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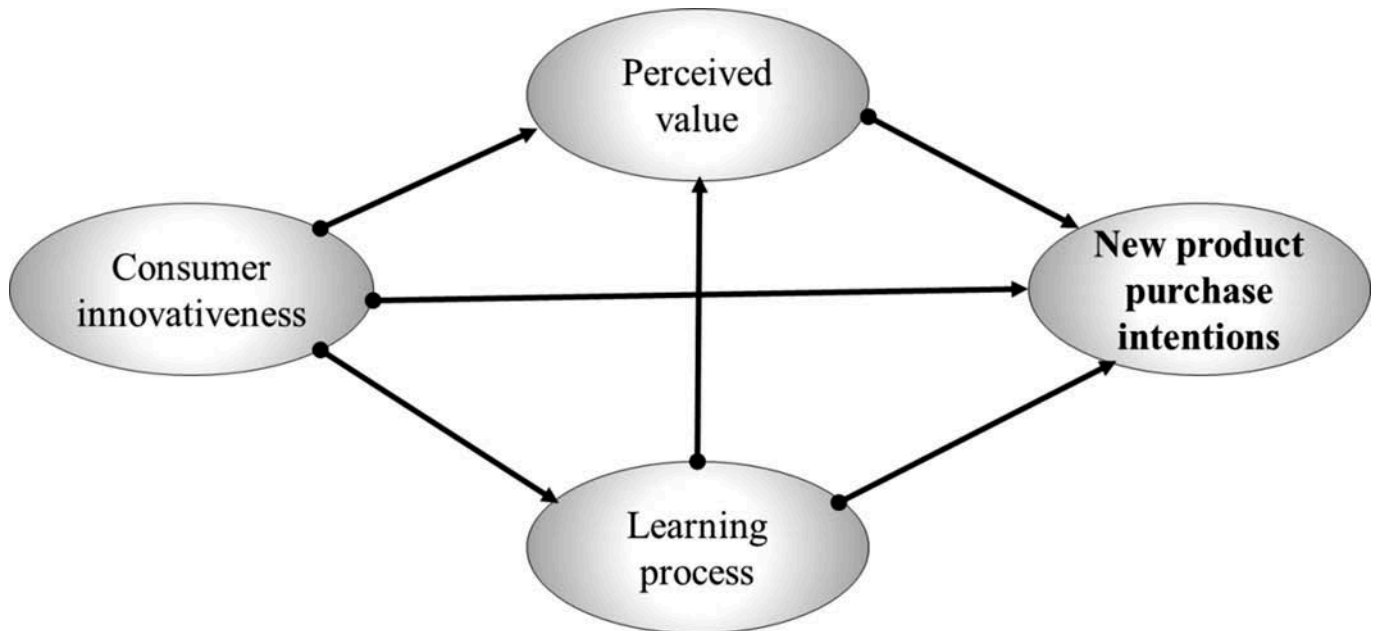
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MARKETING | RESEARCH ARTICLE

Effect of consumer innovativeness on new product purchase intentions through learning process and perceived value

Salem A. Al-Jundi[1]*, Ahmed Shuhaiber[2] and Reshmi Augustine[3]

Abstract: Prior research on the impact of consumer innovativeness on new product purchase intentions experienced confusion about the definition of innovativeness and the interest in a specific domain. To fill the gaps, this study builds a new model to examine the multivariate effects of different variables on new product purchase intentions in general and the interplay between all latent variables. We tested a sample of 438 responses that reflect the perspectives of the public in the Emirate of Abu Dhabi, United Arab Emirates, by using partial least squares/structural equation modeling. Substantively, perceived value intercedes in the impact of consumer innovativeness on purchase intentions. Similarly, the learning process mediates the effect of consumer innovativeness on purchase intentions, whereas perceived value mediates the effect of the learning process on purchase intentions. Finally, the learning process and perceived value mediate the effect of consumer innovativeness on new product purchase intentions.

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Salem Al-Jundi has been an assistant professor of economics at the College of Business, Al Ain University, UAE, since 2008. He teaches courses in areas such as microeconomics, macroeconomics, and economic development. His research interests focus on macroeconomic problems in developing countries. He has published several peer-refereed journal articles on administrative corruption, economic diversification, determinants of investment, and inflation.

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PUBLIC INTEREST STATEMENT

Consumer innovativeness causes new product purchase intentions through learning process and perceived value. Innovators and early adopters of new products have personality traits that differ from those of the late majority. Innovative customers learn about new products via mass media, word of mouth, the Internet, and social networks. There are a variety of factors which affects the perceived value of a new product to consumers such as perceived benefit, usefulness, enjoyment, and social image. The current research will be very valuable for consumers, manufacturers, and marketers. Consumers will be innovative when they start looking for attractiveness and novel experience in their choice of new products. Manufacturers can promote their new products by stimulating customer innovativeness via producing attractive designs that offer a novel experience. It is vital for marketing staff to provide adequate information about the usage and design of their new products via the Internet and social media.

1. Introduction

Arguably, there are many factors that affect the demand for any product, and researchers all over the world have difficulty in outlining an effective and all-inclusive theoretical framework that can be readily applied to the factors that motivate an individual to demand a new product. To the best of our knowledge, there is no theory for a demand function of a single new product as a general concept. Most papers have studied a specific new product or group of new products, mostly information technology (IT) innovations. There is a clearly comprehended need for building and testing a model for factors influencing new product purchase intentions. That is the main goal of this paper. So, what is a new product? It is a good or service that some potential customers perceive as new (Kotler & Armstrong, 2010, p. 45). It is not necessarily an IT innovation, although most researchers take IT products and applications as areas for their research. You may consider a Chinese recipe as new, for instance. Of course, plenty of customers consider online banking or mobile banking as new, while others are familiar with such items; then, the items are not new for the latter.

