Predicting consumers' intention to purchase sporting goods online:

An application of the model of goal-directed behavior

Abstract

Purpose – The purpose of this study was to apply the model of goal-directed behavior (MGB) as a research framework to investigate consumers' behavioral intention to purchase sporting goods online.

Design/methodology/approach – Mall intercept sampling was conducted for Korean consumers who have the experience of purchasing sporting goods online. After the elimination of invalid responses, total 314 valid questionnaires were used for further analysis.

Findings – The results revealed that attitude, subjective norm, positive and negative anticipated emotions had significant influences on consumers' desire to buy sporting goods online. Moreover, the frequency of past behavior and desire played significant roles in influencing on consumers' intention. Further analyses revealed that male consumers had higher levels of positive attitude, subjective norm, positive and negative anticipated emotions, desire, intention, the frequency of past behavior toward the online purchase of sporting goods than female consumers did. It was also found that male consumers' desire had a significantly stronger influence on behavioral than female consumer did.

Research limitations/implications – The study suggests benefit and gender-based targeting strategies in marketing sporting goods online. The primary limitation of this study was that respondents were all Korean online consumers of buying sporting goods. Future research should apply MGB to different countries or regions to generalize the results of this study.

Originality/value – The findings of this study provides a better understanding of consumers' intention to purchase sporting goods online and gender differences in their decision-making process.

Keywords Sporting Goods, Sports Apparels**,** Model of Goal-directed Behavior, Purchase Intention

Paper type Research paper

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Introduction

The rapid growth of the Internet users has resulted in the phenomenal increase of e-commerce, which has significantly influenced consumers' buying behavior. According to a report surveyed in 25 countries, 54% of Internet online shoppers buy products online weekly or monthly (PwC, 2016). Also, eMarketer forecasted that the world e-commerce sales would top $4 trillion and the double-digit growth rate of e-commerce sales will continue through 2020 (eMarketer, 2016). Consequently, it is not surprising that e-commerce of sporting goods has also developed in recent years. For example, the global rate of online purchase intention in 2014 have doubled since 2011 for sporting goods (31%) (Nielsen, 2014). Moreover, the Australian Sporting Goods Association (2012) reported an increase in online sales of footwear (11.5%) and apparel (7.6%), and the sales of online sporting goods in 2016 account for 14.8% of online consumption in the U.S. (Statista, 2016c). Also, Statistics Korea (2016) reported relatively high percentage of online sales in categories of apparel (10.6%) and sport & leisure appliance (3.8%). In addition, over half of consumers purchased a variety of sporting goods on different online platforms, such as online department store (e.g., amazon.com), manufacturer online (e.g., nike.com), or specialist stores online (e.g., eastbay.com) (Statista, 2016a). It indicates that the Internet has already changed how people shop for sporting goods, and more consumers search for and purchase sporting goods on the Internet.

Whereas classical attitude theory, including the model of goal-directed behavior (MGB), has been widely applied to various purchasing behavior, especially in traditional business settings, only a handful of studies have examined the predictive power of MGB in online

purchase behavior (Chen, Phelan & Jai, 2016). MGB posits that consumers' behavioral intention and overt behavior is influenced by volitional, non-volitional, motivational (desires), affective, and habitual elements (Perugini & Bagozzi, 2001, 2004). However, research has shown that consumers, even the same consumers, exhibit different behaviors depending on shopping channels (Chu, Arce-Urriza, Cebollada-Calvo & Chintagunta, 2010; Muthaly & Ha, 2009). Thus, understanding what predicts online purchase behavior among the MGB elements would be beneficial for e-marketers.

In addition, while there is an extensive body of research conducted on exploring consumers' online shopping behavior toward generic products (Park & Kim, 2003; Senecal, Kalczynski, & Nantel, 2005), far less is known about consumer behavior toward purchasing sporting goods online. It has been argued that consumers have a unique relationship with sporting goods. This is because that consumers frequently exercise with sporting goods they purchase, and sporting goods are closely related to their performance on the court (Chiu & Won, 2016a). Although studies have been conducted to explore consumers' behaviors toward sporting goods in brick-and-mortar stores (Chiu & Won, 2016a; Lu & Xu, 2015; Tong & Hawley, 2009; Tong & Li, 2013), not much is known about their behaviors leading up to sporting goods purchases online even now. However, it should be noted that online sporting goods consumers have unique characteristics as compared to general online shoppers (Chiu, Kim, Lee, & Won, 2014). Online sporting good shoppers spend more time on browsing retail and auction websites to search for and purchase sporting goods (Chiu et al., 2014).

Accordingly, the purpose of this study was to fill the knowledge gap by investigating the factors that influence online sporting goods consumers' purchase intention and decision. In doing so, this study used the MGB as the base theory to investigate online consumers' behavior toward purchasing sporting goods. The application of MGB could be especially meaningful in investigating individuals' behavioral intention and decision as MGB

comprehensively incorporates volitional, non-volitional, motivational, affective, and habitual aspects, providing more precise predictions of human decisions and behavior (Perugini & Bagozzi, 2001, 2004). From the practical standpoint, the results of this study could provide practitioners with effective marketing strategies to promote their products and better satisfy consumers' needs.

For research purposes to be achieved, this paper is structured as follows. The first section deals with the literature review and hypotheses development. After which research method is presented, with full details of participants and procedure in the research, and of the survey instrument and data analysis used. Results are then presented, with through assessments of the measurement and structural model. Finally, results are discussed, and implications are drawn.

