

Exploring the Role of Technological Interventions in Consumer Buying Behavior

Talha Zubair Ahmad Khan

Lecturer, Faculty of Management Studies, University of Central Punjab, Lahore, Pakistan
talha.zubair@ucp.edu.pk

Dr. Waqas Farooq

Assistant Professor, Hailey College of Banking and Finance, University of the Punjab, Lahore, Pakistan
waqasfarooq@gmail.com

&

Dr. Muhammad Ahmed

Assistant Professor, Bahria University Lahore Campus, Pakistan
m.ahmedleo@gmail.com

Abstract

Historically, abundant research has explored the dimensions of consumer behavior within the context of traditional retail businesses. However, with the rise in digitalization, availability of faster internet speeds, and emergence of freemium business models there is a dire need to revisit our understanding of traditional consumer behavior models. An application of this radical change can be seen within the context of various online free-to-play multiplayer games that offer in-game customization options such as cosmetic changes within the character designs, possibility of changing whether effects, innovation map designs, new playable game modes, and similar options offered to customers in a form of a compendium. This phenomenon has greatly rejuvenated the need to rethink consumer behavior models from physical to digital marketplace. Therefore, this paper attempts to present a better understanding of consumer buying behavior within the context of digital marketplace by incorporating the theoretical foundations of digital innovation. Furthermore, variety of customer orientations have been explored with an aim to provide better understanding of customer purchase decisions in an online multiplayer game called Defense of the Ancients 2 (Dota 2). Lastly, the paper proposes several theoretical propositions that lay down the foundational work towards reconceptualizing consumer behavior as a consequence of digital innovation within the context of virtual marketplace.

Keywords: freemimum business model; consumer behavior; digital innovation; virtual market

Introduction

Understanding consumer buying behavior is one of the contemporary topics within the context of digital marketing. The availability of faster internet speed and technological upgradation has allowed the consumer to purchase almost anything online. However, researchers generally agree that high levels of customer satisfaction and website purchase experience has remained an essential component towards establishing long-term profitable relationships (McKinney, Yoon, & Zahedi, 2002).

Technological upgradation has effectively changed the way consumers undergo buying processes and make purchasing decisions especially within an online setting. Debate within marketing literature is

now focusing on developing the understanding of such processes and the factors that may influence consumer decision making processes. Therefore, consumer experience in an online purchase settings and its interaction with surrounding factors in now a central focus of e-marketing literature (Constantinides, 2004).

In conjunction to this debate, there seems to be a rapid growth within the technological-based improvements (both software and hardware) in hand handle devices, computer hardware and software designs, availability of large storage space through dedicated server hosting for organizations to increase its customer base that has led to the creation of entirely intangible products and services for consumers to choose from. For instance, the development of various mobile phone apps (games, utility software and educational learning software) which can be bought by the consumers in order to fulfill their specialized needs. Similarly, variety of console-based, mobile-app based, and computer-based games are no longer selling a one-packaged deal to its consumer, instead various subscription-based offers, customization options, ambient effects, just to name a few, are now available for purchase that represents the way gaming industry business model has transformed. This in-fact present a freemium business model where the price of the original digital product (games and software) is free, however, offering several in-application purchases.

This presents a new era of intangible product market where consumers can purchase new products, subscriptions, customizations and other cosmetic options that may or may not affect the performance of their original product. In fact, now organizations can engage with their customers in an act of co-creating the intangible product and services that can be made available to every customer as an option to purchase. Proceeds of such co-created intangible items are usually shared with the content creator and allows the organization to effectively position its products in parallel to the needs and wants of the consumers. This paper presents the example of Defense of the Ancients (Dota 2) gaming platform to that is developed by one of the biggest names in digital gaming industry Valve Corporation. The case of Dota 2 is presented to better understand the change in the nature of consumer decisions making processes in a digital mark place.

Dota 2 represents a gaming genre of multiplayer online battle arena (MOBA) where two teams of five players compete against each other with an aim to destroy the ‘ancient’ (main base) of another team. As simple it may sound however, the game itself presents an opportunity to the players to employ variety of different strategies, hero (playable character) combinations, in-game environment interactions that require high level of player skill and gaming knowledge in order to compete.