New product purchase intention refers to actualized innovativeness or adoption behavior and can be represented by new products that consumers currently own or intend to own in the near future (Lee, Khan, & Mirchandani, 2013; Morton, Anable, & Nelson, 2016; Vandecasteele & Geuens, 2010). It can also be portrayed as product-possessing innovativeness, which refers to the predisposition of innovators or early adopters to adopt new products earlier than the majority of late consumers or laggards (Jeong, Kim, Park, & Choi, 2017; Kotler & Armstrong, 2010).

The research topic is increasingly becoming very important, since producers of new products are required to construe what features are more important and relevant to the needs of their cherished customers and how to convince them to adopt and accept something new, at the same time putting these customers at possible high risk with a new product with which they are not familiar. Producers attempt to understand consumer behavior in order to design and position a specific new product to attract a given market segment (Alpert & Saxton, 2015). Marketers put vigorous efforts into building an acceptable forecast for new products' sales before their actual launch (Moe & Fader, 2002). Marketing strategies that increase consumers' certainty, diminish their perceived risk, and educate them with relevant knowledge can be effective in accelerating new product purchase intentions (Tuu & Olsen, 2012). Since the early stages of innovation involve a high level of ambiguity, firms have to work with their partners to reduce consumers' perceived uncertainty. Thanasopon, Papadopoulos, and Vidgen (2016) are of the view that consumers need some assurances on the usability of a new product, because the initial stages of product development and innovation involve high levels of uncertainty. In view of this uncertainty and in order to reduce any form of negative perceptions on the part of consumers, Hubert et al. (2017) suggest that marketing managers should present key elements and features of their new products that are beneficial to consumers to increase their perceived innovativeness and enable them to be accepted accordingly.

Prior research can be divided into two groups: first, researchers who examine the supply side of new products through new product development, which helps firms to develop a process for producing new products; and second, researchers who examine the demand side of new products through investigating factors influencing new product purchase intentions or adoption behavior.

In order to be successful and achieve corporate goals, there is a need to develop a new product that will be competitive on the market and meet the needs of consumers. As a result of this, most companies look for unique models for developing new products. It is necessary to have a model that is structured and documented to meet the targets of new product development (Sholeh, Ghasemi, & Shahbazi, 2018). One of the recent global trends is mass customization, which aims to mass produce products that will meet individual consumer wants and needs. Accordingly, Relich and Pawlewski (2018) opine that firms should modify existing products rather than design totally new products. Since consumers are already familiar with the existing product, modifying it will be more acceptable than designing a totally new product.

Technological changes lead to virtuous circles between research and development (R&D) on new products, innovations, and high profits (Guarascio & Pianta, 2017). The success of any new product development project depends on subjective and objective customer acceptance and technical ability (Dang, McMurray, & Huang, 2018). Dayan, Zacca, Husain, Di Benedetto, and Ryan (2016) found that entrepreneurial orientation inspires organizational employees' willingness to change and improves development culture. These three factors lead to new product exploration in small businesses.

According to Husain, Dayan, and Di Benedetto (2016), organizational networking has impacts on competitiveness via the organizational learning and innovation process. Organizational networking also affects competitiveness via employee innovativeness, but only if an influential technology strategy is executed in IT firms. When firms adopt innovative solutions in their models, it will lead to the improved creation of value and strengthen their competitive position and competitive advantages (Grabowska, 2015).

On the demand side, prior research has reached some contradictory findings regarding the relationship between consumer innovativeness and new product purchase intentions (Persaud & Schillo, 2014). Researchers have applied unrelated theories and some of them have not considered constructs affecting purchase intentions simultaneously (Cowart, Fox, & Wilson, 2008). Im, Mason, and Houston (2007) did not find a relationship between consumers' innate innovativeness and purchase intention, unless they added a vicarious variable or the learning process as a mediating variable. Innovativeness is the subject of plenty of different concepts (Vandecasteele & Geuens, 2010). Which one affects purchase intentions? This topic is the subject of debate and leads to weak and different findings (Chao, Reid, & Mavondo, 2012; Frank, Enkawa, Schvaneveldt, & Torrico, 2015). Since there are different conceptualizations, their measurement scales express each theoretical standpoint. The scales are still imperfect, however, and building a new one has long been of interest (Bartels & Reinders, 2011; Roehrich, 2004). For example, Vandecasteele and Geuens (2010) think that the current scales ignore the multitude of motivation sources for buying innovations.

When researchers have examined the relationship between innovativeness and purchase intentions for a specific domain of interest, they have investigated domain-specific innovativeness, which refers to the tendency to learn about and adopt a specific group of new products such as wearable devices (Araujo, Ladeira, de Santini, & Sampaio, 2016; Chao et al., 2012; Jeong et al., 2017). Their models are modified to fit their products, but they do not offer much help for building a conceptual theory of a new product in general.

Chao et al. (2012) found that domain-specific innovativeness has a positive influence on really new product adoption, but that the impact is quite weak. Domain-specific innovativeness mediates the relationship between innate innovativeness and really new product adoption. They also found that vicarious innovativeness has no statistical relationship with new product adoption. Additionally, their paper reveals a lack of direct association between innate innovativeness and really new product adoption. This paper inspires us despite weak results.

Hanzaee and Adibifard (2012) tested fast-moving consumer goods and found that new product purchase intention was highly related to product price, uniqueness, trust, commitment, and

satisfaction. Joo, Park, and Shin (2017) found that satisfaction mediated the effect of expectation, perceived enjoyment, and perceived usefulness on the intention to continue to use digital text-books. Wu, Wu, and Chang (2016) found that ease of use and gender had no significant effects on the acceptance of smart watches, while attitude had a significant effect and individuals 35–54 years old showed a significant demand for enjoyment with respect to the use of smart watches.

Javid and Nejat (2017) found that electric vehicle adoption was influenced by household income and education, charging stations, and petrol prices. Mohd Noor, Masuod, Abu Said, Kamaruzaman, and Mustafa (2016) examined consumers' decision to purchase green products. They found that decisions were positively affected by green awareness, green companies, and green commitment. Ribbink, Streukens, Van Riel, and Liljander (2004) studied loyal customers in the e-commerce market. Since online transactions involve high uncertainty, loyalty was influenced by service quality, satisfaction, and electronic trust.