Model of goal-directed behavior

The theory of reasoned action (TRA) and the theory of planned behavior (TPB) are representative social-psychological theories extensively applied by researchers to predict an individual's intention/behavior across a wide variety of domains (Ajzen, 1991; Zint, 2002). TRA assumed that a person's decision to perform a particular rational behavior is formed through a volitional/cognitive process determined by his/her intention to perform the behavior, and this intention is functioned by his/her attitude and subjective norm toward the behavior (Fishbein & Ajzen, 1975). However, TRA is limited to predicting behaviors that do not require special skills or resources as the theory did not consider an individual's non-volitional situations, such as time, money, and opportunities that limit actual behavior (Ajzen, 1985, 1991). To improve the usefulness of TRA, Ajzen (1985, 1991) developed TPB by adding a non-volitional variable 'perceived behavioral control' as a predictor of intention to act the actual behavior. TPB emphasizes that individuals' actual behaviors are determined by not only attitude and subjective norm (i.e., social pressure) but also the perception of behavioral

control reflecting a person's confidence and ability to engage in the behavior. Therefore, TPB is widely recognized as a more appropriate to predicting intention and behavior as compared with TRA (Armitage & Conner, 2001; Hagger, Chatzisarantis, & Biddle, 2002).

However, Perugini and Bagozzi (2001, 2004) argued that TPB did not capture people's past behavior as well as motivational and affective components of human behavior. More specifically, the variables in TPB did not consider whether individuals *want* to do something, which is connected to the *emotions* they expect to feel if they do it (Perugini & Bagozzi, 2001, 2004). Thus, Perugini and Bagozzi (2001) extended TPB and proposed MGB to address the limitation of TPB. It argued that habitual, motivational, and affective aspects must be taken into consideration to better comprehend human intentions and behaviors. Consequently, MGB adds motivational (desire), affective (positive and negative anticipated emotions), and habitual process (past behavior) into TPB. MGB suggested that the individuals' intention to perform a particular behavior is primarily motivated by how they *want* to perform the behavior (i.e., desire), and their desire is determined by attitude, subjective norms, perceived behavioral control, and positive and negative anticipated emotions. Moreover, past behavior or habits are assumed to be a significant predictor of desire, intention and actual behaviors (Perugini & Bagozzi, 2001). Specifically, the role of desire mediates the influence of attitude, subjective norm, perceived behavioral control, and anticipated emotions on behavioral intention in MGB.

MGB was reported to explain significantly greater amounts of variance in individuals' intention and behavior as compared to TPB and TRA (Carrus, Passafaro, & Bonnes, 2008; Esposito, van Bavel, Baranowski, & Duch-Brown, 2016; Taylor, Bagozzi, & Gaither, 2005). Recently, MGB has been extensively used as the base theory to explain individual's behavioral intention in the various domains, such as tourist behavior (Han & Hwang, 2014; Kim, Lee, Lee, & Song, 2012; Lee, Song, Bendle, Kim, & Han, 2012; Meng & Han, 2016;

Song, Lee, Reisinger, & Xu, 2016), mobile usage behavior (Kim & Preis, 2016), exercise and health behavior (Baranowski et al., 2013; Esposito et al., 2016; Hingle et al., 2012), airport-shopping behavior (Han, Kim, & Hyun, 2014), and restaurant re-patronage (Han & Ryu, 2012). Although TPB has been applied to investigate online shopping behavior (Cheng & Huang, 2013; Choi & Geistfeld, 2004; Hansen, Jensen, & Solgaard, 2004), it is surprising that MGB, a more advanced theory than TPB, has not been used as a base theory to comprehend online shopping behavior so far.

However, it should be noted that numerous studies applied the technology acceptance model (TAM) and the unified technology of acceptance and use of technology (UTAUT) to understand consumers' online shopping behavior (Ha & Stoel, 2009; Lian & Yen, 2014; Smith et al., 2013). These models focus on consumers' perception towards technology system, i.e., perceived ease of use or perceived usefulness, rather than individual perception toward performing a certain behavior. MGB could be an appropriate framework for exploring online shopping behavior as it is a goal-directed consumption behavior (Bagozzi & Dholakia, 1999). After the online purchase, consumers' emotional responses are generated to whether the goal is achieved or not. Consumers' emotions play a significant role in MGB to predict consumer behavior (Bagozzi & Dholakia, 1999; Phillips & Baumgartner, 2002); however, the importance of emotion is often ignored in the literature of online shopping (Éthier, Hadaya, Talbot, & Cadieux, 2006; Koo & Ju, 2010). Hence, MGB was applied as the theory base to understand consumers' behavior of purchasing sporting goods online.

Hypotheses development

Attitude, subjective norm, perceived behavior control, and desire

An attitude toward a behavior is the degree to which an individual has a favorable/ unfavorable evaluation of performing a certain behavior (Ajzen, 1985, 1991). That is, when the outcomes a certain behavior are positively evaluated, individuals tend to have a stronger

attitude to perform this behavior (Ajzen, 1985, 1991). Subjective norm is the perceived social pressure to engage or not to engage in a certain behavior (Ajzen, 1985, 1991). An individual is influenced by the opinions of other people (e.g., peers, family, and colleagues) when performing a certain behavior. Perceived behavioral control reflects an individual's confidence and ability to engage in behavior. According to TPB, an individual's intention is predicted by attitude, subjective norm, and perceived behavioral control (Ajzen, 1985, 1991). In MGB, attitude, subjective norm, and perceived behavioral control affect intention indirectly through desire toward a certain behavior (Perugini & Bagozzi, 2001; Prestwich, Perugini, & Hurling, 2008). The desire, a main motivational source to perform a behavior, was added in MGB in order to strengthen the predictive power in explaining intention (Malle, 1999; Perugini & Bagozzi, 2004). Also, desire serves as a primary predictor of intention and mediates the effects of attitude, subjective norm, perceived behavioral control, and anticipated emotions on behavioral intention, representing the most important feature of MGB.

