

Structural relationship between market demand and member commitment associated with the marketing of martial arts programs

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Abstract

Purpose – This study was conducted to ensure that the selected antecedent concepts, including market demand and psychological factors, were fully focused and studied in detail and depth. The purpose of this paper is to develop and test a theoretical framework that specifies direct and indirect relationships among market demand, perceived benefits, perceived constraint, perceived value, consumer satisfaction and member commitment in martial arts programs.

Design/methodology/approach – Research participants ($n = 595$) were martial arts school participants, who resided in the USA. A confirmatory factor analysis was conducted to evaluate the measurement model and the proposed model was tested by conducting structural equation modeling analyses.

Findings – Findings of this study indicated that perceived benefits and perceived constraints partially mediated the relationship between the market demand factors and perceived value, which in turn influenced member satisfaction and commitment. Economic Condition Consideration was found to be the most critical predictor of market demand.

Originality/value – Generating what-to-do and how-to-do implications that were specific to martial arts school and marketing practices were the priority of the investigators of this study. Administrators of martial arts programs may consider adopting the resultant theoretical framework as a general guide in their marketing efforts to recruit and retain program participants.

Keywords Consumer behaviour, Martial arts marketing, Psychological construct, Sport programming

Paper type Research paper

Introduction

Participation in physically active recreation and sport activities has increased tremendously in recent years due to increased fitness and health consciousness. Along with various options of sport activities, martial arts have become an increasingly popular recreational pursuit in western countries (Kim and Zhang, 2015; Kim *et al.*, 2009). Martial arts are commonly regarded as both an educational and physical activities in eastern countries; whereas, in the western society, martial arts are often referred as a sport or athletic activity. Introduction of eastern martial arts and its diffusion to the western culture have created various leisure and sporting opportunities at the recreational, amateur and professional levels. By now, Asian martial arts have somewhat become a part of the sport culture in the western society (Ko *et al.*, 2010; Kim and Zhang, 2015).

Even if enrollment in martial arts program remains to be a popular sport activity option, high dropout rates and falling participation rates are increasingly evident in the martial arts industry in recent years. According to a report provided by the Statista (2017), the number of participants in martial arts in the USA has decreased from 6m in 2006–3.58m in 2016. The same report indicated that the number is expected to drop even further by more than 20 percent in the coming two years. Although martial arts schools



are generating new opportunities for martial arts enthusiasts, the rapid growth in the number of martial arts schools has resulted in a highly competitive martial arts business environment in North America.

Membership is the primary source of revenue generation for health/fitness organizations (Mullin *et al.*, 2014). Likewise, the ongoing operation of martial arts schools primarily relies on revenues generated from its membership (Kim *et al.*, 2009, 2013); yet, member recruitment and retention are most challenging for programs. The business success and future growth of martial arts organizations in a highly competitive market environment depends on how well they understand their consumers and adapt to changes in consumer demand. It is important for administrators of martial arts programs to identify those market demand variables that are unique to martial arts programming and affect an individual's decision to attend a program (Kim *et al.*, 2009; Kim *et al.*, 2013).

In recent years, understanding socio-psychological path in various sport settings has been the focus of numerous sport consumer behavior studies. These studies considered consumers' decision making as a single-stage process. Research on martial arts participants' consumption behavior has been rather neglected in terms of taking into consideration various market demand factors and related psychological constructs, which are sequential elements of likely a multi-stage decision-making process. Previous researchers have suggested that an understanding of such psychological aspects could be key to helping organizations acquire an in-depth understanding of consumer decision-making process, developing an effective marketing mix (i.e. 4 Ps +), and consequently gaining a competitive advantage within an industrial sector (e.g. Bolton and Drew, 1991; Chang and Wildt, 1994; Kim *et al.*, 2013).

This study was envisioned to fill the void in the literature by conceptually and empirically investigating the specified relationships between market demand factors and psychological constructs that were deemed to cause and channel consumption behavior in the martial arts club context as to date no such a study has been conducted. The purpose of this study was to examine the direct and indirect relationships among market demand, perceived benefits, perceived constraints, perceived value, consumer satisfaction and member commitment in martial arts programs.

This study is structured as follows. First, the theoretical framework for this study is discussed on conceptualizing the market demand constructs and psychological constructs for martial arts club membership. Second, the reasoning process that is built on theories and previous research findings for the research hypotheses is presented. Reports on the execution and results of the study are to follow before interpreting and discussing the findings in the context of theoretical relevance and practical implications.

Theoretical framework

Market demand constructs

From an economic perspective, market demand is defined as "to be of great importance in the firm's allocation of resources to research and development if its factors are crucial in affecting the direction of innovation" (Mowery and Rosenberg, 1979, p. 128). Therefore, effective management and marketing practices are necessary to meet the needs and desires of current and potential members. Among various variables that can be manipulated by organizational administrators and marketers is the concept of market demand, which is defined as a cluster of pull factors associated with consumer expectations toward the attributes of the core product. This concept has received much research attention in recent years. Numerous researchers have indicated that in-depth analyses of market demand variables for a sport product(s) would enhance the understanding of consumer wants and accordingly allow managers to formulate a competitive strategy (e.g. Byon *et al.*, 2010; Kim *et al.*, 2009, 2013; Min *et al.*, 2015; Zhang *et al.*, 1995; Zhou and Zhang, 2017).