Boakye (2015) examined users' intention to continue to use mobile data services and found that customer experience had a positive impact on intention, and partially mediated the effect of system service quality and service mobility on continuance intention. In addition, Shuhaiber (2018b), in a study about the behavioral intention to take virtual lectures as a new technology, found that social influences, effort expectancy, performance expectancy, and self-efficacy could have positive impacts on students' attitudes to this technology. Moreover, the author found that both facilitating conditions and attitudes to virtual lectures had positive impacts on students' intention to take virtual lectures.

Previous research on new product purchase intentions suffers from two problems: first, since purchase intentions are affected first of all by consumer innovativeness, there is no unified definition of innovativeness; second, researchers are interested in a specific new product or a group of new products. Each model is constrained by a particular product or group. Thus, we have a variety of models. How can we build a unified, simple, and clear model for a new product in general? Because of prior research limitations, researchers suggest widening the range of consumers and using different products or brands. Since latent and multidimensional constructs are implemented, new facets of those constructs should be used (Tuu & Olsen, 2012).

The aim of this paper is to fill these gaps by building and testing a comprehensive model (see Figure 1). It attempts to test the multivariate influences of consumer innovativeness, the learning process, and perceived value on new product purchase intentions by using the structural equation

Figure 1. Proposed research model.
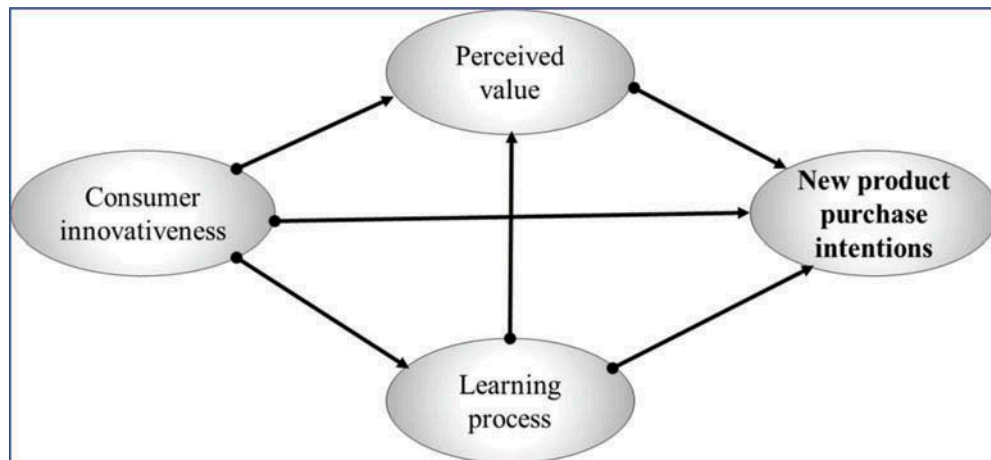
modeling/partial least squares (PLS-SEM) method. This allows for the interplay between stated constructs to be tested.

The paper proposes a model that is intended to introduce a new conceptual framework for new product purchase intentions in general, not for a specific product or group of products. Our main interests are two thematic areas: first, the direct effects of consumer innovativeness, the learning process, and perceived value on new product purchase intentions; and second, the mediating role of the learning process and perceived value on the relationship between consumer innovativeness and new product purchase intentions.

2. Conceptual framework and hypothesis development

2.1. Consumer innovativeness and new product purchase intentions

Consumer innovativeness is defined as a tendency to buy new products rather than following familiar consumption patterns (Rašković, Ding, Škare, Ozretić Došen, & Žabkar, 2016). Innovators, who adopt new products early, play an essential role in innovation diffusion (Cowart et al., 2008). This sort of innovativeness is called innate innovativeness (Chao et al., 2012). Innovators and early adopters have personality traits that differ from those of the late majority and laggards. Innovative consumers tend to accept changes and global trends rather than traditions, in addition to novelty seeking and having a need for uniqueness (Lee et al., 2013; Rašković et al., 2016). They have an innate tendency to prefer unique qualities of innovations. Innate innovativeness represents personality traits such as curiosity, ambition, and reasonableness (Morton et al., 2016; Vandecasteele & Geuens, 2010).

Consumer innovativeness can be expressed as emotions, cognitions, and behavioral responses (Lin, 2015). Those of a lower social class tend to teach their children to obey, while those of a higher class try to educate their children to be self-expressive (Na & Chan, 2016). Independent people can make decisions about new products, while obedient people tend to follow the majority in their consumption style. Araujo et al. (2016) found that there was a positive and significant relationship between domain-specific innovativeness (DSI) and the adoption of innovation, given that DSI refers to the tendency to purchase a specific group of new products. Innovative consumers, in a given domain, tend to adopt innovative products.

Choi and Kim (2016) found that smart watches as fashion products significantly demonstrate the intention to use them, especially the desire of individuals for uniqueness. Self-expressiveness has a limited impact on the intention to use a smart watch as a luxury product. Attractiveness and self-expressiveness are among the dimensions of consumer innovativeness. Extravert and agreeable individuals are more likely to consider new ideas as useful, such as social networking technology (Mouakket, 2018). Then, the following hypothesis is proposed:

H1. Consumer innovativeness positively impacts new product purchase intentions.

Innovators like to act as a source of information regarding innovations (Morton et al., 2016). They communicate their peers through social media. And altogether play a role of opinion leaders to diffuse new ideas and methods. Technological opinion leaders are a result of technological innovativeness (Thakur, Angriawan, & Summey, 2016). Innovators or early adopters of new products usually encourage and persuade others about the unique quality of innovations. Hence, consumer innovativeness improves learning process for new products. Marketers should build relationships with such customers and continually provide them with the latest development of new products. Therefore, we hypothesize:

H2. Consumer innovativeness positively impacts the learning process.