In the recent years, studies applying MGB across various domains has revealed that attitude, subjective norm and perceived behavioral control were significant factors in the formation of desire (Esposito et al., 2016; Han & Ryu, 2012; Kim et al., 2012; Meng & Han, 2016). For example, Esposito et al. (2016) applied MGB to understand individuals' physical activity intention and found that attitude, subjective norm, and perceived behavioral control are the most significant factors influencing the desire to perform physical activities. Moreover, Han and Ryu's (2012) extended MGB in the context of restaurant services and revealed that attitude, subjective norms and perceived behavior control played a critical role in the formation of re-patronage intention through desire. Hence, based on the literature review, this study proposed the following hypotheses in the context of online purchasing behaviors of sporting goods.

H1: Attitude will have a positive influence on desire.

H2: Subjective norms will have a positive influence on their desire.

H3: Perceived behavior control will have a positive influence on desire.

Relationships between anticipated emotions and desire

Individuals usually consider the emotional consequence in advance of performing or not performing a certain behavior (Bagozzi, Baumgartner, & Pieters, 1998). It is defined as "predictions of outcome's emotional consequences or belief about one's own emotional responses to future outcomes (Bagozzi, Belanche, Casaló, & Flavián, 2016, p. 630)." For instance, if individuals have a higher level of the expected psychological benefits experienced by performing a specific behavior, he/she tends to have positive emotions, whereas if individuals have a higher level of the expected psychological damages derived from not performing the behavior, he/she tends to have negative emotions. Research has found that emotional expectations have influences on individuals' decision-making process (Bagozzi et al., 1998; Phillips & Baumgartner, 2002). Leone, Perugini, and Ercolani (2004) stated that anticipated emotions play the role of the hedonic motive in promoting a positive outcome of affairs and avoiding a negative outcome of affairs. Hence, there are two types of emotions, positive and negative anticipated emotions, considered to be the critical predictors of desire and intention (Bagozzi et al., 1998; Bagozzi et al., 2016; Leone et al., 2004; Perugini & Bagozzi, 2001).

Empirical studies revealed that tow anticipated emotions have important roles in forming an individual's desire to perform a behavior (Bagozzi & Dholakia, 2006; Perugini & Bagozzi, 2001). A recent study by Meng and Choi (2016) found that both positive and negative anticipated emotions have significant influences on travelers' desire for slow tourism. Also, Song et al. (2016) found that Chinese tourists' positive and negative anticipated emotions significantly affects their desire to visit South Korea. Accordingly, two

anticipated emotions for a target behavior are hypothesized to significantly influence the individuals' desire-related behavior of purchasing sporting goods online.

H4: Positive anticipated emotion will have a positive influence on desire.

H5: Negative anticipated emotion will have a negative influence on desire.

Frequency of past behavior, desire, and intention

The frequency of past behavior has been known as a critical factor that can influence an individual's decision-making process. Also, the frequency of past behavior is usually considered to be a proxy of habit. If an individual frequently and habitually performs a certain behavior, it will enhance his/her desire and behavioral intentions (Hutchinson, 1983; Perugini & Bagozzi, 2001). Individuals with a higher frequency of past behavior might have a higher level of familiarity than those who have no or limited past behavior (Marks & Olson, 1981). Additionally, desires are thought to be very important in the first step of human actions and argued to lead to intentions to perform a behavior (Perugini & Bagozzi, 2001, 2004). According to Perugini and Bagozzi (2004), desires are distinct from intentions and serve as personal motivation which is the proximal element leading to intention formation.

The relationships between these three variables can be found in many studies using MGB (e.g., Kim & Preis, 2016; Meng & Choi, 2016; Meng & Han, 2016). For instance, found that seniors' past behavior of using mobile devices has a significant impact on their desires and intentions to use mobile devices for tourism-related purposes. Moreover, a study by Meng and Han (2016) showed that past experience of bike-traveling was a powerful predictor of bicycle travelers' desire and behavioral intention. As such, this study posited the following hypotheses:

H6: Frequency of past behavior will have a positive influence on desire.

H7: Frequency of past behavior will have a positive influence on intention.

H8: Desire will have a positive influence on intention.

Gender differences

Gender differences in decision-making and online purchasing behavior have been addressed for decades. Although the gender gap in Internet usage is decreasing, men and women display different perspectives, motives, rationales, and patterns of online shopping (Pascual-Miguel, Agudo-Peregrina, & Chaparro-Peláez, 2015; Rodgers & Harris, 2003). A review of literature revealed that males are more likely to purchase products through online shopping and have more positive perceptions and attitudes towards online shopping than females have (Bae & Lee, 2011; Fan & Miao, 2012; Hasan, 2010; Lian & Yen, 2014; Pascual-Miguel et al., 2015; Wu, 2003). Moreover, Garbarino and Strahilevitz (2004) noted that females have higher levels of perceived risk regarding online shopping than men have. Males, therefore, feel more relaxed, effective, efficient and less time consuming when buying products online. Also, males' attitude is much more goal-focused and target-driven as they perceived benefits online shopping (Hasan, 2010). In addition, it should be noted that Kim et al.'s (2012) study applying MGB found gender differences in overseas tourists' behavior. Their results demonstrated that female tourists had significantly higher influences of attitude on desire, anticipated positive emotions on behavioral intention, and perceived behavioral control on behavioral intention than male tourists did. Male tourists also had significantly greater influences of subjective norms on behavioral desire, anticipated positive emotions on desire, and desire on behavioral intention than female tourists did. Accordingly, it is assumed that males and females will differ in their purchase intention of purchasing sporting goods online. Specifically, paths in the MGB will differ between males and females. Hence, the following hypothesis was established:

H9: Relationships between the variables in the MGB will be different between male and female consumers.