As the game has achieved considerable popularity among the gaming community since it is free to play, Valve Corporation has incorporated several purchase options for its consumers such as in-game sound effects, items visualization upgrades, cosmetic updates in the playable character models, compendium purchase options, and variety of other customizable offers. To make the game more engaging, valve has also included a new battle points system, a kind of in-game currency that can purchase through real money quickly or through playing the game itself that can be used to purchase the above-mentioned customization options. A quality recognition system that differentiates the rarity of each item has been

implemented with most expensive of the items being categorized as immortals. However, customizable items are solely associated with the outlook of the game being played and can be observed by other players within a particular game. They don't necessarily provide any advantage in the gameplay.

Literature within the domain of consumer behavior has essentially focused on the factors associated with understanding consumer buying behavior in physical market environments, or the purchase of physical products/services in digital market place see for example, (Bellman, Lohse, & Johnson, 1999; Ming-Sung Cheng, Shih-Tse Wang, Ying-Chao Lin, & Vivek Shiri, 2009). However, understanding of consumer behavior during the purchase on intangible products (digital products) has largely been ignored. Therefore, it is of utmost importance to develop an understanding of consumer behavior, its processes, and corresponding factors within the context of digital products being purchase online in games such as of Dota 2. Keeping in view, this paper aim is twofold. First it attempts to explore the factors associated with consumer behavior in digital purchase decisions. Second this paper attempts to redefine the consumer purchase process during digital purchase decisions.

In order to achieve research objectives, this review paper is composed of four major sections that are discussed in a sequential order. First section highlights the historical developments in consumer behavior research that is presented in a chronological sequence. Second section attempts to discuss a shift from traditional to contemporary consumer behavior theories with an attempt to identify influencing factors of digital consumer process. Third section tends to provide a deeper understanding of processes and steps involved in consumer purchase decisions in digital context. Lastly, conclusion and future recommendations are presented.

Literature Review

The dominating view largely associated with consumer behavior research has understand it as a part of shopper's learning experience that comprise of information processing decision making before making a purchase (Bettman, 1979; Capon & Burke, 1980; Dibb, Simkin, Pride, & Ferrell, 2005). Additionally, marketing academicians has been interested in understanding the associated processes of consumer decision making, the way they interact with incremental and radical changes in product/service designs, and exploration of factors that affect behavioral outcomes during purchase decisions. (Ajzen, 1991). Some of the generally accepted factors that influence consumer decision making processes have been the consumer demographics, economic conditions, cultural settings, social ties (Jobber & Ellis-Chadwick, 2012; Solomon, Hughes, Chitty, Marshall, & Stuart, 2013).

Even so, consumer behavior process that are based in an online setting presents a depart from the traditional understanding of the phenomenon and move beyond the simple application of marketing mix tools majorly because it presents several intervening elements such as customer online experience, website layout, content design and presentation that constantly shape the way a consumer engage into the processes of decision making. (Constantinides, 2004).

Consumer Behavioral Process in Traditional Theoretical Underpinnings

Conventionally, there are several approaches that tends to explain the process of consumer buying behavior. These approaches are briefly discussed in the subsequent sections with purposes of bringing clarity to the subject matter.

Consumer decision making process has been a center of interest for researchers. Traditionally, different approaches have been used in developing the understanding of consumer decision making process. These approaches are discussed here in a chronological manner.

The Economic Man

Domain of economics have explored humans as ‘rational beings’ that tends to seek utility maximization (Richarme, 2005). In other words, humans are considered as rational beings that have the ability to choose between the alternatives keeping in view the option that has the potential to maximizes its benefits. (Schiffman, Kanuk, & Wisenblit, 2000). It is however argued that consumers decision making process are not solely associated with utility as they tend to lean towards the options that ultimately provide satisfaction in any given transaction (Simon, 1991). Additionally, the role of customer value plays a major part in consumer decision making processes (Eggert & Ulaga, 2002) and is subject to context-specific variation (Peterson & Wilson, 1992). Therefore, the concept of ‘economic man’ hasn’t received much popularity as a basis for explaining consumer behavior processes.

Psychodynamic Approach

Psychodynamic approach is based on the foundational work of Sigmund Freud and puts forward the notion that individuals’ behavioral outcomes are associate with their biological drives and the role of cognitivism not necessarily entails logic in every decision-making situation (Freud, 1989).

Behaviorist Approach

On the other hand, Behaviorist approach put forward the notion that behavior of an individual is not only changed due the presence of intrinsic aspects but also several external factors for instance, mindedness, feelings, or happenings in surrounds does change the way someone behaves. (Watson & Rayner, 1920).