Studying not only on who they are and where they come from but also what they want, the market demand concept was built on the basis of the Theory of Reasoned Action (TRA; Fishbein and Ajzen, 1975). The TRA is based on the assumption that individual behavior is a direct outcome of behavior intentions, which is a combination of individual attitude toward the behavior and subjective norms. People would have a positive attitude toward performing the behavior if they think that the outcome of performing the behavior is positive. Attitude toward the behavior is influenced by the individual's beliefs about the consequences of performing a behavior and his/her evaluation of the outcomes, irrespective of whether the outcome is deemed positive or negative. Subjective norms are impacted by one's beliefs that specific individuals or groups think he/she should or should not perform the behavior due to complying to the perceived expectations or norm set forth by his family, peers, life community or other people significant to him/her. Exposure to different information leads to the formation of different beliefs, which also reflects a person's past experience. Beliefs refer to knowledge about the attitude object, which may be formed via direct observations, accepting information from outside sources, or self-generated perceptions through participation, experience and/or a process of personal inference, to examine consumer beliefs, attitude and intentions toward sport products and services in an effort to understand and predict sport consumer behaviors. When considering that each segment of the sport industry may have somewhat unique market demand factors (Zhang, 2015), it is necessary to examine those affecting martial arts programs.

Kim *et al.* (2009, 2013) defined market demand factors as "core product features," which we agree and have closely adopted this description in this study; however, Kim *et al.*'s studies failed to distinguish between "expected core product features" and "expected benefits" in their studies, leading to conceptual confusions. In the current study, this confusion was corrected by closely following the TRA theories and other research indications that this study adopted as theoretical framework. Kim *et al.* (2009, 2013) developed the Scale of Market Demand for Taekwondo (SMD-TKD) and identified seven factors related to the provision and operation of martial arts programs. The Personal Improvement Activities factor is defined as "attempts to learn how to, or to be inspired to, improve a particular attribute" (Halliwell and Dittmar, 2005, p. 205). The Physical Environment Quality dimension can impact participants' experiences concerning participation and retention in martial arts schools (Bitner, 1990). Instructional Staff Quality refers to the quality of staff, the knowledge and skills of instructors, and the instructor's interactions with program participants (Bitner, 1990; Brady and Cronin, 2001; Papadimitriou and Karteroliotis, 2000). The Program Activities Offerings dimension is used to evaluate whether and how a variety of activities is offered (Kim *et al.*, 2009, 2013). Cultural Learning Activity is the process of obtaining cultural knowledge and information to survive and thrive in a social environment and to pass that knowledge onto peers or successive generations (Curran and O'Riordan, 2006). According to Patel *et al.* (2002), martial arts offer both physical exercise and cultural exchange with eastern culture. For example, Schmidt (1986) argued that martial arts programs are an expressive institution through which practitioners are acculturated into traditional eastern culture, philosophy and heritage. The Economic Conditions Consideration described that "the expected cost and benefits decision makers in sport face are influenced by the type of economic system used to make decisions in society" (Eschenfelder and Li, 2007, p. 26). In the setting of martial arts schools, there are likely several economic considerations, such as membership fees, payment method, discounts, refunds, membership promotions and coupons (Kim *et al.*, 2009, 2013). The Locker Room represents the presumed provision and maintenance for a martial arts school's locker room due to routine wardrobe change for the sport, which was in fact identified as one of the primary components that independently affected member retention and recruitment of health-related fitness clubs in previous studies (Lam *et al.*, 2005).

Perceived benefits

Perceived benefits were defined as “a combination of different attributes of products (e.g. tangible vs intangible, intrinsic vs extrinsic), available in relation to a particular buy and use situation” (Snoj *et al.*, 2004, p. 157). Based on the definition, the perceived benefits of martial arts training can be interpreted as the participants’ perception of gains from participation in martial arts programs. Many researchers have discussed the benefits of martial arts participation (e.g. Cai, 2000; Fuller, 1988; Konzak and Boudreau, 1984; Lakes and Hoyt, 2004; Richman and Rehberg, 1986) and supported the assertion that it plays an important role in enhancing both physical and psychological benefits. Improvements in self-esteem (Fuller, 1988), emotional stability and assertiveness (Konzak and Boudreau, 1984), as well as reductions in anxiety and depression (Cai, 2000), are some major positive consequences of participating in martial arts programs, in addition to physical benefits (Richman and Rehberg, 1986).

