Expectation Confirmation Theory

Expectation Confirmation Theory explains how individuals' post-purchase satisfaction and repurchase intentions depend on the pre-purchase expectations and subsequent experiences with products or services.

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Theory Factsheet

Proposed By: Oliver, 1980

Related Theories: Cognitive Dissonance Theory, Post acceptance model, Equity Theory

Discipline: Marketing

Unit of Analysis: Individual

Level: Micro-level

Type: Theory for Explaining

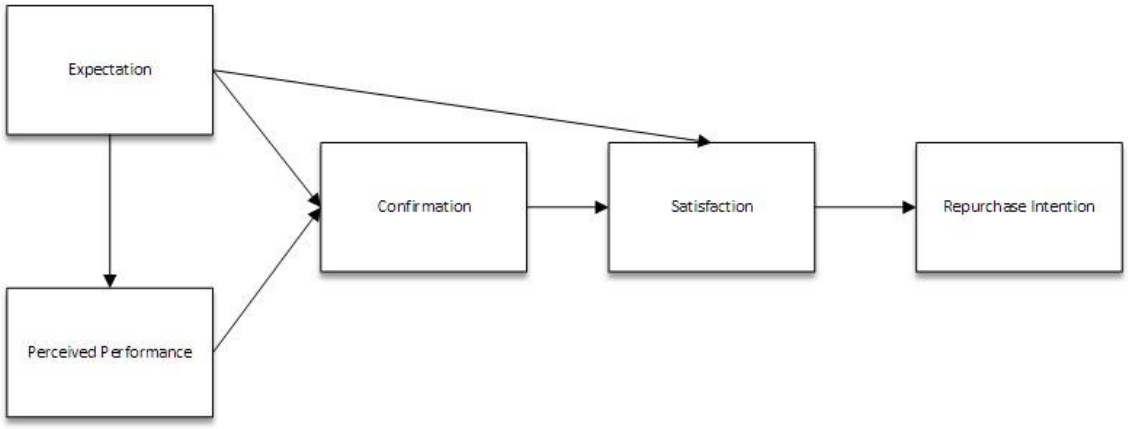
Operationalised: Qualitatively / Quantitatively

Introduction

The Expectation Confirmation Theory (ECT) originated from the research domains of consumer research and social psychology. The theory was first introduced in marketing to study consumer satisfaction and consumers' decision-making processes (Oliver, 1980). Since its inception, the marketing literature has consistently highlighted the critical role of consumer satisfaction, which further affects repurchases, consumer loyalty, and consumer retention (Rust & Zahorik, 1993; Churchill & Surprenant, 1982). The foundation for the concept of satisfaction was derived from applied psychology research related to life and employment satisfaction. For example, individuals set an initial standard of expectations, and any deviation from the initial reference point affects their satisfaction levels. Similarly, consumers have basic needs and certain expectations from products to fulfil their needs. When the product fails to meet consumers' expectations, this results in consumers' unfavourable attitudes (disconfirmation) and beliefs about the product (Yang, Lu & Chau, 2013). The disconfirmation concept is aligned with cognitive dissonance theory, which suggests that individuals experience a psychological conflict when their behaviour is not consistent with their beliefs and thoughts (Harmon-Jones & Mills, 2019). For example, users may believe that a certain technology is easy to use, but find it complex during the actual usage. In such a case, users need to realign their attitudes toward that technology to resolve the discrepancy, leading to disconfirmation. If the

behaviour and thoughts are aligned, consumers do not need to change attitude and hence no dissonance exists. Similarly, ECT offered insights into the cognitive post-purchase consequences of satisfaction and attitude. ECT utilised the Howard and Sheth (Haines, Howard & Sheth, 1970) model of consumer satisfaction to propose that disconfirmation stems from the comparison between anticipated satisfaction and received satisfaction. Contrary to the popular belief that a superior quality product results in higher consumer satisfaction, even a relatively inferior quality product can successfully meet consumers' expectations, leading to acceptable levels of consumer satisfaction (e.g., one-time use and throw-away products). Hence, the theory highlights how expectations prior to purchase and post-purchase experiences shape consumer satisfaction (Oliver, 1981). Another important objective of ECT was to offer guidance to marketers in retaining consumers, as the cost of acquiring new customers was substantially higher than retaining them (Anderson & Sullivan, 1993; Dabholkar, Shepherd & Thorpe, 2000). A conceptual model of the theory is given in FIG 1.