Cognitive Approach

Essentially, cognitive approach highlights the importance of information processing and present individual as rational decision maker based on the alternative information that is provided and processed by him/her (Ribeaux & Poppleton, 1978). In this view, Customer (individual) is seen as an information processor that takes the information from several external stimuli in order to make a decision. Here information as an external stimuli serve as an aid in decision making process (Cziko & Press, 2000). Cognitive approach to understanding human decision making has gained considerable attention and popularity over the years (Furedy & Riley, 1987). It is argued that cognitive approach towards understanding provides greater insights not only in physical purchasing situation but also in online virtual market settings.

A Paradigm shift from Traditional to Contemporary View of Consumer Behavior Process

Wu and Chen (2000) presented an integrative model of customer buying behavior taking into account the factors of consumer purchase time, its decisions making process in stores settings and repurchase behavior. As indicated by them, physical purchasing environments tends to engage consumers in initial purchase transaction which in turn increases the likelihood of repurchase decisions. They further noted that consumers are different in terms of the quantity they purchase and so their decision-making processes for purchasing goods and services. Similarly, Fader and Hardie (2002) emphasized that one-time buyers should be considered and accounted for in the integrative model of consumer buying behavior. Proposing few changes to the integrative model, they provided the reasons behind on-time buyers not make a repurchase after their initial purchases.

Additionally, there are several other factors that serve as an ‘external stimuli’ such as in-store ambience and demographics of the consumers that plays an important role in consumer decision making process and information processing. In contrast, Pawar, More, and Bhola (2014) argued that knowledge of the consumers about the store and the availability of the time directly influences consumer purchase decisions. They further noted that knowledge deficiency about the store in terms of the products, services, or layout necessarily increases the time it will take for the consumer to make a decision and thus lead towards failure to purchase.

Research stream within the domain of marketing has also identified ‘contingence’ factor has a influencer over consumer purchase decisions (Bradley & Nolan, 1998; Jarvenpaa & Todd, 1997; Strategies, 1998). While some studies (Brown, Pope, & Voges, 2003) has also shown disagreement towards consumer orientation hypothesis. In other words, several product-based features may influence consumer while purchasing online. Furthermore, Brown et al. (2003) identified six unique clusters of online shoppers represented by either single or combination of specific orientations, namely, personalized shoppers, recreational shoppers, economic shoppers, enjoyment seeking shoppers, convenience-oriented shoppers and community-oriented shoppers.

This section attempts to theorize a link between consumer orientation factors and consumer buying process within the context of digital virtualized market place of Dota 2 keeping view the literature discussed in the above section. Several factors present a link between consumer shopping experience, its orientation and buying behavior in an online setting, especially when the product in question is intangible in nature. For instance, consumer recognition system in Dota 2 virtual market place tends to identify the consumers with profile badges such as in-game ranking, community contribution badges, milestone achievement badges, games ownership badges and the years of service badges for the Dota 2 community. Therefore, it is proposed that

Proposition No.1: Personalized services in a form of online consumer recognition positively influences consumer purchase intentions in a virtualized marketplace.

While there are consumers who simply tends to enjoy the process of purchasing online. The availability of Dota 2 marketplace, its extensive purchasing options and featured products tends to initiate a sense

of recreational pursuit for consumers and are associated with compulsive nature of buying online. Variety of factors are linked with such forms of compulsive consumer behavior. Notable of which is associated with an individual need to communicate a self-completion value (Yurchisin & Johnson, 2004) and maintenance of a social status (Jalees, 2007). Here, consumers are compulsive to fulfill the need of their social desire though acquiring the possession of rare Dota 2 items that are either expensive to purchase directly or difficult to obtain otherwise. Therefore, following proposition emerges

Proposition No.2: Consumers' compulsive need to fulfill social desirability positively influences consumers' purchase intentions in a virtualized marketplace.

Moreover, Dota 2 store offers several discounts offers to consumers that subject to weekend sales, special promotional discounts, and cost saving due to purchasing in larger quantities. From the perspective of 'economic man' rationality presented in previous sections, such offers present an opportunity for utility maximization for the consumers to acquire digital (intangible) products in larger quantities or to gain relatively higher battle pass levels in order to unlock several cosmetic features in the game. Figure number 1 highlights an example of such offers.



Fig. 1. An example of discount offers presented to consumers for purchase in Dota 2 virtual marketplace

Dota 2 community market is also a feature made available for the Valve corporation that allows the consumers to purchase Dota 2 tradable items directly from other consumers at a discount rate. While Valve charge percent of each transaction as a fee. Following proposition has been presented

Proposition No.3: Promotional bundles and discounts offers in virtual store influences consumers to purchase in higher quantities.