Perceived constraints

Perceived constraints were defined as those “perceived or experienced by individuals to limit the formation of leisure preferences and to inhibit or prohibit participation and enjoyment in leisure” (Jackson, 1997, p. 461). Constraints were once considered barriers that directly resulted in non-participation; but recent research findings have indicated that it is also possible for participants to negotiate the participation process through constraints (Alexandris *et al.*, 2007). A number of constraints studies have revealed that such negotiation strategies have been applied to prevent dropping out. A number of studies on sport consumer constraints have revealed that such negotiation strategies have been applied to prevent dropping out. Examples of such include a study on the impact of costs on serious leisure careers (Lamont *et al.*, 2014), the acquisition of diverse leisure benefits (Lyu and Oh, 2015), and an investigation of recreational skiers (Alexandris *et al.*, 2017). Crawford and Godbey (1987) developed a theoretical framework of leisure constraints that would hinder an individuals’ preference in recreation/leisure participation. The constraints consisted of three main categories: intrapersonal, interpersonal and structural. Intrapersonal constraints involve individual psychological states and attributes, which interact closely with leisure preferences rather than intervening between preferences and participation. Interpersonal constraints result from social interactions or the relationship between partners or within a social group (e.g. lack of sufficient companionship to participate in activity). Referring to organizational and operational functions, structural constraints are formed from external constraints, such as unavailability of resources needed to participate in leisure/sport activities (e.g. financial resources, availability time).

Perceived value

Perceived value has received increasing attention as one of the most significant factors in predicting consumer satisfaction, behavioral intention and loyalty in several different contexts such as service industry, tourism and sports perspective (Bolton and Drew, 1991; Byon *et al.*, 2013; Chang and Wildt, 1994; Cronin *et al.*, 2000; Woodruff, 1997; Yu *et al.*, 2014). Due to its dynamic nature, perceived value has been defined in many ways, depending on the type of product or services and personal characteristics of customers. Woodruff (1997) defined perceived value as “a customer’s perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer’s goal and purposes in use situations” (p. 142). Understanding the concept of customer perceived value along with other constructs such as service quality, satisfaction and behavior intention helps marketers determine how to efficiently allocate their marketing resources (Woodruff, 1997). Recognizing the importance of perceived value in understanding the consumer decision-making process, a few studies related to perceived value have been undertaken in the sports marketing setting

(Murray and Howat, 2002). Murray and Howat (2002) investigated the relationship between service quality, perceived value, satisfaction and future intentions of customers by proposing two conceptual models: one with satisfaction mediating the effect of value and one with value mediating the effect of satisfaction. The findings revealed that perceived value not only had a direct relationship with future behavioral intentions, but was also indirectly related to future intentions through satisfaction.

Member satisfaction

Anderson *et al.* (1994) defined overall satisfaction as “an overall evaluation based on the total purchase and consumption experience with a good or service over time” (p. 54). The concept of customer satisfaction has been a focus of academics and practitioners in light of the fact that it affects the revenue generation of organizations. The primary goal for most service companies today is to achieve customer satisfaction. In a broad sense, customer satisfaction has a heavy influence on member loyalty, where the behavioral aspect of customer loyalty is the repurchase intention of a product or service. Increasing customer satisfaction and customer retention improves profits, word-of-mouth and allows for lower marketing expenditures (Reichheld, 1996). In this study, satisfaction is assumed to be formed based on customers’ previous experience and cumulative evaluations of a martial arts program, and is assumed to be a key determinant of customer retention, positive word-of-mouth and sales of merchandise (Bitner, 1990).

Member commitment

Like member satisfaction, member commitment has been identified as a critical component, essentially representing a consequence of consumer market demand. In participant sports, sports commitment has been defined as “a psychological construct representing the desire and resolve to continue sport participation” (Scanlan *et al.*, 1993, p. 7). Sport commitment is thus a dominant predictor of actual participation when people face intervening or constraints factors such as time, injury and cost (Scanlan *et al.*, 1993). Commitment has been found to be a primary construct affecting customer retentions and behavior in the context of health and fitness clubs and professional sports (Wang *et al.*, 2011; Yu *et al.*, 2014).

Conceptual framework and hypotheses

More recent research has presented models to simultaneously estimate mediation and moderation to investigate how the effects work together (e.g. Edwards and Lambert, 2007). Following Fishbein and Ajzen’s (1975) TRA to predict and understand consumption tendencies through studying the sequential relationships of individual beliefs, attitude and intention to consumption behavior, a proposed research model was developed as a result of a comprehensive review of literature. Seven hypotheses were tested in this study. Perceived benefits of martial arts training are the participants’ subjective perceptions of gain from participating in martial arts. If martial arts participants perceive little or no benefits from martial arts training, it will be difficult for schools to retain or recruit members and avoid attrition. A number of studies documented that participating in martial arts affords positive psychological benefits (e.g. self-esteem, self-concept, confidence and relaxation) and a unique array of physical benefits (e.g. balance, strength, flexibility and self-defense) (e.g. Cai, 2000; Fuller, 1988; Ko *et al.*, 2010; Konzak and Boudreau, 1984; Lakes and Hoyt, 2004; Richman and Rehberg, 1986):

H1. Market demand of martial arts participation would have a positive impact on perceived benefits.