[Insert Figure 1]

Method

Research context

The research context for this study is the Republic of Korea (hereafter referred to as Korea). Korea is home to the third largest Asia-Pacific retail e-commerce market, behind China and Japan (PFSweb, 2016). According to Statistics Korea (2016), E-commerce accounted for almost 10% of Korea's retail spending in 2016. Most of the online shoppers (84%) in Korea prefer to search and purchase products online (Statista, 2015). Moreover, the online shopping transaction value of sporting goods rank highly among different product categories (Statista, 2016b). Specifically, the transaction value of sport-related products in 2016 increased 32.5% as compared to 2014, indicating more and more Korean consumers purchase sporting goods online(Statistics Korea, 2016). Given the situation, Korea was selected as the research context for this study.

Participants and procedure

Participants who have the experience of purchasing sporting goods online were recruited for this study. Convenience sampling was conducted in Korea. Specifically, data were collected around two largest metropolitan areas in Korea, Seoul and Busan where have higher rates of sports participation than other areas in Korea. Mall-intercept personal interview was conducted by two survey administrators in the shopping mall and public space with crowds. To maintain the robustness of the study, before filling out the questionnaire, survey administrators explained the research purpose and the definition of sporting good to respondents. In this study, sporting goods include footwear, apparel, accessories, and equipment used for the purpose of participating in different sports activities. Moreover, only the respondents who have the experience of purchasing sporting goods online in the last 12 months were included in this study. After the elimination of invalid responses, a total of 314 valid questionnaires were used for further analysis. Of the respondents, 58.6 percent (n = 184)

were male and 41.4 percent (n = 130) were female. Most of the respondents were aged between 20-29 years old. The more detailed information on the study participants was reported in Table 1.

[Insert Table 1]

Measures

The survey instrument consists of eight measures which were modified to fit the context of purchasing sporting goods online. All measures were adopted from the previous studies concerning MGB (Han & Hwang, 2014; Meng & Han, 2016; Perugini & Bagozzi, 2001; Song et al., 2016): attitude (four items), subjective norm (four items), perceived behavioral control (four items), anticipated positive emotion (four items), negative anticipated emotion (three items), desire (three items), and behavioral intention (four items). In particular, the frequency of past behavior was assessed with a single item (i.e., "How many times have you purchased sporting goods online in the last 12 months?").

These items were originally written in English and translated into Korean using the approach of back translation (Brislin, 1970). The Korean version of the survey instrument was carefully reviewed by sports management experts in Korea. Moreover, a small group of Korean graduate students participated in the pilot survey respectively to ensure its face validity. All items except the frequency of past behavior were assessed on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Reasons for using a 5-point Likert scale rather than 7-point Likert scale is that five-point scale appears to be less confusing and to increase response rate (Dawes, 2008; Devlin, Dong, & Brown, 1993). Moreover, evidence showed that both scales are comparable and no significant difference between them (Colman, Norris, & Preston, 1997). Finally, the frequency of past behavior was coded as a continuous variable.

Data analysis

A preliminary test was conducted to scrutinize the normality assumption of the data using descriptive statistics. Then, a two-stage data analysis recommended by Anderson and Gerbing (1988) was carried out using Amos 20.0. First, reliability and validity of the measures were examined by using a confirmatory factor analysis (CFA). In the second stage, a structural equation modeling (SEM) analysis was employed to test the proposed hypotheses. With the structural model analysis, this study utilized the standard factor loading and *t*-value of the path coefficient to determine the path strengths and significance levels of the latent variables. In addition, a multi-group SEM was conducted to investigate the gender differences regarding the paths in MGB. The sample size of this study ($N = 314$) is considered to be appropriate for SEM analysis to provide precise estimations (Hair, Black, Babin, & Anderson, 2010) .

Results

Preliminary test

The initial descriptive analysis revealed no missing values, outliers, or invalid value. Skewness and Kurtosis statistics were used to examine the normality of the data whether it violates the assumption required in SEM. Skewness values of survey items ranged within the ±1.00 cut-off suggested by Kline (2010). Kurtosis statistics of survey items were smaller than the criterion of 3 proposed by Byrne (2010). It indicates that skewness and kurtosis statistics of all survey items supported the normality for SEM analysis.

Reliability and validity of measures

As a next step, CFA was employed to examine the the reliability and validity of measures. The results revealed that the measurement model fitted the data well: χ^2 (278)= 735.40, χ^2/df =2.65, CFI = .93, TLI = .92, RMSEA = .07 (Hair et al., 2010; Hu & Bentler, 1999). Moreover, the reliability of measures was evaluated by calculating Cronbach's alpha coefficients and composite reliability (CR). As reported in Table 2, the results showed that the

measures possessed good reliability as the Cronbach's alpha coefficients of all constructs were acceptably high, surpassing the .70 threshold (Nunnally & Bernstein, 1994); and the values of CR ranged exceeded the criterion (.60) suggested by Bagozzi and Yi (1988). The construct validity of measures was examined calculating convergent and discriminant validity. Convergent validity was supported as all factor loading of the measures were highly significant ($p < .01$), ranging from .67 to .98, and the AVE values were all greater than .50, fulfilling the criterion suggested by Hair et al. (2010). In addition, discriminant validity is established when the AVE square roots are greater than inter-construct correlations (Fornell & Larcker, 1981). As reported in Table 3, the inter-correlation coefficients (from -.11 to .65) were much less than the AVE square roots for individual variables (ranging from .78 to .93), supporting the discriminant validity. Overall, the survey instrument exhibited good psychometric properties.