2.2. The learning process and new product purchase intentions

Learning process, which is called vicarious innovativeness, means the new products information acquisition. People learn about innovations through mass media (advertising), word of mouth, the internet, and social media. Learning process leads innovators to adopt a new product as a concept, then they start to adopt or purchase new products (Chao, Reid, & Hung, 2016). Marketers should stimulate early adopters to adopt new products by communicating and providing them with the information necessary to reveal the novelty and quality of such products. Traditional word of mouth between friends and relatives considers as non-commercial private communication. It has an effective role in persuading people to adopt new products. Social media also improve sort of electronic word of mouth and has similar effect on adoption of innovations (Susilowati & Sugandini, 2018).

Customers who gain relevant knowledge about a new product have strong purchase intentions (Tuu & Olsen, 2012). New product preannouncements contribute to improving new product purchase intentions. Consumers are most likely to buy a preannounced new product that has a strong brand (Zhang & Su, 2011). New product knowledge and the desire for excitement promote impulse purchase intentions (Harmancioglu, Finney, & Joseph, 2009). Thus, we hypothesize:

H3. Learning process positively impacts new product purchase intentions.

Consumers look at perceived value as the degree of usefulness of a new product due to comparison between benefit realized and expected sacrifices as a cost to acquire a given new product (Galindo Curvelo, Eluiza Alberto de, & Alfinito, 2019). If a company persuade innovators with the usefulness and easy to use a given product, innovators themselves will use word of mouth to diffuse the concept of a new product among their relative and friends. The people then will learn about attributes of such products through private communication (van Tonder, Petzer, van Vuuren, & De Beer, 2018). Information-possessing innovativeness positively impacts attributes of innovations such as relative advantage, social image, novelty, and aesthetics (Jeong et al., 2017). Thus, we hypothesize:

H4. Learning process positively impacts perceived value.

2.3. Perceived value and new product purchase intentions

Consumer innate innovativeness reveals the personality traits of innovators who have tendency to purchase new products. They are somehow adventurous, open-minded, and like to try modern styles. As a persons is more innovative, he/she tends to adopt new products. Traditional people who are conservative have weak tendency to purchase new products till a given product becomes popular by the majority. Consumer innovativeness can be triggered by retailer store-related stimuli, which include offerings, services, design, and activities. Innovativeness leads to perceived value, including promotion and experience (Lin, 2015). Innovators realize the usefulness on a new product easier than the late consumers and laggards. The attributes of new products such as novelty match the personality traits of innovative customers who seek new excitement and experiences. Therefore, we hypothesize:

H5. Consumer innovativeness positively impacts perceived value.

The perceived value of a new product to consumers is their subjective and objective assessment of an innovation (Hubert et al., 2017) and is attributed to different features. For example, it can be expressed by perceived benefit, perceived usefulness, enjoyment, and social image. Perceived

value is a clear factor affecting the adoption intention of new products such as wearable devices (Yang, Yu, Zo, & Choi, 2016). Hong, Lin, and Hsieh (2017) conclude that hedonic value and utilitarian value are positively associated with consumers' continuance intention with respect to smart watches.

Customers who perceive low risk have strong new product purchase intentions (Cowart et al., 2008; Tuu & Olsen, 2012). Innate innovativeness refers to the tendency to make innovative and risky decisions (Cowart et al., 2008). As the market becomes highly competitive, the degree of uncertainty would be lower and that would positively affect consumers' new product purchase decisions (Zhang, Zhou, & Zhao, 2012). Uncertainty about functional performance may prevent customers from preferring a new product such as an electric vehicle. This can be attributed to the fact that the target market is adapted and accustomed to the use of vehicles driven by gasoline and diesel, and is uncertain about the use of electricity to drive its vehicles (Morton et al., 2016).

Another new smart technology, smart homes, was examined against buyers' purchase intentions by Mashal and Shuhaiber (2018), who found that user awareness, trust, technology personalization, perceived cost, perceived enjoyment, and social influences had significantly impacts on buyers' intention to purchase smart home devices in Jordan. Another smart technology, smart meters (within the smart grid and smart energy domain), was investigated by Shuhaiber (2018a) in terms of residents' intention to use it. It was found that some perceived values such as perceived control, perceived enjoyment, sustainability, and user trust are major influencers of peoples' attitude to smart meters.

Perceived usefulness strongly impacts the intention to adopt media tablets (Yu, Lee, Ha, & Zo, 2017). The purchase intention for electric motorcycles is influenced by image, risk, and perceived usefulness (Wu, Wu, Lee, & Lee, 2015). Therefore, we hypothesize:

H6. Perceived value positively impacts new product purchase intentions.

2.4. The mediating role of the learning process and perceived value
Perceived value is the judgment or ratings of overall attributes of a new product. It includes qualitative and quantitative measures, in addition to subjective and objective assessments of innovations (Susilowati & Sugandini, 2018). The matter differentiate from one to another. General speaking, innovators or early adopters of innovative products, who have positive attitudes into innovations, assess novelty, ease to use, functional performance, and certainty in a way different from the majority of late consumers or laggards. Consumer innate innovativeness stimulate innovators to perceive a value added in the innovative products. Then, high and positive perceived value pushes innovators to adopt new products (Khoi, Tuu, & Olsen, 2018).

Perceived value mediates the effect of social identity and social influence on new product purchase intentions. The mediation effects differentiate persons with high innovativeness from those with low innovativeness (Persaud & Schillo, 2014). Chao et al. (2012) found that domain-specific innovativeness mediates the relationship between consumer innate innovativeness and new product purchase intentions, while Hong et al. (2017) demonstrated that hedonic value and utilitarian value mediate the effect of consumer innovativeness on continuance intention with respect to smart watches. Hence, the following hypothesis is proposed:

H7. Perceived value mediates the effect of consumer innovativeness on new product purchase intentions.

The effect of innate consumer innovativeness on new product purchase intentions happens because of learning process or vicarious innovativeness. Innovators, who have special personality

traits, seek information about innovations and the acquired facts stimulate them to adopt new products.

Innovators seek new information and experiences via personal and impersonal interactions. Innovative customers communicate each other through social media and altogether serve as opinion leaders to the rest of society. Innovators prefer social events more than others. Innovative customers notice innovations owned by others in addition to other stimuli raised by marketing staff. Innovators are more related with novelty, and openness to new products due to their characteristics. Innovators listen or watch impersonal communications such as companies' websites and advertising. When innovative customers gain new information about new product, they start to adopt the new concepts and purchase new products (Im et al., 2007).