Martial arts marketers should identify perceived constraints variables that affect participants’ decisions to attend and remain in training programs. Constraints were once

thought of as barriers leading directly to non-participation. Nevertheless, research results show that participants can also negotiate the participation process through constraints (Alexandris *et al.*, 2007). Kim and Trail (2010) examined the relationship among constraints, motivators and attendance in a spectator sport setting. In the context of martial arts, only a few studies have examined various uncertainties and constraints that are often associated with participation in martial arts (Kim *et al.*, 2013; Zetaruk *et al.*, 2005). Training in martial arts is associated with the potential risk of injuries such as strains, sprains or bruising. It was anticipated that the perceived constraints for martial arts participation would play a significant role in explaining participants' behaviors and predicting their intentions to remain in martial arts schools. Kim *et al.* (2015) examined the extent to which constraints predict the level of satisfaction in martial arts participation. They found that intrapersonal constraints and interpersonal constraints had a negatively significant influence on member satisfaction. Therefore, it is important to identify constraints or barriers to understand why participants drop out of martial arts training:

H2. Market demand of martial arts participation would be negatively related to perceived constraints.

Recently, Byon *et al.* (2013) investigated the mediating role of perceived value in the relationship of market demand variables and game support programs to the consumption of professional sports. Unlike previous market demand studies that tended to examine how market demand factors directly affected consumption behaviors, this study examine the hierarchical relationships among market demand, game support, perceived value and game consumption factors, where the mediating role of perceived value was examined. The findings of the study confirmed the presence of hierarchical relationships:

H3. Market demand of martial arts participation would have a positive impact on perceived value.

A customer's perceived value is a comparison between perceived benefit and perceived constraints (Cardenas *et al.*, 2009). An important argument proposed by the current study is that perceived benefits and perceived constraints with regard to martial arts participation lead to certain consequences that are mirrored in participants' perceived value. Both the perceived benefits and constraints associated with martial arts participation are expected to play critical roles in explaining participants' behavior and predicting their intentions to remain in the martial arts (e.g. Holbrook, 1996; Snoj *et al.*, 2004; Woodruff, 1997):

H4. Perceived benefit of martial arts participation would have a positive impact on perceived value.

The perceived constraints for martial arts participation would play a significant role in explaining participants' behaviors and predicting their intentions to remain in martial arts schools. Tam (2004) found that perceived constraints such as monetary and time costs had a negative effect on perceived value in consumption behavior at a restaurant chains, indicating that monetary and time costs play an important role in customers' assessments of the perceived value of a service. Kim and Trail (2010) examined the relationships among constraints, motivators and attendance in the spectator sport context. These perceived constraints were found to be negatively related to the intention to attend the event:

H5. Perceived constraints of martial arts participation would have a negative impact on perceived value.

A majority of previous researchers have held that perceived value is an important concept with regard to customer satisfaction and behavioral intentions in the pre-purchase and post-purchase stages (Cronin *et al.*, 2000; Eggert and Ulaga, 2002; Heskett and Schlesinger, 1994; Tam, 2004;

Woodruff, 1997). Eggert and Ulaga (2002) developed two alternative models: direct impact of perceived value on the purchasing intention, and perceived value as a mediating variable in the relationship between customer satisfaction and purchasing intention. These models were developed to explore how customer perceived value interacts with customer satisfaction:

H6. Perceived value of martial arts participation would have a positive impact on member satisfaction.

Numerous researchers have indicated that when consumer expectations are satisfied, consumers tend to exhibit high commitment to continued consumption of a product or service (e.g. Oliver, 1997; Zeithaml *et al.*, 1985). Customer satisfaction has received attention from practitioners and academicians because it helps one understand how consumer response may be utilized as a key determinant of customer retention (Cronin *et al.*, 2000), customer loyalty (Fornell *et al.*, 1996) and positive word-of-mouth (Maxham and Netemeyer, 2002):

H7. Member satisfaction of martial arts participation would have a positive impact on member commitment.

Method

Participants and procedure

A convenience sampling method was employed to survey martial arts school participants. The target population for this study was 18 years of age or older, resided in the USA, and have attended a martial arts school. A total of 595 participants were recruited from martial arts schools throughout the USA. Of the respondents for this study, there were 59.5 percent ($n = 356$) male and 39.9 percent ($n = 232$) female. The participants ranged in age from 18 to 77 years old ($M = 36.6$; $SD = 12.7$). Approximately, 50 percent of the participants were between 35 and 55 years old and close to 27 percent were between 18 and 25 years old. The respondents ranged from 1.0 to 7.0 days in regular training per week ($M = 3.54$; $SD = 1.35$). Caucasian (66.1 percent) was the primary ethnic composition of the participants and the remaining sample consisted of 15.7 percent Hispanics, 8.5 percent Asians and 5.4 percent African Americans. A majority of the participants reported an annual income of \$50,000 or higher (74 percent), reflecting the fact that participants of martial arts schools had higher levels of household income.