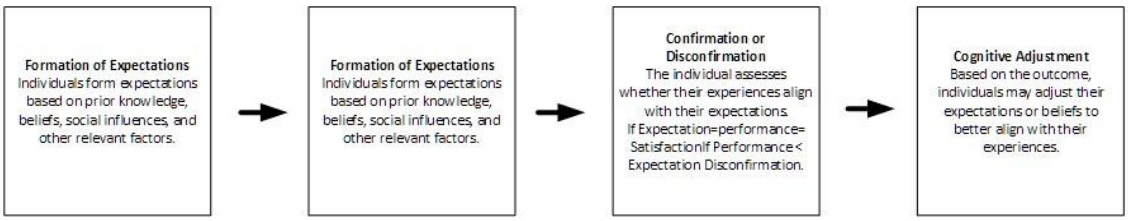
Figure 1: Expectancy Confirmation Theory



Theory

ECT demonstrates that consumer satisfaction is fuelled by belief/disbelief generated as an outcome of the evaluation of the performance against the expectation (Oliver, 1980). The conceptual underpinning of ECT theory can be explained in the following steps: formation of expectation, interaction and experience, confirmation or disconfirmation, and cognitive adjustment (Hossain & Quaddus, 2012) (FIG 2). These steps explain why consumers purchase again.

Figure 2: Consumer's evaluation of Expectation and Confirmation



Formation of Expectations: Consumers form initial expectations about a specific product or service prior to purchase based on knowledge and prior experience. This knowledge is acquired through various mass media communication channels, peers, and influencers. Mass media acts as a critical source of product information and knowledge for consumers, who form expectations based on advertising, media reports, and other forms of media exposure. In addition, direct channels like personal selling, opinion leaders, peers, and influencers influence consumers' knowledge and expectations about the products. If consumers have access to accurate product information, they form realistic expectations. However, if the information is misleading, it leads to unrealistic expectations.
Interaction and Experience: Consumers purchase and use the product after carefully considering the information. Once the consumers use the product, they form perceptions about its performance.
Confirmation or Disconfirmation: Consumers assess the perceived performance of the product (or service) based on their initial expectations. There could be three possibilities that can lead to disconfirmation.
Perceived product performance > expectations = positive disconfirmation
Perceived product performance < expectation = negative disconfirmation
Perceived product performance = expectation = simple confirmation
Cognitive Adjustment: Based on the confirmation of their expectations, consumers form a level of satisfaction. Positive disconfirmation and simple confirmation strengthen consumers' attitudes toward the product, leading to a sense of satisfaction (Oliver & DeSarbo, 1988). In the case of negative disconfirmation, consumers develop an unfavourable attitude toward the product, generating dissatisfaction. Consumers satisfied with the performance of the products are more likely to repurchase products compared to dissatisfied consumers. In some specific cases, even dissatisfied consumers are forced to repurchase products, due to the absence of any other feasible alternative or high switching costs. Similarly, all satisfied consumers may not repurchase the same products, because of intrinsic factors such as variety-seeking behaviour, a need for uniqueness, or innovativeness (McAlister & Pessemier, 1982).