[Insert Table 2 and Table 3]

Hypothesis testing

As reported in Table 4, the proposed research model fitted data well: χ^2 (308) = 842.30, $\chi 2/df$ =2.74, CFI = .92, TLI = .91, RMSEA = .07 (Hair et al., 2010; Hu & Bentler, 1999). It revealed that attitude, subjective norm, positive anticipated emotion, and negative anticipated emotion have significant influences on desire ($\beta_{ATT \rightarrow DE}$ = .19, *t*-value = 3.13, $p < .01$; $\beta_{SBN \rightarrow DE}$ = .17, *t*-value = 1.97, $p < .01$; $\beta_{PAE \rightarrow DE}$ = .44, *t*-value = 5.87, $p < .001$; $\beta_{NAE \rightarrow DE}$ = -.20, *t*-value = 5.03, $p < .001$), supporting H1, H2, H4, and H5. Moreover, desire, and frequency of past behavior have significant influences on behavioral intention ($\beta_{DE \rightarrow INT}$ = .63, *t*-value = 9.97, $p < .001$; $\beta_{FPB \rightarrow INT}$ = .17, *t*-value = 3.60, $p < .001$), supporting H7 and H8. However, the paths from perceived behavioral control and the frequency of past behavior to desire were statistically insignificant ($\beta_{PBC \rightarrow DE}$ = .04, *t*-value = .729, p =.466; $\beta_{FPB \rightarrow DE}$ = .08, *t*-value = 1.85, p =.064), and thus, the H3 and H6 were not supported.

[Insert Table 4]

Test of gender differences

Independent *t*-tests were employed to investigate differences between male (n = 184) and female (n = 130) respondents. As reported in Table 5, there were significant differences in the mean scores of attitude, subjective norm, positive and negative anticipated emotions, desire, intention, and frequency of past behavior between male and female consumers. Compared to female consumers, male consumers reported significantly higher attitude (M_{male} = 3.57, M_{female} = 3.37; t = 2.34, $p < .05$), subjective norm (M_{male} = 3.70, M_{female} = 3.44; t = 3.04, $p < .01$), positive anticipated emotion (M_{male} = 3.62, M_{female} = 3.37; t = 2.89, $p < .01$), negative anticipated emotion (M_{male} = 4.08, M_{female} = 3.64; t = 3.86, $p < .01$), desire (M_{male} = 3.33, M_{female} = 3.06; t = 2.84 , $p < .01$), intention (M_{male} = 3.35, M_{female} = 2.90; t = 4.53, $p < .001$), and frequency of past behavior (M_{male} = 4.34, M_{female} = 2.58; t = 5.35, $p < .001$) toward purchasing sporting goods online.

[Insert Table 5]

Moreover, a multi-group analysis was conducted to compare whether male and female consumers differ significantly on any path in the proposed model. First, two models were established, the first model assumes that all parameters were fixed to be equal across groups (fully constrained model); the second model allows these parameters to vary across groups (unconstrained model). Then, the two models were compared using χ^2 difference test. The result showed that the two models are significantly different, $\Delta\chi^2$ (8) = 42.08, $p < .001$, indicating the two groups differed at the model level.

Furthermore, the gender difference on each path in the proposed model was examined. In order to test the gender difference on each path, models that are different only on each path in the proposed model were compared. More specifically, the constrained model was made by constraining certain parameters to be equal across groups at a time and compares with the

unstrained model using χ^2 difference test. As these are nested models with the restricted model having one degree of freedom higher than the unconstrained model ($\Delta df = 1$), the χ^2 value will always be higher for the restricted model than for the unconstrained model. If the value of χ^2 increases significantly when adding the restricted to the path, the gender difference is found on the path. As reported in Figure 2, the results revealed that the path from desire to behavioral intention was significantly different between male and female consumers ($\Delta\chi^2 (1) = 6.87$, $p < .01$), supporting the difference between male and female consumers (H9).

[Insert Figure 2]

Discussion

Little literature has paid attention to online consumers' behavior and decision-making process of purchasing sporting goods. To address the gap in the literature, the main purpose of this study was to investigate consumers' intention to buy sporting goods online by applying the MGB, a theoretically more advanced model than TRA and TPB. Although this study was conducted in Korean, one of the most developed countries for online retail among Asian countries, the findings of this study might be generalized to other Asian countries or regions where e-commerce is well developed (e.g., Japan, China, Taiwan, or Hong Kong). The results of this study found that attitude, subjective norm, anticipated positive emotion, negative anticipated emotion have significant influences on consumers' desire to purchase sporting goods online. Moreover, it revealed that desire and frequency of past behavior significantly influence on consumers' intention to purchase sporting goods. Also, a gender difference was also found in consumers' perceptions toward purchasing sporting goods online and the relationship between variables in the research model. The findings of this study provide theoretical and practical implications in several ways. The details and implications of these findings are discussed below.