In an effort to obtain responses from a large group of martial arts participants and in the meantime reduce the tendency of survey limitations, a mixed-mode survey design suggested by Dillman (2007) was adopted, where data collection was conducted by combining on-site and online test administrations. The online surveys were considered as beneficial by including martial arts program participants with broader backgrounds and in different geographical regions of the USA so as to enhance the generalizability of the research findings. Consequently, a total of 147 martial arts school participants responded to the face-to-face survey and a total of 448 martial arts school participants responded to the online survey.

Measurement

Market demand. To measure market demand of martial arts school, a total of 37 items under seven factors (Personal Improvement Activities, Physical Facility Quality, Instruction Staff Quality, Program Activities and Offerings, Cultural Learning, Locker Room Provision and Economic Condition Consideration) were adopted and modified from the Revised SMD-TKD scale (Kim *et al.*, 2013). This scale was the only instrument identified in the published literature that measures market demand features of martial arts programs.

Perceived benefits. Based on reviewing related literature on the benefits of martial art training, items measuring perceived benefits were generated from previous research (Kim *et al.*, 2009). The personal benefits dimension was comprised of two subscales (psychological benefit and physical benefit) with a total of 12 items.

Perceived constraints. To measure perceived constraints, items in the “Leisure Constraints Scale” (Alexandris and Carroll, 1997) were modified. This scale was selected because it was developed in the setting of recreational sport participation and its items were deemed relevant to martial arts schools. A total of 22 items under three dimensions were included the current study: Intrapersonal Constraints (seven items), Interpersonal Constraints (six items) and Structural Constraints (nine items).

Perceived value. Perceived value was measured with four subscales (emotion, quality, price and social) with a total of 11 items that were adapted from Sweeney and Soutar’s (2001) PERVAL scale. The PERVAL’s scale items were slightly modified in order to be relevant to the setting of martial arts school.

Member satisfaction. Member satisfaction was measured as a latent construct reflected by overall satisfaction. Specifically, three items were adopted from Brady and Cronin’s (2001) scale as this scale was widely recognized and adopted to measure three critical affective reaction components toward a consumptive object (satisfaction, happiness and delight).

Member commitment. Member commitment was measured with a four-item scale that was modified from Scanlan *et al.*’s (1993) Sport Commitment Scale. This scale was adopted because it was validated in the context of exercise and fitness participation setting (Alexandris *et al.*, 2007). The four items were slightly modified to reflect the martial arts setting. In this study, all factors were phrased in a seven-point Likert-type scale, ranging from 1 = strongly disagree to 7 = strongly agree. For sample description purpose, information on sociodemographic background was also collected.

Data analyses

Data screening and descriptive statistics were calculated to examine the characteristics of the data by using the SPSS 20.0 program. After data screening, *t*-tests were conducted to examine if there were differences between the face-to-face and the online survey modes by using SPSS 20.0 program. In fact, the findings from the *t*-tests indicated that there were no significant ($p > 0.05$) differences between the two data collection protocols. To examine multivariate normality, Mardia’s coefficients of multivariate skewness and kurtosis were tested by applying the PRELIS 2.52 program (Jöreskog and Sörbom, 1996). In an effort to cope with any deviation from multivariate normal distribution, a robust maximum likelihood estimator (MLR) with Satorra–Bentler (S–B) adjusts χ^2 (S–B χ^2) scaling method was adopted and performed to make the corrections (Satorra and Bentler, 2001). Testing of hypotheses was conducted by a two-step process (Anderson and Gerbing, 1988). In the first step, the measurement model was tested through appropriate validation processes, which tested the suitability of hypothesized factor structure for the data. A confirmatory factor analysis (CFA) was conducted to evaluate the measurement model for all of the constructs and their items and to estimate how well the items would represent the proposed latent constructs. The second step was related to testing the structural relationships specified in the proposed model when measurement model was adequate (Anderson and Gerbing, 1988; Kline, 2005). A structural equation modeling (SEM) analysis was conducted to examine the hypothesized relationships (Muthén and Muthén, 2007). Hu and Bentler (1999) suggested that RMSEA values less than 0.06 indicate a close fit and between 0.06 and 0.08 indicate an acceptable fit. The SRMR indicates the value less than 0.09 generally indicates a good fit of model (Kline, 2005). A rule of thumb for the CFI index is that researcher’s model

has a reasonable fit when a value is larger than 0.90 (Hu and Bentler, 1999). To assess the reliability of the scale, the following three tests were conducted: Cronbach's α , construct reliability (CR) and averaged variance extracted (AVE).

Results

Multivariate non-normality would be violated when Mardia's Normalized coefficients of both skewness and kurtosis are statistically significant. Findings of this study revealed that the normality assumption was violated based on Mardia's coefficients of multivariate skewness ($z = 189.6$, $p < 0.01$) and kurtosis ($z = 38.7$, $p < 0.01$); thus, to deal with the deviation from multivariate normality, the measurement model that was estimated with maximum likelihood robust (MLR) estimation and tested with S-B χ^2 was applied for correction (Satorra and Bentler, 2001).