Innovators and early adopters, who enjoy dealing with risks and uncertainty, look for new product information and then adopt new products. These early adopters will always want to be the first group of people to patronize and use a new product with a view to spreading information about it to others (Chao et al., 2016). Vicarious innovativeness or the learning process mediates the relationship between innate consumer innovativeness and new product purchase intention (Im et al., 2007). Hence, the following hypothesis is proposed:

H8. Learning process mediates the effect of consumer innovativeness on new product purchase intentions.

The effect of satisfaction on new product purchase intention becomes higher among consumers with higher certainty, low risk, and high knowledge. A positive interaction effect is also found between knowledge and risk on satisfaction–new product purchase intention (Tuu & Olsen, 2012). Innovators are sensitive to acquiring information about new products, when they will be able to understand the usefulness and benefit of such goods and services. Thus, they tend to make decisions to buy new products. Chao, Reid, Lai, and Reimers (2019) find that the perceived value is a primary driver of Chinese consumer's new product purchase intentions. The perceived value additionally play as a mediator of the effect of vicarious innovativeness on new product adoption behavior. Hence, the following hypothesis is proposed:

H9. Perceived value mediates the effect of learning process on new product purchase intentions.

Innovative consumers tend to reach out and acquire cognition and learn about new products earlier than others. This sort of tendency can be called information-possessing innovativeness (Jeong et al., 2017). The new product information learning process may also be called vicarious innovativeness. It can be defined as the communication process of new product information via mass media, word of mouth, the Internet, and social networks, in which innovators learn about new products. The new product information learning process directly influences new product purchase intentions. The higher the level of willingness to acquire information about new products, the higher the impact on new product purchase intentions (Chao et al., 2016).

Innovators have personality characteristics such as openness to new ideas and a strong desire for new experiences pushes them to look for new information in order to learn about attributes of innovations. Innovator seek information through personal and impersonal communication to learn new ideas and methods. The learning process helps innovators to easily perceive the value added of new products.

Attributes of innovations, such as relative advantages and novelty, positively impact consumers' purchase intentions for new products (Jeong et al., 2017). Joo et al. (2017) and Stone and Baker-Eveleth (2013) found that perceived usefulness and satisfaction positively and directly impacted

intentions to continue to use digital textbooks. Consumers' perception of products as innovative influenced their intention to adopt new products (Lowe & Alpert, 2015). Chuah et al. (2016) found that consumers perceived smart watches as useful and visible. The perceived usefulness and visibility stimulated adoption intention. Lunney, Cunningham, and Eastin (2016) found that wearable devices for fitness technology are perceived by consumers as useful and easy to use. This kind of perception leads to adoption. We expect there is a serial casualty run from consumer innovativeness to learning process to perceived value and finally to new product purchase intentions. Hence, the following hypothesis is proposed:

H10. Learning process and perceived value mediate the effect of consumer innovativeness on new product purchase intentions.

3. Methodology

3.1. Measurement variables

To test the proposed model (Figure 1) using the PLS-SEM approach, we established measurable indicator variables for all constructs that are based on previous research. All observed items were considered as reflective indicators. Each construct had six observed variables. All items were measured using a seven-point Likert scale and some of them on a semantic differential scale, as shown in Table 1. The format of the Likert scale was 1: strongly disagree, 2: disagree, 3: somewhat disagree, 4: neither agree nor disagree, 5: somewhat agree, 6: agree, and 7: strongly agree.

3.2. Sampling and data collection

The measured items under consideration were translated into Arabic and inserted into two Google Forms as electronic surveys in Arabic and English. The questionnaires were mainly promoted online, and respondents were invited to take the survey through hyperlinks that were sent to their email addresses, Blackboard profiles, and via social media. Our target respondents were university students at three higher education institutes in the Emirate of Abu Dhabi, United Arab Emirates (UAE), in addition to administrators, academics, and their relatives and friends. A total of 438 responses were gathered, all of which were complete and bias free, and thus usable. The process of collecting the data took three months, from the beginning of October to the end of December 2018. The supplementary data to this article can be found online at Al-Jundi (2019).

The majority of the sample is youth above 18 years old and from three universities (Al Ain University, Zayed University, and Abu Dhabi Vocational Education and Training Institute. They are male and female from the Emirates of Abu Dhabi, the capital city of the UAE. Participants are from two major cities (Abu Dhabi and Al Ain). The researchers also encouraged their students to invite their relatives and friends to fill in the survey. The sample includes also adults represented by the administrative and academic staff of our organizations in addition to students' relatives and friends. Our institutes partially consist of part time students who have jobs in the private and public sectors. Respondents are UAE citizens and expatriates. The sample is quite diverse and represented the attitudes of the public of the Emirates of Abu Dhabi.

3.3. Partial least squares/structural equation modeling

In order to test and validate the research model, PLS-SEM was applied in this research. This is a set of statistical models that clarify the relationships among many variables (Hair, Hult, Ringle, & Sarstedt, 2013). PLS-SEM was been considered for this research for several reasons. First, it is a second-generation comprehensive statistical data analysis approach that enables researchers to incorporate unobservable and complicated variables measured indirectly by indicator problems, and accounting for measurement error on observed variables (Hair et al., 2013). In addition, PLS-SEM gives a more complete picture of the entire model (Gefen & Straub, 2005), which is an important aspect in the current research. Furthermore, PLS-SEM is being used more and more in