Theoretical implications

First, MGB accounts for a significant variance in consumers' intention to purchase sporting goods online (R^2 = .44), supporting that MGB provides an effective means for predicting consumers' intention to buy sporting goods. Moreover, it is consistent with most of the previous studies of MGB that desire acts as a significant impetus for intention formation (e.g., Han & Hwang, 2014; Meng & Han, 2016; Perugini & Bagozzi, 2001; Song et al., 2017). Furthermore, the most important determinants to desire were the emotional factors, including positive and negative anticipated emotions; while the other determinants such as the subjective norm and attitude were less important predictors to desire. These results stress the vital role of emotion in consumers' decision-making process of purchasing sporting goods online (Bagozzi & Dholakia, 1999; Phillips & Baumgartner, 2002). This finding indicates that consumers' desire to buy online sporting goods is mainly due to emotional factors (i.e., positive and negative anticipated emotions) rather than cognitive factors (i.e., attitude, subjective norm, and perceived behavior control). Because the process of online shopping involves consumers' emotion toward purchasing products (Éthier et al., 2006; Koo & Ju, 2010), consumers are more likely to be motivated by a high expectation of online shopping experience. As such, this study using MGB provides an appropriate way to predict the intricate consumers' intention and behavior of purchasing sporting goods online.

Second, it is noteworthy that perceived behavioral control had no significant influence on consumers' desire to purchase sporting goods online. Similar insignificant associations can be found in previous studies (e.g., Han et al.'s (2014) findings in airport-shopping behaviors, Bagozzi and Dholakia' s (2006) findings in the participation of small-group-brand communities, and Lee et al.'s (2012) results in international tourist behaviors). These studies argued that easily achievable goals and decision for a certain behavior (e.g., shopping in the airport, joining communities, or traveling internationally) are not mainly associated with

perceived difficulty. Buying things online has become a common way for shopping, and many consumers are capable of purchasing products online without much trouble. Thus, in this study, online consumers' perceived behavioral control of purchasing sporting goods online is less predictive of their desires to engage in the behavior.

Third, it also found that frequency of past behavior has a significant influence on behavioral intention but not desire. In this study, the frequency of past behavior reflects the consumers' experience of online shopping. The respondents of this study reported the relatively high frequency of purchasing sporting goods online (M = 3.61; SD = 3.32). According to Li, Kuo, and Rusell (1999), frequent online buyers are more convenience-oriented and have more knowledge how to purchase products online. Frequent online buyers' knowledge and convenience of online shopping serve as motivational factors which directly influence their decision and intention. The roles of knowledge and convenience of online shopping are similar with desire which considered a state of mind that serves as a personal motivation less connected to action (Perugini & Bagozzi, 2004). Therefore, the frequency of past behavior and desire act as two parallel factors predicting behavior intention. Moreover, the link between frequency of past behavior and behavioral intention indicates that the frequency of past behavior is a predictor more connected to action (Perugini & Bagozzi, 2004).

Fourth, this study uncovers some hidden patterns between genders (male and females) that would not have been discovered if they were lumped together as an overall group. According to the results of the independent t-test, except for perceived behavioral control, male consumers have significantly greater values of attitude, subjective norm, positive and negative anticipated emotions, desire, the frequency of purchasing sporting goods online, and behavioral intention toward purchasing sporting goods online. This is consistent with previous studies (Bae & Lee, 2011; Fan & Miao, 2012; Hasan, 2010; Lian & Yen, 2014;

Pascual-Miguel et al., 2015; Wu, 2003) that males have more positive perceptions and attitudes towards online shopping. Moss, Gunn, and Heller (2006) confirmed that male and female consumers have different perceptions toward male- and female produced websites. Specifically, male-produced websites are more attractive for male consumers; whereas female-designed websites are preferred by female consumers. They argued that the male domination of the Internet technology (IT) profession could be a barrier to the effective mirroring of female online websites preferences (Moss et al., 2006). As such, males generally have higher perceptions and attitudes toward online shopping websites. Another possible explanation could be the unique category of sporting goods. Consumers' purpose of buying sporting goods is not only symbolic but also utilitarian. That is, consumers would perceive benefits after using sporting goods. Male consumers are more sensitive to benefits perceived from the purchasing process (Hasan, 2010). As compared to females, males are more focused on the process of purchasing sporting goods, and therefore, have more positive perceptions and attitudes.

Moreover, although both male and female consumers' desires positively predicted behavioral intention, it found that male consumers' desire had a significantly stronger influence on behavioral than female consumer did. This finding is consistent with the results of Kim et al. (2012) that desire has a more crucial impact on the behavioral intention for male consumers tan for female consumers. This may be attributed to women consumers' higher levels of perceived risk regarding online shopping. As such, they show greater concern for making a purchase even though they have the desire to do that.

Practical implications

The findings of this study also provide several practical implications for sporting goods retailers to promote their products and better satisfy consumers' needs. First, it found that

emotional factors (i.e., positive and negative anticipated emotions) are the most influential predictors to desire toward purchasing sporting goods online. It suggests that creating a hedonic online shopping experience is necessary for sporting goods consumers. This can be achieved by providing a better online shopping environment for consumers. Consumers are more likely to feel positive emotion when browsing and shopping on a well-designed website with the high quality of security and information (Éthier et al., 2006). Moreover, the high quality of a website may stimulate consumers' intention to revisit repeatedly (Chiu & Won, 2016b). Also, online retailers should incorporate the concepts of game mechanics (i.e., gamification) and exclusivity (e.g., web-exclusive items or deals) to foster hedonic shopping experience (Insley & Nunan, 2014).