The overall measurement model with 17 latent factors, including all of the market demand, perceived benefits, perceived constraints, perceived value factors, member satisfaction and member commitment containing a total of 76 observed indicators was tested by conducting a CFA. An initial estimation of the overall measurement model produced an acceptable levels of model fit (S-B χ^2 / df (5,483.3/2,637) = 2.07, $p < 0.01$; RMSEA = 0.043; CFI = 0.906; SRMR = 0.052); yet, the goodness of fit indexes suggested that the measurement model needs to be respecified in order to achieve better validity and reliability evidence. By checking the modification index, three items were deleted to improve the goodness of fit. One latent factor, quality value, with two items was also eliminated due to its very high correlation with member commitment. Consequently, the revised overall measurement model with 16 latent factors and 71 observed indicators was tested. Overall, a finding of the revised measurement model was satisfactory. The S-B χ^2 / df (4,520/2,293 = 1.97) was lower than the suggested criterion value of 3.0 (Kline, 2005). Robust CFI value of 0.920 was higher than the recommended cut-off ratio (i.e. > 0.90 ; Hu and Bentler, 1999). The RMSEA value (0.040) indicated a close fit. In addition, the SRMR (0.047) was less than 0.09, indicating a good fit of model (Kline, 2005).

As shown in Table I, α coefficients for the factors ranged from 0.76 (Intrapersonal Constraints) to 0.97 (Personal Improvement Activities). CR coefficients ranged from 0.78 for Economic Condition Consideration and Intrapersonal Constraints to 0.96 for Personal Improvement Activities and Member Satisfaction. AVE values ranged from 0.55 (Program Activities Offerings and Economic Condition Consideration) to 0.89 (Member Satisfaction), indicating a strong evidence of reliability. Convergent validity of the overall measurement model was examined by t -values and factor loadings. The t -values for the factor loadings were all statistically significant at the 0.001 level. The interfactor correlations ranged from -0.07 (between Locker Room Provision and Structural Constraints) to 0.77 (Member Satisfaction and member commitment), and no interfactor correlation coefficient was greater than 0.85. Overall, the findings of the measurement models provided good evidence for the study to proceed with the SEM analysis (Table II).

Based on the overall measurement model, there were a total of 16 observed variables and six latent variables. Figure 1 shows the relationships among these constructs. The fit indices revealed that S-B χ^2 / df (5,044.8/2,391) = 2.11, $p < 0.01$; RMSEA = 0.043; CFI = 0.905; SRMR = 0.068. The relationship between market demand factors and the latent, general market demand variable was all significantly ($p < 0.05$) different from zero, and all standardized loading ranged from 0.36 for Locker Room Provision to 0.85 for Economic Condition Consideration. With respect to the structural relationships, path coefficients were examined among the market demand, perceived benefits, perceived constraints, perceived value, member satisfaction and member commitment constructs. The market demand latent variable directly affected perceived benefits, perceived constraints and perceived value, and indirectly affected perceived value, member satisfaction and member commitment. All of the

Construct and items	CR	λ	α	AVE
Personal Improvement Activities (11 items)	0.96		0.97	0.72
The school provides opportunities for improving self-discipline (PIA1)		0.840		
The school offers to learn to be humble (PIA3)		0.814		
The school provides opportunities for improving character (PIA5)		0.907		
The school offers course content for fostering a positive attitude (PIA6)		0.902		
The school provides opportunities for improving self-confidence (PIA7)		0.853		
The school trains participants for improving self-concept (PIA9)		0.822		
The school trains participants for increasing personal pride (PIA10)		0.796		
The school teaches participants to respect for other people (PIA11)		0.875		
The school teaches participants for developing a strong work ethic (PIA12)		0.839		
The school offers programs for improving leadership skills (PIA13)		0.842		
The school teaches participants to follow a code of honor (PIA14)		0.856		
Physical Facility Quality (6 items)	0.90		0.90	0.61
The school's facility is safe and comfortable (PFQ3)		0.743		
The school's interior is well designed (PFQ4)		0.865		
The school has adequate space for class activities (PFQ5)		0.708		
The school has up-to-date equipment (PFQ6)		0.759		
The school's ambience is excellent (PFQ8)		0.766		
The school's facility is aesthetically attractive (PFQ9)		0.837		
Instructional Staff Quality (5 items)	0.92		0.92	0.71
Instructors/masters have a good reputation (ISQ1)		0.833		
Instructors/masters are willing to help members (ISQ3)		0.875		
Having well qualified instructors (ISQ4)		0.886		
Instructors/masters are friendly (ISQ5)		0.803		
Instructors/masters handle problems promptly/ professionally (ISQ6)		0.813		
Program Activities Offerings (5 items)	0.85		0.86	0.55
Classes focusing on self-defense (PAO7)		0.686		
Quality promotional materials (e.g. pamphlets) (PAO8)		0.726		
Special events (e.g. training camp) (PAO11)		0.775		
Various activities for different groups of members (PAO12)		0.821		
Family programs (PAO13)		0.696		
Cultural Learning Activities (3 items)	0.94		0.94	0.85
The school offers content of learning Eastern philosophy (CLA1)		0.831		
The school offers activities of learning about Eastern culture (CLA2)		0.972		
The school offer opportunities of learning about Eastern heritage (CLA3)		0.959		
Locker Room Provision (4 items)	0.93		0.94	0.78
The school offers a good locker room (LRP1)		0.883		
The locker room is safe (LRP2)		0.867		
The locker room in this school is convenient (LRP4)		0.894		
The locker room in this school is clean (LRP5)		0.895		
Economic Condition Consideration (3 items)	0.78		0.77	0.55
Not charged any hidden fee (ECC1)		0.681		
Membership fee is reasonable (ECC3)		0.862		
A reasonable refund and cancellation policy(ECC4)		0.657		
Perceived Benefit (9 items)	0.94		0.94	0.64
Attending the school helps me enhance self-image (PBE1)		0.762		
Attending the school helps me improve my mental health (PBE2)		0.806		
Attending the school helps me improve my character (PBE3)		0.830		
Attending the school has positive psychological effects on me (PBE4)		0.858		
Attending the school helps me enhance self-confidence (PBE5)		0.886		
Attending the school helps me feel better in general (PBE6)		0.832		
Attending the school helps me improve my physical health (PBE7)		0.726		
Attending the school helps my self-protection (PBE8)		0.723		
Attending the school helps my self-defense ability (PBE9)		0.772		

