using a 5-point Likert scale, which ranged from 1 (strongly disagree) to 5 (strongly agree). The variables of perceived functional value, perceived emotional value, and social value were measured using scales developed by Lin and Dong (2023). The scale for perceived epistemic value was developed by Wang et al. (2013). The scales for attitude, subjective norms, and perceived behavioural control were developed by Tapanainen et al. (2020). The scales for in-game purchase intention were adapted from Hamari et al. (2020).

Before distributing the questionnaires to all respondents, a pilot test involving 30 individual respondents from Generation Y in Malaysia was conducted. This pilot study aimed to evaluate the initial feasibility and viability of the research. The Cronbach's Alpha for all variables was above 0.6, indicating that the overall scale's construct validity and reliability are acceptable to proceed. The target respondents for the survey were players of at least one of the existing mobile games in the past six months. Based on the sample size calculator of G*power, the appropriate sample size with medium effect size ($f^2 = 0.15$), α level of 0.05 and power of 0.80 is 74 only (Gefen et al. 2000). However, as there are 10.7 million population of Generation Y in Malaysia, a total of 470 responses were collected to ensure sampling adequacy is met. An online questionnaire using Google link was created and distributed via snowballing method and anonymity statements alongside filtering questions were provided at the beginning of the survey invite. Using the snowballing method in the context of data collection in the in-app game purchase intentions research can be particularly useful in leveraging existing participants' networks. Dosek (2021) and Mirabeau et al. (2013) supported the use of snowballing technique to be used in social media marketing studies especially to increase efficiency in the limited time associated with finding target participants.

In terms of data analysis, data entry, and descriptive analysis is conducted using SPSS software. As for the further partial least squared structural equation modelling (PLS-SEM), the SmartPLS 4 is used to assess and ascertain the results of the hypothesized relationships. Although PLS-SEM and Covariance-

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Based Structural Equation Modeling (CB-SEM) are two widely used methods in the field of marketing research. PLS-SEM is more appropriate for exploring and validating the measurement model, and it can handle complex models simultaneously (El Maalmi et al., 2022; Hair et al., 2016).

ANALYSIS AND FINDINGS

Descriptive Results

Table 1 displays the demographic overview of the respondents. Out of the entire sample, 52.7 percent of the respondents were male and 47.3 percent were female. Regarding the age distribution, 39.5 percent of the population fell between the age range of 27 to 31 years old, 34.2 percent were between 32 and 36 years old, and 26.3 percent were between 37 and 42 years old. 64 percent of the respondents had achieved an undergraduate education qualification. As for their employment status, 51 percent are employed in the private sector while 42.1 percent are public sector employees, followed by 4.9 percent who are self employed and only 2 percent are unemployed currently. In terms of the average time they tend to spend on playing mobile app games, the majority of 62.1 percent claimed that they usually spend between 1 to 3 hours daily.

Table 1. Results of respondents' demographic profile

Characteristics	Frequency	Percentage
Gender		
Male	248	52.7
Female	222	47.3
Age		
27 – 31 years old	186	39.5
32 – 36 years old	161	34.2
37 – 42 years old	123	26.3
Highest Education Level		
High school	95	20.2
Undergraduate	301	64.0
Postgraduate	74	15.8
Employment Status		
Self-employed	23	4.9
Private sector employee	240	51.0
Public sector employee	198	42.1
Unemployed	9	2.0
Average time spent on playing mobile games on app per day		
Less than 1 hour	57	12.1
1-3 hours	292	62.1
More than 3 hours	121	25.8