Second, the use of reference group (e.g., referrals, word-of-mouth, and viral marketing) and consumer experience management (CEM) should be encouraged by the online retailers based on the results concerning attitude and subjective norm towards purchasing sporting goods online (Rose, Clark, Samouel, & Hair, 2012).

Third, the results regarding the influence of past behavior indicate that online sport retailers have not been successful in customer retention. Given the importance of customer loyalty and habitual purchasing, e-retailers should consider developing better loyalty programs and the effective use of retargeting and remarketing (Bleier & Eisenbeiss, 2015).

Lastly, the findings identified the gender difference in the online consumers' decision-making process of purchasing sporting goods. It found that the link between desire and intention was weaker for female consumers. Online retailers need to come up with some marketing strategies to lower female consumers' levels of perceived risk of purchasing sporting goods online and persuade them to make a purchase rather than just think to do. For example, sports retailers can plan sales promotion of women's sporting goods exclusive for female consumers to raise their awareness. Also, the design of websites should meet females'

needs and satisfaction (Moss et al., 2006). This can trigger and strengthen their desire to purchase sporting goods and further stimulate their behavioral intention.

Limitations and future research

Although this study provides several valuable implications, there are not without limitations. First, respondents of this study were all Korean online consumers of buying sporting goods. Future study should apply MGB to other more developed countries in Asia, such as Taiwan, Hong Kong, or Japan, to generalize the results of this study. Second, most respondents of this study were younger consumers (i.e., the 20s and 30s). Although it has been known that online shoppers skew younger ages (Patricia, Victor, & Stanley, 2005), the older generations (e.g., Generation X and baby boomers) who are relatively not familiar with online shopping should be taken into future consideration. Third, although MGB significantly provides predictive power for consumers' intention of purchasing sporting goods, future studies may incorporate additional variables in MGB, such as prior knowledge, trust, or perceived value to understand more comprehensively online consumers' decision-making process. Some scholars have suggested the necessity for a revision or extension of the existing socio-psychological theories (e.g., MGB) by adding additional constructs in specific contexts (Ajzen, 1991; Conner & Armitage, 1998; Perugini & Bagozzi, 2001). By doing so, it broadens and deepens a theory, which can improve the predictive power of human behavior in specific contexts. Finally, what online consumers purchase this study includes a broad spectrum of sporting goods (e.g., footwear, apparel, accessories, equipment, etc.). Due to the different characteristics of sporting goods, it is necessary to classify sporting goods into various categories in the future study.

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Table1

Demographics of respondents ($N = 314$)

Characteristics	*n*	%
Gender		
Male	184	58.6
Female	130	41.4
Age (years old)		
Less than 20	9	2.9
21-30	212	65.5
31-40	87	27.7
More than 41	6	2
Education		
High school	18	5.7
College/ College degree	254	80.9
Graduate school	42	13.4
Internet usage per day		
Below 2 hours	85	27.1
2-4 hours	135	43
Over 4 hours	94	29.9
Frequency of purchasing sporting goods online in the past 1 year (times)		
1	74	23.6
2	80	25.5
3	66	21.0
4	17	5.4
5	26	8.3
6	7	2.2
7	7	2.2
8	5	1.6
9	1	.3
10	23	7.3
12	1	.3
13	1	.3
14	1	.3
15	1	.3
20	4	1.3

Table 2

The results of confirmatory factor analysis

Constructs /Items	Factor loading
Attitude (AVE = .76, CR = .93, α = .92)	
I think that purchasing sporting goods online is good.	.84
I think that purchasing sporting goods online is wise	.93
I think that purchasing sporting goods online is worthy.	.87
I think that purchasing sporting goods online is beneficial	.82
Subjective norm (AVE = .66, CR = .88, α = .88)	
Most people who are important to me agree with that I purchase sporting goods online.	.83
Most people who are important to me support that I purchase sporting goods online.	.87
Most people who are important to me understand that I purchase sporting goods online.	.67
Most people who are important to me recommend that I purchase sporting goods online.	.86
Perceived behavioral control (AVE = .61, CR = .86, α = .86)	
Whether or not I purchase sporting goods online is completely up to me.	.77
If I want, I can purchase sporting goods online.	.75
I am capable of purchasing sporting goods online.	.77
I have enough resource (money or time) to purchase sporting goods online.	.85
Positive anticipated emotion (AVE = .76, CR = .93, α = .92)	
If I can purchase sporting goods online, I will be excited.	.82
If I can purchase sporting goods online, I will be glad.	.92
If I can purchase sporting goods online, I will be happy.	.93
If I can purchase sporting goods online, I will be satisfied.	.81
Negative anticipated emotion (AVE = .86, CR = .95, α = .95)	
If I can't purchase sporting goods online, I will be worried.	.90
If I can't purchase sporting goods online, I will be disappointed.	.93
If I can't purchase sporting goods online, I will be sad.	.95
Desire (AVE = .80, CR = .92, α = .91)	
I want to purchase sporting goods online in the future.	.93
I desire to purchase sporting goods online in the future.	.98
I hope to purchase sporting goods online in the future.	.76
Behavioral intention (AVE = .70, CR = .90, α = .89)	
I am planning to purchase sporting goods online in the future.	.68
I prefer to purchase sporting goods online next time.	.83
I will make an effort to purchase sporting goods online in the future.	.92
I will try to purchase sporting goods online next time.	.90

Table 3

Discriminant validity

Constructs	1	2	3	4	5	6	7
1. ATT	**.87**						
2. SBN	.61	**0.81**					
3. PCB	.40	.45	**.78**				
4. PAE	.53	.54	.42	**.87**			
5. NAE	.08	.24	-.07	.07	**.93**		
6. DES	.53	.50	.40	.64	-.11	**.89**	
7. INT	.60	.56	.30	.58	.06	.65	**.84**

Note: ATT = Attitude; SBN = Subjective norm; PCB = Perceived behavioral control; PAE = Positive anticipated emotion; NAE: Negative anticipated emotion; DES: Desire; INT: Behavioral intention; Bold diagonal elements are square root of AVE and off-diagonal elements are inter-construct correlations.