(continued)

Table I.
Summary results for
overall measurement
model

Construct and items	CR	λ	α	AVE
Intrapersonal Constraints (2 items)	0.78		0.76	0.64
Tiring to attend the martial arts school (ITR4)		0.678		
No fun anymore (ITR6)		0.911		
Interpersonal Constraints (3 items)	0.80		0.86	0.58
Happy with socialization opportunities in the martial arts school (ITE1)		0.678		
I do not think that the instructor(s)/master is competent (ITE2)		0.887		
Observing negative attitudes from instructor(s)/master (ITE4)		0.702		
Structural Constraints (5 items)	0.91		0.92	0.67
Not enough time to participate in school (STR4)		0.681		
The school is located too far away (STR6)		0.816		
Not have transportation to attend the school (STR7)		0.916		
The facility is very crowded (STR8)		0.811		
I cannot afford to attend the school (STR9)		0.863		
Emotional value (3 items)	0.87		0.87	0.69
Something that I enjoy (EMO1)		0.839		
Something that I like to participate (EMO2)		0.829		
I feel comfortable attending the martial arts school (EMO3)		0.830		
Price value (3 items)	0.93		0.93	0.82
Reasonably priced (PRI1)		0.951		
Offering value for the money I spend (PRI2)		0.876		
Affordable (PRI3)		0.889		
Social value (3 items)	0.90		0.90	0.76
Making a good impression on other people (SOC1)		0.819		
Helping me feel accepted by others (SOC2)		0.884		
Improving the way I am perceived by others (SOC3)		0.910		
Member Satisfaction (3 items)	0.96		0.96	0.89
Satisfied with my decision to attend school (MSA1)		0.934		
Happy I attend school (MSA2)		0.983		
I did the right thing by deciding to attend the school (MSA3)		0.911		
Member commitment (3 items)	0.94		0.93	0.85
Dedicated to being a member of the school (MCO1)		0.944		
Determined to remain a member of the school (MCO2)		0.969		
It would be hard for me to quit member of the school (MCO3)		0.844		

Table I.

direct and indirect paths were statistically significant ($p < 0.05$). An amalgamation of the market demand factors had positive effects on perceived benefits ($\beta = 0.73$, $p < 0.01$), perceived constraints ($\beta = -0.38$, $p < 0.01$), and perceived value ($\beta = 0.72$, $p < 0.01$). Therefore, $H1-H3$ were supported (Figure 1). Also, the effect of perceived benefits on perceived value was positive and statistically significant ($p < 0.05$), where perceived benefits was positively predictive of perceived value ($\beta = 0.25$, $p < 0.001$), indicating that $H4$ was supported. However, although the effect of perceived constraints on perceived value was negative, it was not statistically significant ($\beta = -0.01$; $p > 0.05$); Thus, $H5$ was not supported. It would be a self-selecting group in that they have already negotiated their constraints. The path from perceived value to member satisfaction was positively and statistically significant ($\beta = 0.45$, $p < 0.05$), indicating that $H6$ was not supported. Furthermore, member satisfaction had a positive impact on member commitment ($\beta = 0.61$, $p < 0.001$), indicating that $H7$ was supported (Table III).