Navigating Mobile Marketing*Table 2. Results of convergent validity*

Construct and Items	Outer Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha (CA)
Perceived Functional Value PFV1 – Purchasing in-game virtual goods enhances my game level. PFV2 – Purchasing in-game virtual goods advances my winning chances. PFV3 – Purchasing in-game virtual goods boosts my gaming efficiency.	0.931 0.952 0.917	0.928	0.871	0.926
Perceived Emotional Value PEMV1- Purchasing in-game virtual goods brings me joy. PEMV2 – Purchasing in-game virtual goods makes me feel pleasurable. PEMV3 – Purchasing in-game virtual goods makes me excited.	0.932 0.944 0.921	0.927	0.870	0.925
Perceived Social Value PSOCV1 – Purchasing in-game virtual goods makes me have a good impression among others. PSOCV2 – Purchasing in-game virtual goods gives me social recognition. PSOCV2 – Purchasing in-game virtual goods improves my social image.	0.945 0.873 0.941	0.914	0.847	0.909
Perceived Epistemic Value PEPV1 – Purchasing in-game virtual goods enables me to learn new things. PEPV2 – Purchasing in-game virtual goods enables me to experiment with new experiences. PEPV3 – Purchasing in-game virtual goods arouses my curiosity.	0.886 0.873 0.868	0.857	0.767	0.849
Attitude ATT1 – Buying virtual goods in the mobile app game is a good idea. ATT2 – Buying virtual goods in the mobile app game would be pleasant. ATT3 – I have a positive attitude towards buying virtual goods in the mobile app game.	0.833 0.822 0.882	0.808	0.716	0.802
Subjective Norms SN1 – I buy virtual goods in the mobile app game because my friends do that. SN2 - I buy virtual goods in the mobile app game because my family members do that. SN3 - I buy virtual goods in the mobile app game because people who are important to me think I should do that.	0.818 0.901 0.903	0.858	0.766	0.847
Perceived Behavioral Control PBC1 – I have the necessary device to make purchases in the mobile app game. PBC2 – I have easy access to Internet that enables me to make purchases in the mobile app game. PBC3 – I have sufficient time to make purchases in the mobile app game. PBC4 – I have the financial resources to make purchases in the mobile app game. PBC5 – I have full control to decide whether or not I want to make purchases in the mobile app game.	0.790 0.851 0.802 0.841 0.791	0.885	0.665	0.874
Purchase Intention PI1 – I predict that I will most likely be purchasing in-game virtual goods in the next 3 months. PI2 – I intend to use money to make an in-game purchase soon PI3 – I plan to spend my money on buying virtual goods	0.938 0.972 0.915	0.936	0.888	0.936

Assessment of Measurement Model

Convergent validity is assessed through factors such as factor loadings, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 2019). In evaluating internal consistency, the acceptability criteria include outer loadings > 0.50, AVE > 0.50, CR > 0.70, CA > 0.7 (Hair et al., 2019). Below Table 2 shows the results that all items exhibit loadings, CR, AVE and Cronbach's Alpha (CA) measurements above the acceptable threshold levels, affirming that the items reliably and validly measure their respective constructs.

Discriminant Validity

Table 3. Results of discriminant validity

	ATT	PBC	PEMOV	PEPV	PFV	PSOCV	PI	SN
Attitude (ATT)								
Perceived Behavioral Control (PBC)	0.579							
Perceived Emotional Value (PEMOV)	0.569	0.517						
Perceived Epistemic Value (PEPV)	0.590	0.559	0.557					
Perceived Functional Value (PFV)	0.562	0.515	0.712	0.588				
Perceived Social Value (PSOCV)	0.558	0.589	0.574	0.593	0.675			
Purchase Intention (PI)	0.627	0.676	0.604	0.587	0.634	0.553		
Subjective Norms (SN)	0.894	0.608	0.613	0.676	0.678	0.726	0.667	

Discriminant validity gauges the extent to which items measure distinct and separate constructs. To determine discriminant validity, Henseler et al. (2017) suggest using the heterotrait–monotrait (HTMT) ratio, which should be below 0.90. The discriminant validity analysis indicates that all HTMT values are less than 0.90, as shown in Table 3 below. Thus, this suggests that each construct in the study is distinctive and has successfully met the required criteria for validity and reliability assessments.