Table 4

Summary results of hypothesized model testing

Hypothesis	Path	Standardized coefficient (β)	*t*-value
H 1	ATT → DES	.19	3.13**
H 2	SBN → DES	.17	2.59**
H 3	PBC → DES	.04	0.73
H 4	PAE → DES	.44	7.34***
H 5	NAE → DES	-.20	-4.27***
H 6	FRE → DES	.08	1.85
H 7	FRE → INT	.17	3.60***
H 8	DES→ INT	.63	9.97***
Model fit: χ^2 (308) = 842.30, $\chi 2/df$ =2.74, CFI = .92, TLI = .91, RMSEA = .07			

Note: ATT: Attitude; SBN = Subjective norm; PCB = Perceived behavioral control; PAE = Positive anticipated emotion; NAE: Negative anticipated emotion; DES: Desire; FRE: Frequency of past behavior; INT: Behavioral intention. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5

Results of independent *t*-tests

Construct	Mean (*SD*)			*t*-value
	Total (*N* = 314)	Male (*n* = 184)	Female (*n* = 130)	
ATT	3.49 *(0.79)*	3.57 (0.*87*)	3.37 (0.*66*)	2.34*
SBN	3.59 (0.75)	3.70 (0.*73*)	3.44 (0.*76*)	3.04**
PBC	4.09 (0.76)	4.11 (0.*79*)	4.06 (0.*73*)	0.61
PAE	3.52 (0.79)	3.62 (0.*80*)	3.37 (0.*74*)	2.89**
NAE	3.90 (0.97)	4.08 (0.*83*)	3.64 (0.*99*)	3.86***
DES	3.22 (0.84)	3.33 (0.*85*)	3.06 (0.*79*)	2.84**
INT	3.17 (0.89)	3.35 (0.*90*)	2.90 (0.*81*)	4.53***
FRE	3.61 (3.32)	4.34 (*3.88*)	2.58 (*1.88*)	5.35***

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

Figure 1

Research model

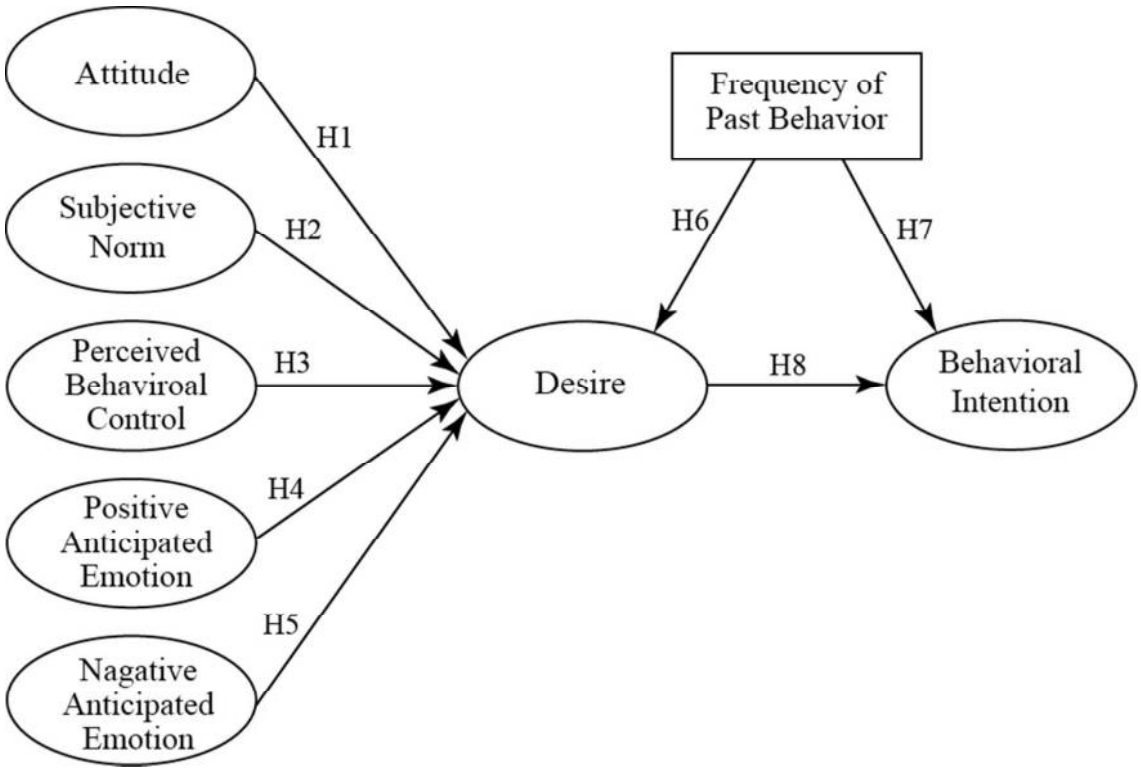

Figure 2

Results of multi-group analysis for male (bold) and female (italics) consumers