Theory Updates/Extensions

Expectation Disconfirmation Theory

Expectation disconfirmation theory (EDT) (Oliver, 1993) is an alternate version of ECT, which replaces confirmation with disconfirmation. Consumers compare the product performance with pre-purchase expectations in the post-purchase stage, creating disconfirmation perceptions. The combination of these perceptions and the deviation from the expected satisfaction levels affects consumers' satisfaction/dissatisfaction (Oliver, 2014). Oliver (2014) discussed two models of EDT. The first simplified expectation disconfirmation model consists of three main constructs: expectations, disconfirmation, and satisfaction. Higher initial expectations will lead to more instances where performance fails to meet the higher expectations. Hence, expectations are more likely to have a negative relationship with disconfirmation. Expectations and disconfirmation have a positive impact on satisfaction. The second model, the complete expectation disconfirmation one, includes performance as the fourth variable in the model. This model suggests that expectations

have a positive effect on performance. In addition, if the product performance is high, it is more likely to exceed the initial expectations, leading to a positive disconfirmation. Hence, performance has a positive influence on disconfirmation and satisfaction. While comparing the two models, the simplified model is parsimonious, and the second complete model performs better in explaining the variations in satisfaction (Lankton & McKnight, 2012). The complete model also highlights the assimilation effects and asymmetric effects missing in the simplified model (Lankton & McKnight, 2012). Assimilation effects reflect how consumers balance their expectations and perceptions of product performance. For example, consumers may rely more on initial expectations than performance to form satisfaction, as it is difficult to evaluate the performance of complex technologies. Asymmetric effects indicate the distinct impact of positive and negative perceptions, where negative experiences (compared to positive experiences) have a relatively higher impact on satisfaction.

Expectation-Confirmation Model

In an information systems context, the user follows a similar decision journey leading to continuance/acceptance. The expectation-confirmation model (ECM) (Bhattacherjee, 2001) is one of the most well-known and extensively used models extended from ECT. ECM replaced the repurchase intention variable in ECT with information systems continuance intention to suit the research context. ECM defined confirmation as "*the congruence between expectation and actual performance*" (Bhattacherjee, 2001:p359) and removed the performance construct of ECT because ECM assumes that the influence of perceived performance is already explained by confirmation. The model predominantly focused on the post-usage or post-acceptance variables to explain usage continuance. The effects of pre-acceptance variables are already manifested in the constructs of confirmation and satisfaction. In addition, the construct of perceived usefulness from the technology acceptance model (TAM) was introduced to reflect the post-acceptance expectations.

According to ECM, users' intention to continue IS usage depends on three factors: users' satisfaction with IS, the degree of users' confirmation of their expectations, and the post-usage perceived usefulness of IS. The perceived usefulness shows users' cognitive belief, and satisfaction reflects users' affect. Satisfaction has a stronger effect on IS continuance than perceived usefulness. The continuance is predominantly determined by users' satisfaction with initial use. Unpleasant experiences and dissatisfaction arising from performance (e.g., quality of Internet speed or poor website design) negatively influence users' further use of such services or websites (Kang & Lee, 2010). Hence, satisfaction, an affective component of human behaviour, has a significant positive association with continuance. Initial expectations and confirmation (disconfirmation) of those expectations after the first use are two important antecedents to satisfaction. As noted earlier, expectations are at the baseline, which acts as an anchor for the further evaluation of the system. The confirmation is evaluated based on the gap between the actual performance and initial expectations. A positive confirmation suggests that users have reaped the expected benefits, whereas a negative confirmation suggests that the product or service has failed to meet users' expected levels of performance. Therefore, users' confirmation has a positive impact on their satisfaction with usage. The perceived performance (post-usage expectation) was operationalised as post-perceived usefulness in ECM. Research on IS continuance showed that the impact of perceived ease of use on attitude and behavioural intentions gradually declined from the pre-acceptance to post-acceptance stages. As users became familiar with IS, they became more concerned with the performance and benefits obtained from IS (Karahanna, Straub & Chervany, 1999). Hence, users' perceived usefulness of IS was expected to significantly predict their post-acceptance satisfaction. Also, when users can improve their performance and productivity with the help of IS, they are intrinsically motivated to use IS to seek potential rewards. Consequently, perceived usefulness has a positive influence on users' IS continuance. Finally, to understand the relationship between