Additionally, Dota 2 offers a system of loot-boxes which allow the consumers with a small chance to obtain rare items. These loot boxes include various types of cases, collectors' cache, chests, and treasures that includes a list of droppable items. The digital intangible contents of these loot boxes are comprised on various cosmetic items that be used within the game, although, they do not provide any competitive advantages in PVP (Player versus player) matches. Consumers seeking to obtain rare items tends to spend relatively higher compared to consumers who restrict spending in a freemium business. This encourage the consumers spend relatively higher real money with hopes to acquire rare items and

successfully ‘winning’ the rare items from the loot boxes sometimes encourage the consumers to spend even more (Griffiths, 2018).

Figure number 2 highlight an example of a loot box from the game Dota 2 that highlights a list of possible items that can be dropped from the loot box on each consecutive purchase. Therefore, following proposition is made.



Fig. 2. An example of a loot box that can be obtained from Dota 2 store

Proposition No.4: Speculation based items such as loot-boxes influences consumer re-purchase intentions.

Contextually speaking, the concept of continence in physical purchase settings is relatively different within the online store environment. It is due to the fact that any purchase of intangible items on Dota 2 store usually transfer to consumer account instantaneously for usage. Therefore, continence here resembles other benefits that Dota 2 virtual store provides to its customers, such as ‘demo’ option where consumers can use a trial of the any particular product, he/she is interested to purchase. Moreover, the refund option in Dota 2 store can also be utilized which serve as a continence to the consumers who made an accidental purchase. Lastly, Dota 2 consumer help feature allows one to one communication with Dota 2 customer service that provide convenience in terms of consumer quarries handling and troubleshooting technical issues.

Proposition No.5: Virtual convenience in terms of product demos and rapid online customer service positively influences consumer purchase intentions.

Dota 2 supports several charity events and professional players support programs. These community charity events include game tournaments funds raisers. While Dota 2 biggest gaming annual tournament ‘The International’ dedicates almost 2.5% percent of the in-game compendium sales proceeds to the overall prize pool of the tournament. This allows consumers to donate directly to the gaming tournament in order to support their favorite professional players Witkowski, Recktenwald, Manning, & Ge, 2016).

Such phenomenon supports a participatory culture among the community of Dota 2 and delivers a sense of accomplishment towards the professional players to work hard towards obtaining higher rewards.

Proposition No.5: Digital products that promotes community development positively influences consumer purchase intentions.

Following table represents an overview of identified consumer orientations and their link with consumer purchase intentions within the context of online Dota 2 store.

Table 1 Unveiling the Link Between Online Purchase Intentions and Consumer Orientations

Consumer Factors	Explanation	Link with Dota 2 Online/Virtual Market place
Personalized-Shoppers	Personalized services are preferred by the consumers	Personalized consumer badges and recognition programs
Recreational-Shoppers	Consumers that enjoys shopping as compared to those who doesn't like the process	Dota 2 virtual store offers extended experience for online shoppers through store browsing options
Economic-Shoppers	Consumer seeks utility maximization	Discount bundles and weekend promotional offers on Dota 2 store
Enjoyment oriented Shoppers	Consumer enjoys the process of purchasing in an online environemnt	Customizable in-game options, weather effects, sound track purchase options, just to name a few
Convenience oriented Shoppers	Convinence seeking consumers that require extended customer support and product trials	Dota 2 after sales services and intengable product demo feature for consumers
Community oriented Shoppers	Consumers that like to make purchases that directly or indirectly supports community service	Compendium purchases from Dota 2 store directly contributes towards the prize of Dota 2 competitive events that supports Dota 2 professional players

It is vital to note here that combination of above-mentioned consumer orientations can be the source of consumer purchase decisions and not necessarily one particular reason. Discussion so far has highlighted the role of several precedent factors that influence consumer purchase intentions. However, it is important to note that recent advances within computer technology have enabled the creation graphic intensive character design models and amination. This has allowed the organizations to incorporate technological innovations within game architect designs. The tech-based upgradations have paved the way for innovations at both incremental as well as radical model designs. Consequences of such innovations has directly influenced consumers' engagement and ultimately their perchance intensions. At a theoretical level of analysis, the link between technological innovations and consumer buying behavior is yet to be discussed in detail.