Assessment of Structural Model

To validate the hypothesized relationships in this study, the path analysis of the structural model was examined. The estimation was conducted using a bootstrapping approach consisting of 5000 iterations. As prescribed by Cho and Abe (2013), one-tailed test was used as the researchers posited directional hypothesis, with a t-value threshold of 1.645 (Hair et al., 2019). The process entailed closely examining the estimated standardised coefficients (β) to evaluate the magnitude of the hypothesised correlations. In addition, the R^2 value was examined to illustrate the amount of variance explained by the exogenous variables and to assess the predictive capability of the model in Table 4. The path diagram illustrating the structural model can be found in Figure 2. The findings for the hypothesis testing can be found in Table 5 below.

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Figure 2. Structural model path diagram

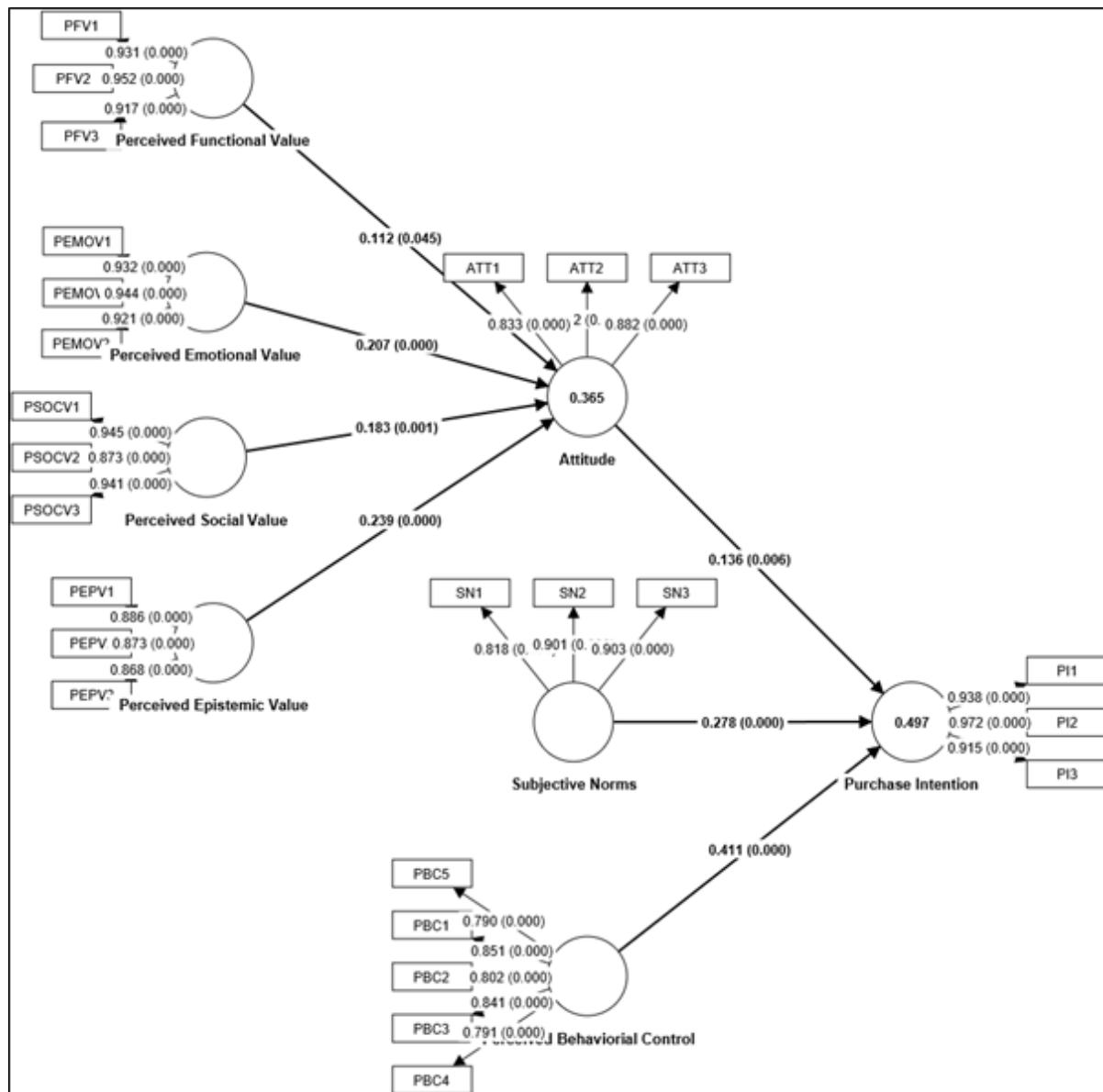


Table 4. Results of R^2 and Q^2

	R^2	$Q^2_{predict}$
Attitude toward mobile app in-game purchases	0.365	0.348
Mobile app in-game purchase intention	0.497	0.502

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The study findings indicate that perceived value accounts for 36.5% of the variability in attitude, whereas attitude, subjective norms, and perceived behavioural control collectively account for 49.7% of the variability in intention towards in-game purchases. The R^2 value, ranging from 0 to 1, acts as a measure of the degree of explanatory capability, with values of 0.25, 0.5, or 0.75 indicating weak, moderate, or strong explanatory power, respectively (Ali et al., 2021). The findings in Table 4 indicates a significant and moderate level of explanatory power for attitude, as influenced by perceived value. Similarly, purchase intention is impacted by attitude, subjective norms, and perceived behavioural control. Subsequently, the predictive relevance of Q^2 was analysed and the result indicates that Q^2 is greater than zero for both constructs (attitude = 0.348 and purchase intention=0.502), hence confirming that the model has predictive relevance.

The path coefficient of result for H1 between attitude (ATT) and purchase intention (PI) was 0.136 ($p < 0.05$). Accordingly, subjective norms (SN) also had a positively significant effect on PI ($\beta = 0.278$, $p < 0.05$, supporting H2). The path coefficient of perceived behavioral control (PBC) to PI was the highest at 0.411 ($p < 0.05$) confirming H3. As for the influence of perceived functional