perceived usefulness and confirmation, the ECM took cues from the TAM model, where the cognitive beliefs (ease of use and perceived usefulness) in IS acceptance were related. However, the post-usage perceived usefulness was somehow mixed and confused with the much more popular pre-usage perceived usefulness featured in TAM. To avoid this confusion, in an extension of ECM (extended model of IS continuance), perceived usefulness was replaced by post-usage usefulness (Bhattacherjee, Perols & Sanford, 2008). This updated model also incorporated two additional variables: users' IT self-efficacy to reflect their confidence in their skills and abilities to perform the tasks, and facilitating conditions to enable users to access and use IS. In this model, the authors proposed that the association between perceived usefulness and satisfaction can be removed without any significant impact on the variance explained in satisfaction.

In another extension, ECM was combined with the Unified Theory of Acceptance and Use of Technology (UTAUT) framework to investigate users' post-adoption behaviour toward mobile payment systems (Singh, 2020). The integrated model, with two additional variables of trust and perceived security, displayed a higher predictive power to explain users' continuance of mobile payments. Scholars have also integrated ECT with other theories, such as TAM and the Theory of Planned Behaviour (TPB), to measure user satisfaction and its impact on IS continuance. ECT and TAM were used to examine the usage and acceptance of online learning platforms to enhance educational technology acceptance and its utilisation among students (Tawafak et al., 2023). Similarly, ECT and TAM were integrated to predict blog continuance intentions, and the ECT model of IS continuance performed better than the TAM (Shiau & Chau, 2012). In another study, constructs from ECT and TPB were used to investigate the antecedents to users' continuance intention of using online shopping (Hsu et al., 2006). The findings indicated that users' prior experience and satisfaction with online shopping significantly positively impacted their continuance intentions of online shopping. The research findings from integrated models suggest that ECM can be used in conjunction with other IS models like TAM and UTAUT to investigate users' post-adoption behaviour. In most cases, the integrated models with additional context-specific variables perform better, with improved predictive power.

Table 1: Variables as extensions of ECT

Variables	**Relevant Studies**
Trust	(Zhou et al., 2018; Yousaf, Mishra & Gupta, 2021; Shiau et al., 2020; Rahi et al., 2021; Kumar, Israel & Malik, 2018)
Quality	(Zhang et al., 2015; Roca, Chiu & Martínez, 2006)
Task fit	(Yuan et al., 2016; Sun, Fang & Zou, 2016; Osah & Kyobe, 2017)
Efficacy	(Yeh & Teng, 2012; Shiau et al., 2020; Mouakket, 2020)

Perceived Ease of Use	(Yuan et al., 2016; Weng et al., 2017)
Expectation	(Premkumar & Bhattacherjee, 2008;Piehler et al., 2016)
Subjective norms	(Yoon & Rolland, 2015; Sun et al., 2017)
Enjoyment	(Yoon & Rolland, 2015;Siepmann & Kowalczuk, 2021)
Attitude	(Weng et al., 2017;Venkatesh et al., 2011;Marikyan, Papagiannidis & Alamanos, 2020)
Social influence	(Yoon & Rolland, 2015; Venkatesh et al., 2011;Tam, Santos & Oliveira, 2020; Joo, Park & Shin, 2017)
Perceived risk	(Wang, Lin & Liu, 2021; Weng et al., 2017)
Performance	(Wang, Lin & Liu, 2021)
Innovativeness	(Wang et al., 2008)

Applications

ECT and its extensions have been widely used in multiple research contexts. ECT has been applied and used across the marketing, sociology, public policy, and IS domains.