Table 1. Measurement properties of constructs and item loadings		
Code	**Items**	**Item loadings**
Consumer innovativeness (Cowart et al., 2008; Jeong et al., 2017; Morton et al., 2016; Rašković et al., 2016; Vandecasteele & Geuens, 2010)		
CI1	The design of new products is attractive to me.	0.596
CI2	Using new products would provide a novel experience.	0.696
CI3	I feel more important when using new products.	0.803
CI4	I like to follow global trends rather than sticking to traditions.	0.730
CI5	Using new products would improve my image.	0.793
CI6	People think positively of me when I use a new product.	0.762
Learning process (Chao et al., 2016; Jeong et al., 2017; Tuu & Olsen, 2012)		
LP1	I find out beneficial information about new products on the Internet.	0.689
LP2	If I heard about a new product, I would like to know details about it.	0.777
LP3	I enjoy searching for new information about new products.	0.839
LP4	I am more curious about new product information than my peers.	0.854
LP5	I spend more time exploring new product information than my peers.	0.795
LP6	Social networks give me valuable information about new products.	0.689
Perceived value (Cowart et al., 2008; Jeong et al., 2017; Morton et al., 2016; Tudoran, Olsen, & Dopico, 2012; Tuu & Olsen, 2012; Vandecasteele & Geuens, 2010; Yang et al., 2016)		
PV1	New products are easy to use.	0.812
PV2	New products increase my productivity.	0.815
PV3	New products have relative advantages over familiar products.	0.821
PV4	I prefer buying a new product which involves low risks.	0.768
PV5	New products have good functional performance.	0.812
PV6	I am certain in my evaluation when buying a new product. From 1: very uncertain to 7: very certain.	0.697
New product purchase intentions (Jeong et al., 2017; Morton et al., 2016; Tudoran et al., 2012; Vandecasteele & Geuens, 2010)		
NP1	I expect to purchase a new product next month.	0.795
NP2	I wish to purchase a new product if I can afford it.	0.680
NP3	I tend to buy new products earlier than my peers.	0.840

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Table 1. *(Continued)*		
Code	**Items**	**Item loadings**
NP4	How many new products do you own? From 1: one item or zero to 7: seven items or more.	0.742
NP5	I generally have a larger number of new products than my peers.	0.852
NP6	I mostly tend to purchase the latest new products.	0.853

behavioral science research (Hair et al., 2013) and has gained higher popularity recently. The most recent PLS software, SmartPLS 3.2.8, was chosen to implement the PLS algorithms. The results of the PLS analysis are presented in the next section.

Then, PLS-SEM is the best methodological method that enable us to test the interplay among four latent constructs (consumer innovativeness, learning process, perceived value, and new product purchase intentions) in which each construct was established by six observed variables. This approach is appropriate to develop a theory about new product purchase intentions through one complicated model. PLS can test a relatively small-size sample. Our sample of 438 responses is still small relative to the size of the population.

4. Data analysis and results
The PLS model is usually analyzed and interpreted in two stages: first, by assessing the reliability and validity of the measurement model (constructs and items); and second, by assessing the structural model through interpreting the path coefficients and identifying the adequacy of the research model (Hair et al., 2013). The subsequent sections discuss the results of these two stages.

4.1. Partial least squares measurement (outer) model results
First, the values of the outer loadings were examined in order to view the correlations between the latent variable and the reflective indicators in its outer model. According to Hair et al. (2013), indicators with an outer loading above 0.6 were retained, whereas indicators with an outer loading between 0.4 and 0.6 were "considered for removal from the scale only when deleting the indicator leads to an increase in the composite reliability (or the Average Variance Extracted) above the suggest threshold value" (Hair et al., 2013, p. 103). Indicators with a very low outer loading (below 0.4) were eliminated from the scale. By examining the outer loadings via the software, all items were found to be equal to or above the acceptable level of 0.6, thus demonstrating reliable items, as shown in Table 1.

Another measurement involved in the outer model testing is construct validity. Construct validity assesses whether the measures chosen are true measures of the constructs describing the event, and whether these measures are actual tools for representing or measuring the construct being investigated (Gefen & Straub, 2005; Hair et al., 2013). For the current study, construct validity was established, including both convergent and discriminant validity. Convergent validity refers to the extent to which a measure correlates, or converges, with other measures of the same construct (Hair et al., 2013). Convergent validity is demonstrated when the average variance extracted (AVE) value between the constructs is equal to, or exceeds, 0.5 (Fornell & Larcker, 1981; Hair et al., 2013). As presented in Table 2, the AVE scores for all constructs in the model were more than 0.5, which meets the first requirement of achieving convergent validity.

Another approach to assess the convergent validity of constructs is to examine their composite reliability (Fornell & Larcker, 1981). All constructs exhibited acceptable to high scores for composite reliability, exceeding the .70 threshold recommended by Hair et al. (2013).

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Table 2. Validity and reliability estimates of the constructs				
	Cronbach's alpha	**rho_A**	**Composite reliability**	**Average variance extracted (AVE)**
Customer Innovativeness	0.826	0.834	0.874	0.538
Learning Process	0.867	0.876	0.901	0.603
New Product Purchase Intention	0.883	0.887	0.912	0.634
Perceived Value	0.878	0.882	0.908	0.622

In order to assess internal consistency, Cronbach's alpha measures need to be examined. Internal consistency is achieved when reliability estimates are greater than .70 (Field, 2013; Hair et al., 2013). The .70 threshold is regarded to be the most commonly accepted cut-off point in data reported in the social sciences (Chin, Marcelin, & Newsted, 2013). Those measurements that demonstrate low reliability levels should not be further investigated, as convergent validity would not be achieved (Hair et al., 2013). As presented in Table 2, all scores exhibited acceptable to high reliability (after conducting second-round testing), with Cronbach's alpha coefficients exceeding the .70 threshold recommended by Field (2013) and Hair et al. (2013), thereby satisfying the second requirement of convergent validity.

The amount of variance explained by R^2 provides an indication of the model fit as well as the predictive ability of the endogenous variables (Chin et al., 2013). Hair et al. (2013) suggest that an individual R^2 should be greater than a minimum acceptable level of 0.10. For instance, the R^2 value of "Learning Process" was found to be moderate and equal to 42.1%, and for "Perceived Values" it was about 52.2%, whereas "New Product Purchase Intention" scored a higher percentage of 60.9%, which indicates the higher predictive ability of this variable. Overall, all R^2 values mentioned are greater than 0.10; therefore, it was appropriate to examine the significance of the paths associated with these variables, except for the path that links social closeness and subjective norm.