At its core, technological innovations within software design has greatly rejuvenated the freemium business model since such innovations allow the consumer to not only engage more with the product/service but also serve as an ‘aid’ in decision making processes. Complex cognitive processes that entails purchase decision regarding intangible products and services are therefore aided with information simplicity through radical/incremental design changes within the available cosmetic upgradation options. Consumers find it simpler to associate the product and service in question with reference models that allow them to proceed with the purchase decision. Following section elaborate the theoretical underpinnings with the help of elaboration likelihood model.

Role of Digital Innovation in consumer purchase intentions

Discussed previously, cognitive school picture information processing as a way to provide ease in consumer cognitive processes, particularly, the purchase intentions (Cziko & Press, 2000). Bettman (1970) not only emphasize on the nature of the information itself but the way it is perceived and acquired by the consumer during purchase decision making processes. While Jacoby, Chestnut, and Fisher (1978) provided a concrete model for consumer information processing during buying behavior. Bettman (1979) further highlighted that consumers problem solving activities entails several task-format strategies that help them make decisions regarding purchasing a product and choosing between alternatives.

For the elaboration of how consumer reach to a particular decision, it important to understand the process of solving a particular problem by the consumers. For instance, Capon and Burke (1980) highlighted the role of consumer preferred strategies during decision making processes that are subject to choice tasks, the resultant behavior is then an outcome of both preferred and task format strategies. They further noted that consumer undergo two key cognitive processes during decision making. Here, attribute process portrays a behavior of consumer to compared alternative products attributes during decision making and is subject to logical way of making a decision. While brand processing is likely

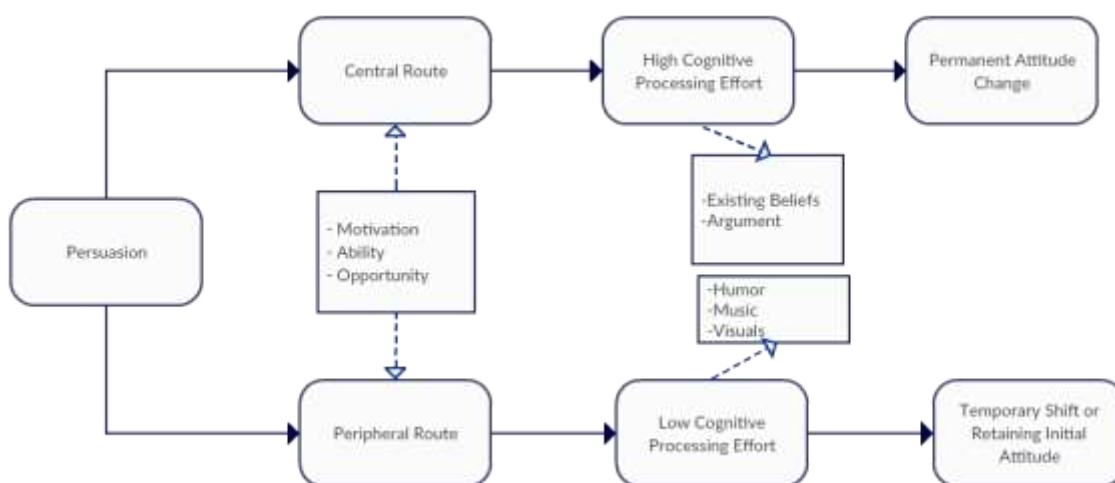


Fig. 1. Elaboration Likelihood Model

the outcome of a situation where information is abundantly that required low level of cognitive effort

for making purchase decision. Here consumers are likely to rely on excessive brand information and association towards making a purchase decision.

Within the context of digital innovation, it can be seen that attribution process is likely to be the result of an innovation that results in more choice options (incremental changes within existing products) while less in terms of information being provided. On the contrary brand processing seems to be an outcome of innovations that tends result in an entirely new digital product being offered in a dedicated theme format.

Further studies highlighted the shifts that can occur within the consumer attitudes. See for example, Petty and Cacioppo (1986) put emphasis on explaining the consumer attitude change with the help of elaboration likelihood model. This integrative model explains shift in the consumer attitude change (purchase intentions) with the help of two alternative cognitive embedded processes namely central and peripheral route of information acquisition and processing. A former is an outcome of consumer intensive thought processes and careful consideration during a purchase decision. Consumers are likely to engage central route of information acquisition and processing under situations where product information is less readily available or/and complex in nature that requires careful consideration of the attributes associated with the digital product in question. On the contrary where information aid is available in a sense that consumer can related to (such as brand information and themed-based digital products) during the cognitive processes, they are likely to engage in cognitive heuristics for faster decision making.