ECT is widely used in its field of origin, namely in marketing, to examine multiple facets of consumer behaviour, such as purchase intentions, loyalty, and satisfaction (Anderson & Sullivan, 1993;Dabholkar, Shepherd & Thorpe, 2000;Oliver, 1981). ECT-based research offers valuable suggestions to marketers to fully comprehend and respond to customer preferences and requirements by providing information about the variables impacting post-purchase choices, eventually establishing long-term connections and achieving corporate growth. The theory has been applied in different research contexts, including the purchase of durable and non-durable items (Churchill & Surprenant, 1982), automobile repurchase (Oliver, 1993), restaurant service evaluations (Swan & Trawick, 1981), repurchase of camcorders (Spreng, MacKenzie & Olshavsky, 1996), photographic merchandise (Dabholkar, Shepherd & Thorpe, 2000), and professional business services (Patterson & Spreng, 1997). ECT has been used to determine how satisfaction with services may lead to consumer loyalty depending on users' self-determined motivation (Lin, Tsai & Chiu, 2009). It has also been used in the context of consumers' e-loyalty toward online book-selling websites and consumers' impulsive purchase behaviour (Tsao, 2013).

In sociology, ECT has been applied to various different cases. For instance, it has been used to explore police-citizen encounters in the USA. The research examined the impact of citizens' expectations of police performance and disconfirmation with actual services on their satisfaction levels (Reisig & Stroshine Chandek, 2001). The concept of disconfirmation with the prevailing expectations was utilised to explore gender-based inequalities (Wagner, Ford & Ford, 1986). ECT has been employed in the field of public policy to assess citizen satisfaction in relation to urban services, public administration, and federal services (Morgeson, 2013;Poister & Thomas, 2011;Van Ryzin, 2004;Pirog, 2013). The validity and generalisability of ECT have been confirmed via many other studies in similar contexts across different countries like China (Filtenborg, Gaardboe & Sigsgaard-Rasmussen, 2017) and England (James, 2009). An extensive amount of research exists in the public administration literature that examines the antecedents to citizen satisfaction. A recent meta-analysis integrated the findings of ECT-based research on citizens' satisfaction with public services to confirm that users are satisfied when the perceived performance meets or exceeds their expectations (Zhang et al., 2022). The analysis suggests that ECT offers useful insights and should be used to further investigate the determinants of citizen satisfaction.

In the domain of public policy, scholars have used ECT to study public satisfaction and loyalty to public transport. For a sustainable transport system, governments face complex challenges of building passenger loyalty to public transport similar to the concepts of consumer loyalty and repeat purchases. ECT is used to understand the multidimensional aspects of public transport usage from passengers' perspectives (Fu, Zhang & Chan, 2018). The research findings have immensely helped governments draft public policies to improve public services to increase citizens' satisfaction with services. In social psychology, the expectancy-confirming philosophy is used to explore the influence of expectancy-based information processing and prejudicial attitudes on social stereotypes (Ford & Stangor, 1992). For example, some individuals associate stereotypes of violence and drug abuse with rap music artists due to specific promotion tactics used in poplar media. Policymakers in the banking industry have benefitted from the application of ECT to examine the importance of intrinsic motivations and its impact on users' satisfaction with services (Rahi & Abd. Ghani, 2019).