value (PFV) on PI, H4 was supported ($\beta = 0.112$, $p < 0.05$). Perceived emotional value (PEMOV) also had a significant and positive effect on PI ($\beta = 0.207$, $p < 0.05$), followed by the result between perceived social value (PSOCV) and PI which was $\beta = 0.183$, $p < 0.05$, confirming H6. Lastly, perceived epistemic value (PEPV) that indicates a positive and significant effect on PI ($\beta = 0.239$, $p < 0.05$).

As recommended by Kock (2021) to overcome potential Common Method Bias and assess the multicollinearity issue arising from data that was gathered from a singular source, the Variance Inflation Factor (VIF) was employed. Referring to the result of the Variance Inflation Factor (VIF) in Table 5, all VIF value are equal to or less than 3.3, indicating that there is no multicollinearity issue arising from this dataset.

DISCUSSIONS AND RECOMMENDATIONS

The rise of free-to-play games has reshaped conventional norms in the online gaming industry, shifting the focus from creating artistically superior games to developing ones that incentivize users to acquire virtual items regularly (Novak et al., 2014). Game developers now prioritize creating games that not only attract a large user base but also encourage frequent in-game purchases (Hamari et al., 2017).

Firstly, this study confirms the positive influence of attitude toward in-game purchase intention among Gen-Y gamers in Malaysia. A positive attitude is often associated with the perception that in-game purchases contribute to an enhanced gaming experience (Chen and Chang, 2020). Users may view these purchases as tools to unlock additional content, gain competitive advantages, or personalize their gaming avatars. The belief that in-game purchases contribute to an enriched gaming experience positively influences users' intention to make such purchases (Chou and Wang, 2016)

The influence of subjective norms on purchase intention toward in-game mobile apps is another key aspect that was confirmed empirically in this study. Users often gauge the acceptability of in-game purchases based on the behaviors and opinions of their peers within the gaming community. If there is a prevailing social norm that endorses or even encourages in-game purchases, individuals are more likely to align their own intentions with these perceived norms (Shin, 2008). The role of family and friends should not be overlooked as individuals are influenced by the opinions of their immediate social circles (Gupta et al., 2022). The influence of gaming influencers and celebrities within the online gaming sphere