Another validity measurement, discriminant validity, examines the extent to which a latent variable is truly distinct from other latent variables in predicting the dependent variable (Hair et al., 2013). One popular approach to assess discriminant validity followed in the current research was through examining the correlation matrix among constructs. Specifically, the square root of the AVE of each latent construct should be higher than the construct's highest squared correlation with any other latent construct (Hair et al., 2013). The results in Table 3 indicate that all constructs in the research model achieved this criterion, as none of the off-diagonal elements exceeded the respective diagonal element. Thus, discriminant validity was demonstrated.

4.2. Partial least squares structural (inner) model results

An assessment of the structural model was undertaken to determine the significance of the paths and the predictive power of the model through the PLS algorithm, and then by considering a bootstrapping process that involved random resamples from the original data set to determine the significant levels of path coefficients (Hair et al., 2013). First, a systematic assessment of the structural model was conducted to assess the significance of path coefficients by examining the standard error, T-statistics, and confidence interval (Chin et al., 2013). Table 4 highlights the hypotheses of the study, and shows the path coefficient between the latent variables and bootstrap critical ratios. The bootstrap T-statistics determine the stability of the estimates, considered acceptable above 1.96 at a 95% confidence interval (Chin et al., 2013). As a result, all the research hypotheses were supported. The results of each path are interpreted in the next section.

Table 3. Discriminant validity (correlation matrix among construct scores)				
	Customer innovativeness	**Learning process**	**New product purchase intention**	**Perceived value**
Customer Innovativeness	**0.733**			
Learning Process	0.649	**0.777**		
New Product Purchase Intention	0.671	0.68	**0.796**	
Perceived Value	0.626	0.681	0.703	**0.789**

Figure 2 shows all path coefficients, item loadings, and R^2 scores as demonstrated in the SmartPLS 3.2.8 software.

5. Discussion

5.1. Theoretical contributions
Figure 2 summarizes the study's findings in which the observed items reflect the latent constructs and all the hypotheses were supported. The model fit is quite high and acceptable. The study contributes to the existing literature by simultaneously testing the effect of different constructs on the relationship between consumer innovativeness and new product purchase intentions (Cowart et al., 2008). Furthermore, it contributes by providing empirical evidence to support the multi-variate influences of these constructs on purchase intentions and the interplay between the stated constructs. The previous literature has focused on a specific new product or a group of new products (Araujo et al., 2016; Chao et al., 2012; Jeong et al., 2017). To the best of our knowledge, the model introduced in Figure 1 and validated in Figure 2 is unique, since it is the first attempt to build a demand-side model of a new product as a general concept.

The SEM-PLS approach helped to test a sample of 438 responses which reflects the public attitudes in the Emirates of Abu Dhabi. We statistically approved that consumer innovativeness, the learning process, and perceived value positively impact new product purchase intentions. Consumer innovativeness enhances the learning process and perceived value. Additionally, the learning process encourages perceived value. This paper has shed light upon the interplay between the specified constructs. Perceived value mediates the effect of consumer innovativeness on purchase intentions. Correspondingly, the learning process arbitrates in the effect of consumer innovativeness on purchase intentions, while perceived value arbitrates in the effect of the learning process on purchase intentions. Hence, the learning process and perceived value mediate the effect of consumer innovativeness on new product purchase intentions as approved in Table 4 and Figure 2.

Even all hypotheses are supported, the literature show contradictory findings in research examined the relationship between consumer innovativeness and new product purchase intentions (Persaud & Schillo, 2014). We tried to lighten the problem of having different conceptualizations on innovativeness (Vandecasteele & Geuens, 2010) by introducing improving the scales of constructs (Bartels & Reinders, 2011; Roehrich, 2004). Some researchers did not examine the effect of exogenous variables on the endogenous variable in question simultaneously (Cowart et al., 2008). The effect of consumer innate innovativeness on new product purchase intentions is obvious theoretically, but others could approve the relationship (Chao et al., 2012; Im et al., 2007). Research on a specific product or a group of product approved this relationship (Choi & Kim, 2016; Mouakket, 2018). We approved the direct effect of learning process on new product purchase intentions, while (Chao et al., 2012) could not approve the relationship, even the relationship is justified other (Susilowati & Sugandini, 2018; Tuu &

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Table 4. Influence paths and hypothesis results

	H#	Original Sample (O)	Sample mean (M)	Standard deviation (STDEV)	T-Statistics (|O/STDEV|)	P Values	Hypothesis result
Customer Innovativeness → Learning Process	H2	0.649	0.651	0.032	20.31	0	Supported
Customer Innovativeness → New Product Purchase Intention	H1	0.671	0.672	0.032	20.804	0	Supported
Customer Innovativeness → Perceived Value	H5	0.626	0.628	0.041	15.123	0	Supported
Learning Process → New Product Purchase Intention	H3	0.423	0.422	0.05	8.424	0	Supported
Learning Process → Perceived Value	H4	0.474	0.473	0.052	9.124	0	Supported
Perceived Value → New Product Purchase Intention	H6	0.35	0.347	0.06	5.85	0	Supported
Specific Indirect effects							
Customer Innovativeness → Perceived Value → New Product Purchase Intention	H7	0.308	0.308	0.036	8.558	0	Supported
Customer Innovativeness → Learning Process → New Product Purchase Intention	H8	0.167	0.168	0.035	4.778	0	Supported

(Continued)

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Table 4. (Continued)

	H#	Original Sample (O)	Sample mean (M)	Standard deviation (STDEV)	T-Statistics (|O/ STDEV|)	P Values	Hypothesis result
Learning Process → Perceived Value → New Product Purchase Intention	H9	0.111	0.112	0.028	3.949	0	Supported
Customer Innovativeness → Learning Process → Perceived Value → New Product Purchase Intention	H10	0.108	0.107	0.021	5.134	0	Supported