ECT, EDT, and ECM have been extensively used in IS adoption and continuance research. A vast amount of research has utilised ECT/ECM across multiple domains, such as m-health and fitness apps adoption, digital banking services, medical tourism, hospitality, smart wearables, e-learning platforms, e-commerce, online reviews, and ride-sharing services (Almaiah, Al-Khasawneh & Althunibat, 2020; Ashfaq et al., 2020; Ayanso, Herath & O'Brien, 2015; Chen, 2012; Si et al., 2022; Wu et al., 2022). Predominantly, ECM has been used to examine the usage and continuance intentions in a wide variety of IS products and services. The first few applications of ECM were to test users' IS continuance intentions with online banking services (Bhattacherjee, 2001) and changes in users' beliefs and attitudes toward computer-based training systems and system development (Bhattacherjee & Premkumar, 2004). Most of the research related to mobile and smartphone banking has strengthened the relevance of ECM in understanding consumers' intention to keep utilising mobile banking services (Chen, 2012; Susanto, Chang & Ha, 2016; Yuan et al., 2016). Similarly, ECT has been used to explain users' fintech continuance, considering the effects of users' self-efficacy (Shiau et al., 2020), as well as the continued usage of smart wearables (El-Gayar & Elnoshokaty, 2023). During the COVID-19 pandemic, ECT and ECM grew in prominence, evaluating users' continuance intentions and satisfaction toward e-learning systems (Almaiah, Al-Khasawneh & Althunibat, 2020; Mailizar, Almanthari & Maulina, 2021) and fitness apps (Yousaf, Mishra & Gupta, 2021). ECT has also found applicability in the domain of recent artificial intelligence (AI) technologies, for example, users' continuance and recommendations of AI-based smart voice assistants (Lee et al., 2021).

A significant amount of research has explored the determinants of user satisfaction with technology. In recent years, technology usage has become more personal in nature. It has reached users' homes,

and with smartphones, it has become ubiquitous (Venkatesh & Brown, 2001). Users consistently use technology to fulfil their hedonic motives along with utilitarian motives. So, it is imperative to consider the specific contexts and instances of technology usage to predict users' continuance. User acceptance behaviour differs between utilitarian (productivity-oriented) and hedonic (pleasure-oriented) IS (van der Heijden, 2004). Hedonic IS is generally related to leisure activities, offering fun and entertainment, and it emphasises users spending more time with IS, rather than using IS as a means for improving productivity. Hence, perceived enjoyment, an intrinsic motivation, becomes more important than perceived usefulness for hedonic IS (van der Heijden, 2004). Numerous research findings suggest that perceived enjoyment is a critical predictor of user satisfaction and continuance in IS contexts, such as online services and social media apps (Kang & Lee, 2010), mobile internet (Jumaan, Hashim & Al-Ghazali, 2020), and mobile data service continuance (Kim, 2010). A positive confirmation has been shown to lead to higher levels of perceived enjoyment, leading to higher user satisfaction (Kim, 2010). Similarly, when users enjoy blogging, they are more likely to continue using blog websites due to higher satisfaction (Shiau & Luo, 2013).

Table 2: Application of ECT in various fields

	Author	**Area of Study**
Marketing	(Churchill & Surprenant, 1982)	Durable and non-durable products
	(Swan & Trawick, 1981)	Restaurant service
	(Spreng, MacKenzie & Olshavsky, 1996)	Camcorder repurchase
	(Dabholkar, Shepherd & Thorpe, 2000)	Photographic products
	(Patterson & Spreng, 1997)	Business professional services
	(Oliver, 1993)	Automobile repurchase
Sociology	(Reisig & Stroshine Chandek, 2001)	Policy performance
Public Policy	(Van Ryzin, 2004)	Urban services
Social psychology	(Ford & Stangor, 1992)	Prejudicial attitudes and social stereotypes
Information systems	(Bhattacherjee, 2001)	Information systems continuance
	(Bhattacherjee, 2001)	E-commerce continuance decisions