Navigating Mobile Marketing*Table 5. Results of path coefficient analysis*

Hypothesis	Standard Beta	Standard Error	t-value	p-value	f ²	VIF	Decision
H1: Attitude has a significant and positive influence on mobile app in-game purchase intention	0.136	0.054	2.508	0.006	0.016	2.29	Supported
H2: Subjective Norms has a significant and positive influence on mobile app in-game purchase intention	0.278	0.054	5.145	0.000	0.064	2.421	Supported
H3: Perceived behavioural control has a significant and positive influence on mobile app in-game purchase intention	0.411	0.042	9.777	0.000	0.235	1.433	Supported
H4: Perceived functional value has a significant and positive influence on attitude towards mobile game	0.112	0.066	1.692	0.045	0.009	2.243	Supported
H5: Perceived emotional value has a significant and positive influence on attitude towards mobile game	0.207	0.062	3.356	0.000	0.035	1.921	Supported
H6: Perceived social value has a significant and positive influence on attitude towards mobile game	0.183	0.057	3.210	0.001	0.029	1.802	Supported
H7: Perceived epistemic value has a significant and positive influence on attitude towards mobile game	0.239	0.055	4.319	0.000	0.058	1.561	Supported

is a crucial factor. If influential figures endorse or actively engage in in-game purchases, their followers may be more inclined to emulate these behaviors. The perceived approval from such figures contributes to the formation of positive subjective norms, thus influencing users' intentions to make in-game purchases (Boonchutima and Sankosik, 2022). It is also recommended that mobile game companies can facilitate social community engagement features within the app encourages users to interact within virtual communities and in-game forums (Farzin et al., 2022). The exchange of insights and information among users contributes to the collective epistemic value, fostering a sense of community and shared knowledge on gaming tricks.

In addition, the influence of perceived behavioral control (PBC) on purchase intention toward in-game mobile apps is determined in the result presented above. Among the key factors, PBC played the most influential role. The ease of transaction processes significantly affects perceived behavioral control (Wang et al., 2023). If the purchasing process is seamless, user-friendly, and transparent, users are more likely to feel in control of their actions, thus enhancing their confidence in making in-game purchases. On the contrary, a cumbersome or confusing transaction process may lower perceived behavioral control and consequently decrease purchase intention. Users' perception of control is influenced by the convenience of making the purchase of those virtual goods in the game. Users with a higher level of familiarity with the mobile game app interfaces and online transactions are likely to perceive greater control over their actions (Bleize and Antheunis, 2019). As such, it is recommended that mobile game companies prioritize the enhancement of user interfaces and transaction processes within the app. A streamlined and user-friendly in-app purchase process can significantly contribute to users' perceived control over their transactions. Clear instructions and guidance should be provided to ensure a transparent and efficient process.

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Moreover, according to this study, the perceived functional value and utility of in-game purchases contribute significantly to a positive attitude (Hamari et al, 2020). Users who view these purchases as enhancing their gaming experience are more likely to express a favorable attitude. The belief that virtual items or features contribute meaningfully to the gaming experience influences users to consider in-game purchases as worthwhile investments. In terms of this, optimizing gameplay mechanics is paramount. It is recommended that game developers should provide free regular updates and the introduction of new features in the game to maintain engagement, whilst addressing the desire for variety and ongoing challenges (Heimo et al., 2018). By incorporating utility and importance of gaining the virtual goods in the game itself, this will contribute to the perceived functional value of those goods.

Next, the perceived emotional value was found to impact the attitude of the users. This indicates that the entertainment value and enjoyment derived from mobile games play a crucial role (Soodan and Pandey, 2016). The intrinsic hedonistic pleasure gained from gaming experiences enhances their attitude towards buying in-game virtual goods (Yeh and Chen, 2023).