Figure number 2 highlights consumers' elaboration routes under different contextual parameters and usually depends on the level of motivation and the ability of the person (consumer) (O'Keefe, 2008; Petty & Cacioppo, 1986) to engage into various type of cognitive processes during purchase decisions.

The information being received by the consumers and their resultant cognitive processes can be seen in a form of continuum ranging for high information/low cognitive effort to low information/high cognitive effort. While information here refers to the level of information being received by the consumers as they perceive the digitally innovative product in different product offerings available in freemium applications. (Petty & Cacioppo 1986).

Keeping in view the digital innovation context, this paper argues that technological innovations when presented to consumers in a form of newer products are likely to motivate the consumers to engage in one of the cognitive processing routes during purchase decisions that ultimately lead towards a change in consumer attitude. In other words, product design innovations, specifically the intangible ones, trigger unique consumer responses based on end product design itself. Additionally, upgrades in old product designs or newer product designs on the existing products present a classical situation of creative destruction. Here consumer acceptability of the new design, general view of the consumers towards the innovative design, and accessibility of consumer towards newly designed product set standard in terms of which product design among the released so far is dominant (thus incorporating a high value/rarity) (Suárez & Utterback, 1995). This can be seen in price variability reflected in the Dota

2 community market where consumer can resell their cosmetic upgrades at prices determined by the consumer market and not by the Dota 2 itself.

Keeping in view the above discussion, it can be seen that cosmetic upgradations options within DOTA 2 store can be viewed in terms of incremental and architectural product designs changes. Newly released cosmetic upgrades (digital product design innovations) complete with the older cosmetic upgrades of the same product and can be considered as competing technologies. Several factors can play their part towards the general acceptability and perception of the competition technology as a dominant one, however discussing them this exceeds the scope of this paper. Furthermore, new cosmetic options can be viewed under two main categories. Architectural changes that refers to major design changes (addition of comprehensive background story, modification in character animations, addition of new ambiance features, alternative character voice upgrades, just to name a few) within the product once equipped and incremental ones that more or less changes one or two features of an existing model.

This paper propose that incremental design changes reflected in innovative designs results into a situation for consumers to process more information in an attempt to make an overall understanding of the product itself. While extensive architectural design changes reflected in new innovative cosmetic designs provide more information in terms of background story, design concept, ambient effects, and such that gives a 'holistic picture' to the customer about the product and thus consumers are likely to engage in the peripheral route of processing the information.

In order words, any innovation in the digital product design will either lead towards central route of processing information where consumers might be interest in the several attributes changes within the product design innovation or peripheral route of information processes where consumer would be interested in the overall holistic picture of the product design. Therefore, following propositions are presented

Proposition No.7: Incremental changes in the product design (customization in parts) effectively motivates the consumer to take a central route of processing information and requires high cognitive effort during purchase decisions

Proposition No.8: Architectural changes in the product design (customization in parts) effectively motives the consumer to take a peripheral route of processing information and requires low cognitive effort during purchase decisions

Conclusion

Technological uncertainties are attributed to cyclic processes technological change within the product designs(Dota 2 store) (Anderson and Tushman 1990). This cyclic process initiates with a technological discontinuity of older technologies and initiation of newer product designs. This paper attempts to link the cyclic processes of technological innovation (in this case digital innovation in terms of cosmetic product designs) with the change in consumers' buying behavior patterns, a link that has been less discuss within the literature so far.

This paper also provides foundational work towards understanding the consumer behavior responses as a result of making a decision about purchasing intangible (digitally available) products. This link has been less discussed within literature since majority of existing explanations are subject to tangible products purchases either in physical or online market place settings. Lastly, the paper also contributes towards highlighting several consumer orientations that may play an antecedent role towards influence consumer buying behavior within the context of digital innovation.

Furthermore, this paper attempts to explain the difference that exists within the price ranges of digital products that are result of digital innovations (both incremental and architectural in nature). It is argued that price difference doesn't exists due to nature of design innovation per se but also because of the way organizations expect their customers to perceive the information associated with such innovations. Here, the role of co-creation is also highlighted that allows the organizations to design product/services that can created the desire perception in minds of the consumers through digital innovation in a form of new cosmetic designs. Failure to design a digital product that can provide an information aid during cognitive processes would require further reinforcement to sustain (Griffin, Neuwirth, Giese, & Dunwoody, 2002).

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