Limitations

ECT originated in marketing literature, seeking to explain consumer satisfaction and post-purchase actions such as repurchase intentions and it was extended to IS research to examine users' satisfaction and post-acceptance continuance intentions. Scholars have discussed a few limitations of ECT and its extensions. ECT offers a parsimonious model to connect user satisfaction and repurchase/IS continuance intentions, which allows scholars to add additional context-relevant

variables to increase the predictive power of their proposed model. One criticism of ECT is its inability to explain the situations of extremely low/high expectations and performance. ECT fails to explain why users remain dissatisfied even when the product performs higher than the consumer's initial expectations (Au, Ngai & Cheng, 2002; Premkumar & Bhattacherjee, 2008). Users may be constrained by organisational barriers to describe their actual expectations. For example, users may be concerned about how the top management or peers will think about them, if they do not conform to others' viewpoints. They may align their expectations due to conformity and not report actual expectations. It is also possible that users may reduce their expectations after prolonged use of information systems, so that even if system performance remains high, users do not feel satisfied. Perceptions of reduction in the speed and performance of computers and phones are some examples where users may not feel that the system is performing at the levels when they started using it due to consistent usage. In a few cases, users may lack awareness of the technology features and benefits (no expectations), which makes them satisfied with low levels of system performance. The earlier versions of Windows had performance and stability issues, yet many people found them very useful as they did not have any set expectations of stability and consistent performance.

Scholars have also questioned the applicability of the expectation generation process outlined in ECT to the IS context. In ECT, expectations can be generated from sources such as mass media, advertising, and opinion leaders. A consumer can buy a product without having any specific expectations under the influence of marketing persuasion. However, it is very unlikely that a user (or organisation) will purchase an IS product without having predefined expectations. Hence, the traditional ECT suffers from the limitation of explaining the IS expectation formation process in the context of IS products. Some researchers have pointed out the distinction between consumers and customers, while applying the ECT to practice. They recommend using ECT, focusing on users in IS research who will use the product.

In addition, ECT assumes that expectation is a relatively constant construct only considering pre-consumption expectations, whereas expectation changes with time, knowledge gained, and experience (Bhattacherjee & Premkumar, 2004). ECT focuses on the confirmation of the consumer's belief/disbelief as a static construct. However, consumer satisfaction may be influenced by the magnitude of the belief/disbelief (Churchill & Surprenant, 1982). Thus, it should be considered a measurement step that calculates the discrepancy between expectation and performance (Hossain & Quaddus, 2012). Also, confirmation as a construct is not unidimensional, but it can be studied in two dimensions: subjective confirmation (the difference between expectations and perceived performance) and objective confirmation (the difference between expectations and objective performance). A few researchers have questioned the timing of the measurement of expectations, whether it should be before consumption (usage) or post-adoption. However, most of the ECM research has used post-adoption measurements for expectation. Furthermore, satisfaction can also be measured in different ways. A direct and simpler option is to measure it using a direct survey method. Other more complex ways include measurements based on consumer complaints, feedback, positive or negative word-of-mouth, online reviews and ratings, and measuring real repurchases.

ECT posits that users' repurchase or continuance decisions depend on their satisfaction with prior experience or usage of that product. An individual will indulge in a repetitive behaviour, if it offers desired levels of satisfaction. Satisfaction may be a prerequisite for continuance, but there are many other factors that determine post-purchase intentions. For example, the hedonic benefits and enjoyment derived from products can significantly affect repurchase (Kang, Hong & Lee, 2009). Similarly, habit formation, social influence, a need for uniqueness, materialism, the cost of purchase, and culture are other noteworthy constructs that substantially impact consumers' purchase decisions (Limayem, Hirt & Cheung, 2007).

Concepts

Expectation (Independent): Perceived belief probabilities attributed to consequences mainly based on prior experience and existing knowledge or through interactions with different members of the communication channels (Oliver, 1981)

Perceived Performance (Independent): Perceived performance is how the customers evaluate the product/service/technology in terms of quality and perceive its value after purchasing it (Churchill & Surprenant, 1982)

Confirmation (Independent/Dependent): Matching of user's expectation with the performance of product/service/technology (Bhattacherjee, 2001)

Satisfaction (Independent/Dependent): The feeling after confirmation of expectation from product/service/technology (Bhattacherjee, 2001)

Repurchase Intention (Independent/Dependent): Intention to buy product/service/technology again (Patterson & Spreng, 1997)

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