Furthermore, the result of this study also highlights the importance of social influences and norms within the gaming community that plays a pivotal role. Positive attitudes may be influenced by the prevailing social norms that exist within the gaming community (Chang and Hsu, 2022). If purchasing in-game items is considered socially acceptable or commendable, users are more likely to develop positive attitudes toward such practices (Ng and Huang, 2022). Social reinforcement through interactions within the gaming community, such as positive reviews or recommendations, can contribute to a positive attitude and, consequently, a higher intention to make in-game purchases (Majali et al., 2022).

Lastly, this study confirms the positive influence of perceived epistemic value on attitude toward in-game mobile apps. Users who perceive high epistemic value are likely to view the in-game content as intellectually stimulating and educationally enriching (Cheng et al., 2023). Mobile apps that offer insights, challenges, or educational components contribute to a positive epistemic value, influencing users to form favorable attitudes toward the app (Hasan, 2022). Users who perceive that buying virtual goods in the mobile app contributes to the development of new gaming skills or enhances their problem-solving abilities are more likely to form positive attitudes (Jang et al., 2018). Game-developing companies can benefit from several strategic recommendations based on the insights gathered from the results of this study. Moving on to content development, game developers should focus on creating intellectually stimulating and enriching content within the mobile app particularly in terms of the virtual goods usage in the game (Hong et al, 2022). Narrative complexity, and an enticing story line in the game with challenging scenarios contribute to positive epistemic value, enhancing users' engagement contributing towards positive in-game attitudes (Junior et al, 2023).

Theoretical and Managerial Implication

The study carries both theoretical and managerial implications, providing valuable guidance for decision-making across the spectrum for developers, marketers, and other stakeholders. Perceived value theory, acting as a comprehensive conceptual framework, equips researchers and industry practitioners with profound insights into consumer behavior. This facilitates an in-depth examination of how individuals assess the pros and cons associated with in-app game purchases on mobile devices, yielding a nuanced understanding of the determinants shaping users' perspectives on such transactions. Within the domain of attitude formation and evolution, the application of perceived value theory to mobile in-app game purchases allows researchers to scrutinize the dynamic aspects of user attitudes. This exploration into the

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temporal intricacies of perceived value holds particular significance for marketers and developers aiming to refine their strategic methodologies. Furthermore, the theory's application extends to the meticulous construction of value propositions, empowering scholars to analyze the components influencing perceived value. By exercising this discernment, one can effectively develop and enhance value propositions for in-app purchases in mobile games. Aligning products or services with consumer preferences enables developers to positively impact user attitudes.

Managers can leverage these insights to prioritize features, content, and interactions that contribute positively to perceived value. Improving the overall user experience becomes pivotal in fostering more favorable attitudes and increasing user retention. The understanding of elements contributing to perceived value also allows managers to optimize in-app purchase strategies. Tailoring offerings based on user preferences and perceived value drivers becomes a key approach, enhancing the overall attractiveness of in-app purchases and potentially boosting user engagement and revenue.

Furthermore, managers can use the results of the study to refine and strengthen the value propositions associated with in-app purchases. This involves aligning product features and benefits with what users value most, thereby exerting a positive influence on attitudes and potentially increasing the likelihood of user purchase. In essence, the combined insights from perceived value theory offer a strategic roadmap for developers and marketers to navigate the intricacies of user attitudes and preferences in the dynamic landscape of mobile in-app game purchases.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The study's limitations are twofold. Firstly, the use of a sample size consisting of 470 respondents may pose a constraint, potentially limiting the generalizability of the findings to the broader Generation Y population in Malaysia, particularly in Sabah and Sarawak. Additionally, the adoption of cross-sectional studies in this research may impede the establishment of causal relationships and hinder a comprehensive understanding of changes over time related to perceived value, attitude, subjective norms, and perceived behavioral control in the context of in-app purchase intentions among Generation Y in Malaysia. Consequently, it is recommended to employ longitudinal designs as they offer a more suitable approach to explore the temporal dynamics of these determinants.