Figure 2. Tested research model.
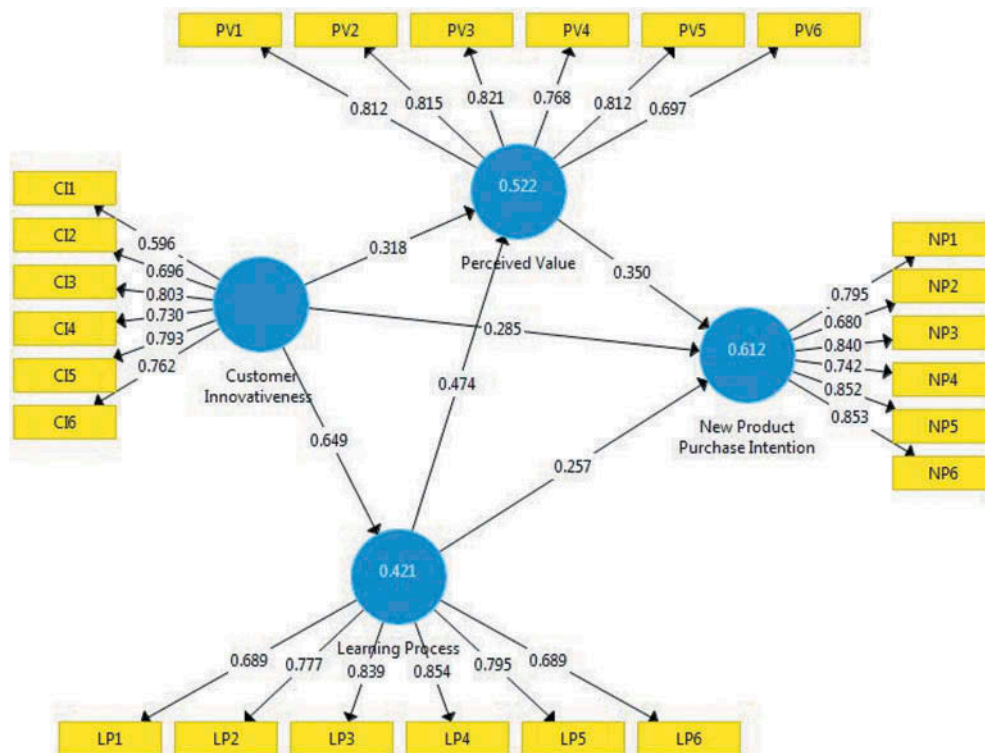
Olsen, 2012). Perceived value influences new product purchase as also approved by others (Mashal & Shuhaiber, 2018; Wu et al., 2015; Yu et al., 2017).

The current paper approved the mediating role of learning process (vicarious innovativeness) on the relationship between consumer innovativeness and new product purchase intentions. The result is consistent with others (Im et al., 2007). The path from consumer innovativeness to perceived value to new product purchase intentions approved in the current paper while did not examine in the previous literature. However, Chao et al. (2012) approved that domain-specific innovativeness mediates the relationship between consumer innovativeness and really new product adoption. To best of our knowledge, the mediating effect of learning process and perceived value on new product purchase intentions is totally new validated assumption especially to a new product as a general concept.

5.2. Managerial implications

The current paper has reached and deduced useful findings for researchers, customers, and most importantly producers and/or marketers. Since we succeeded in building and validating a new model for a new product as a general concept, we further suggest that other researchers could now expand the model by adding new observed items to the existing variables and looking for new constructs. We would suggest establishing higher-order models, because each existing construct may be measured by sub constructs that capture more concrete attributes. It is much better to measure consumer innate innovativeness by sub constructs such as emotions, cognitions and behavioral responses. Similarly, perceived value can be tracked by other construct such as perceived benefit, perceived usefulness, enjoyment, and social image.

The paper indicates that customers are becoming more rational and willing to buy new products. They will be innovative when they start looking for attractiveness and novel experiences in their choice of new products. They will search for information about new trends and technologies through the Internet and social media platforms to evaluate the performance and features of new products. Customers should be more rational in purchasing new products. They should check

the personal and impersonal channels of communication in order to acquire correct facts to build a new concept. Perceived value is recognized as a complex and multidimensional concept. Customers should check perceived enjoyment, control, and cost in addition to sustainability and functional performance altogether.

Producers can promote their new products by stimulating customer innovativeness via producing attractive designs that offer a novel experience (Alpert & Saxton, 2015) and offering discounts to early adopters at product launch (Ho, Li, Park, & Shen, 2012). It is vital for marketing staff to provide adequate information about the usage and design of their new products via the Internet and social media. To construct a high perceived value of new products among customers, producers should concentrate on producing goods that can be used effortlessly, are productive, have comparative advantages, are low risk, exhibit high functional performance, and are easy to evaluate (Hubert et al., 2017; Tuu & Olsen, 2012).

5.3. Limitations and recommendations for further research

The main constraint on the current study is associated with the small sample size. We managed to collect only 438 responses that reflected the perspective of university students from three higher education institutions, and their relatives and peers. The respondents also included administrators and academics, all of whom were from the Emirate of Abu Dhabi, UAE. Therefore, it is recommended that the sample size should be increased for a better-quality representation of the population in the city. We reached the majority of participants primarily through the Internet and social media. We explained the survey to our students and answered their questions appropriately. However, we did not receive the opportunity to discuss the questionnaire with the rest of the participants. Consequently, we were uncertain whether the rest of the participants completed the survey with an adequate level of understanding and seriousness while excluding any forms of bias. The sample was limited to one Emirate, thus it is highly recommended to apply the study and replicate it in a wider range of cities in different geographic areas.

Future research should focus on expanding the model by adding more observed items to existing variables, including more constructs, and establishing higher-order models for a deeper understanding of each construct. Young adults present a high level of consumer innovativeness and innovative consumers are usually better educated and wealthier (Rašković et al., 2016), therefore researchers should examine age, education, and income as moderating effects. We still need to build new concepts and scales for consumer innovativeness (Bartels & Reinders, 2011; Roehrich, 2004). Personality traits should be used to reflect innovativeness (Morton et al., 2016; Vandecasteele & Geuens, 2010).

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