The dynamic nature of Generation Y behaviors introduces another set of limitations. These behaviors are susceptible to shifts driven by evolving trends, technological advancements, and socio-economic changes. Research findings may quickly become outdated if the behavior of Generation Y is not consistently updated to align with current market conditions. Therefore, it is advisable for future studies to diligently track the latest trends and technological breakthroughs in the mobile gaming sector, ensuring the research remains connected to the ever-changing landscape.

Moreover, cross-cultural variations present a challenge due to notable differences in consumer behavior across diverse cultures in Malaysia, characterized by its multitude of races and religions. The complexity of cultural diversity underscores the need for researchers to exercise prudence when interpreting cross-cultural results. Collaboration with industry experts and practitioners becomes crucial to acquiring insights that ensure the relevance of findings across different cultures in Malaysia.

The investigation focuses on assessing the impact of design elements, including user interface design, game mechanics, and overall user experience in mobile games, on the purchasing intentions of Generation Y consumers. Future research should delve into psychological elements and motivations, exploring

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factors such as the influence of accomplishment, competition, social acknowledgment, and the desire for customization in the gaming experience. Crucially, future studies need to explore strategies for enhancing long-term user engagement and loyalty through the utilization of in-app purchases. This involves a comprehensive analysis of loyalty schemes, incentive systems, and other strategies tailored to retaining users in the dynamic landscape of mobile gaming.

CONCLUSION

In conclusion, this study provides a substantial advancement in the comprehension of Generation Y mobile gamers' intentions to purchase in-app virtual goods for mobile games, focusing specifically on Malaysian mobile gamers. By utilising the theoretical frameworks of the Theory of Planned Behaviour and the Perceived Value Theory, this research identified the fundamental factors including attitude, subjective norms, perceived behavioral control that influence in-game purchase intentions. Notwithstanding, it also empirically confirmed the effect of perceived value elements including functional value, social value, emotional value and epistemic value on the attitudes of Generation Ys. As the digital environment undergoes rapid and transformative change, it is critical for marketers who wish to customise their approaches to comprehend the underlying motivations that drive consumer behaviour. The results of this research not only provide valuable insights into the current state of in-game purchase intentions among Generation Y gamers in Malaysia, but also establish a groundwork for forecasting and adjusting to forthcoming developments in the monetization of the free-to-play mobile gaming sector. This study not only adds empirical evidence to the current corpus of knowledge regarding consumer behaviour in the context of mobile gaming, but also emphasises the practical ramifications for professionals in the industry. This finding establishes a foundation for subsequent investigations, inspiring scholars to delve into more intricate facets of in-app purchase intentions for mobile games and modify their approaches to account for the ever-changing digital gaming industry. By incorporating the knowledge acquired from this research into marketing strategies, user experience design, and business models, a more strategic and knowledgeable approach can be developed to effectively engage and fulfil the preferences of Gen-Y mobile gamers in Malaysia.

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KEY TERMS AND DEFINITIONS

Attitude: Someone's personal feeling or opinion about something.

Gen-Y or Generation Y: A demographic cohort that encompasses individuals born between the years 1981 and 1996.

In-app purchase (IAP): A transaction type allowing players to obtain additional items, premium content, or virtual goods within a game.

Mobile game: Digital games designed for and played on mobile devices such as smartphones, tablets, and feature phones.

Perceived Behavioral Control: How confident someone feels in their ability to do something.

Perceived Emotional Value: Emotional benefits that consumers derive from a product or service.

Perceived Epistemic Value: The knowledge or understanding of benefits obtained from a product or service.

Perceived Functional Value: Perceived usefulness of a product, specifically in terms of its practical or functional performance.

Perceived Social Value: Perceived utility gained from a product's association with specific social groups.

Perceived Value Theory: A theory that suggests people assess the worth of a product or service by weighing the benefits against the associated costs.

Purchase Intention: The likelihood or plan of a buyer to acquire a specific brand or product within a certain timeframe, influenced by their feelings about the product and what they believe others think about it.

Subjective Norm: What someone thinks others might believe or say about a certain behavior.