To compare the advantage between the partially mediated model (Model A) and the direct effect model (Model B) (Figure 2), the χ^2 and degrees of freedom of models were compared to see if the hypothesized model was supported (Model A). The null hypothesis, "the partially mediated model fits the data ($H1$) would fit the data well just as the fully mediated model," was tested. The model comparison test was conducted by using $\chi^2_{12} = (\chi^2_1 - \chi^2_2) = 0.07$ and $df_1 - df_2 = 1$. Although the fit index for the partially mediated

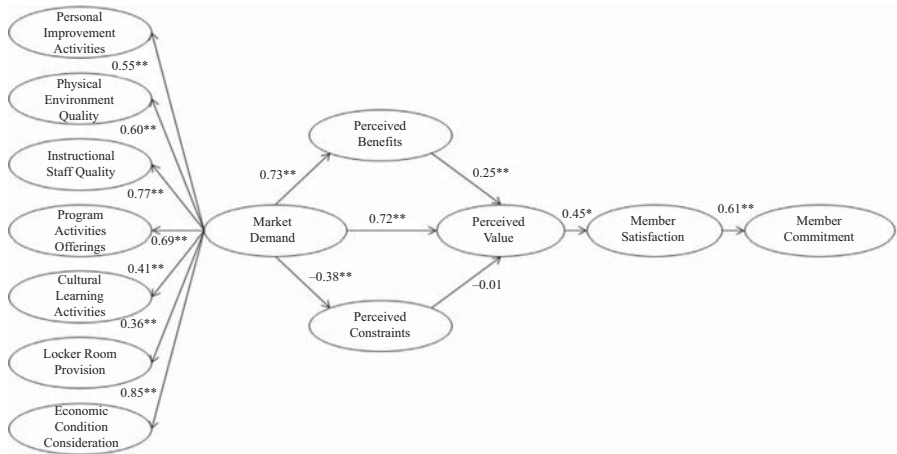
Factor	Correlation matrix															
	PIA	PFQ	ISQ	PAO	CLA	LRP	ECC	PBE	ITR	ITE	STR	EMO	PRI	SOC	MSA	MCO
PIA	1															
PFQ	0.400**	1														
ISQ	0.326**	0.381**	1													
PAO	0.470**	0.515**	0.451**	1												
CLA	0.293**	0.336**	0.297**	0.414**	1											
LRP	0.143**	0.307**	0.300**	0.259**	0.199**	1										
ECC	0.361**	0.376**	0.589**	0.478**	0.236**	0.293**	1									
PB	0.538**	0.461**	0.492**	0.505**	0.304**	0.178**	0.480**	1								
ITR	-0.241**	-0.266**	-0.267**	-0.286**	-0.163**	-0.103*	-0.261**	-0.318**	1							
ITE	-0.173**	-0.252**	-0.260**	-0.282**	-0.161**	-0.116**	-0.264**	-0.215**	0.583**	1						
STR	-0.125**	-0.171**	-0.129**	-0.217**	-0.091*	-0.077	-0.215**	-0.186**	0.540**	0.695**	1					
EMO	0.360**	0.377**	0.543**	0.394**	0.241**	0.175**	0.523**	0.629**	-0.357**	-0.231**	-0.158**	1				
PRI	0.351**	0.399**	0.443**	0.403**	0.229**	0.240**	0.713**	0.524**	-0.263**	-0.235**	-0.243**	0.624**	1			
SOC	0.420**	0.379**	0.385**	0.477**	0.224**	0.136**	0.451**	0.584**	-0.250**	-0.258**	-0.248**	0.507**	0.541**	1		
MSA	0.300**	0.398**	0.666**	0.364**	0.251**	0.226**	0.549**	0.516**	-0.268**	-0.226**	-0.157**	0.622**	0.548**	0.356**	1	
MCO	0.342**	0.362**	0.619**	0.385**	0.278**	0.179**	0.550**	0.522**	-0.331**	-0.216**	-0.181**	0.644**	0.531**	0.418**	0.772**	1
Mean	5.89	5.82	6.54	5.20	4.40	4.46	5.90	6.10	2.20	2.56	2.61	6.53	5.98	5.58	6.57	6.35
SD	1.19	1.05	0.82	1.38	1.68	1.74	1.16	0.91	1.38	1.78	1.61	0.76	1.22	1.39	0.90	1.18

Notes: PIA, personal improvement activities; PFQ, physical facility quality; CLA, cultural learning activities; LRP, locker room provision; ISQ, instructional staff quality; PAO, program activities offerings; ECC, economic condition consideration; PB, perceived benefits; ITR, intrapersonal constraints; ITE, interpersonal constraints; STR, structural constraints; EMO, emotional value; PRI, price value; SOC, social value; MSA, member satisfaction; MCO, member commitment. *, **, ***Correlation is significant at the 0.05 and 0.01 levels, respectively (two-tailed)

Table II. Correlations among market demand constructs

model was slightly better, the difference was not statistically ($p > 0.05$) different, indicating that the null hypothesis was retained. In this case, it would be reasonable to consider that perceived benefits and perceived constraints fully mediated the relationships between market demand and perceived value, which in turn influenced member satisfaction and commitment.

Figure 1.
A finalized model of the relationships among market demand, perceived benefit, perceived constraint, perceived value, member satisfaction and member commitment



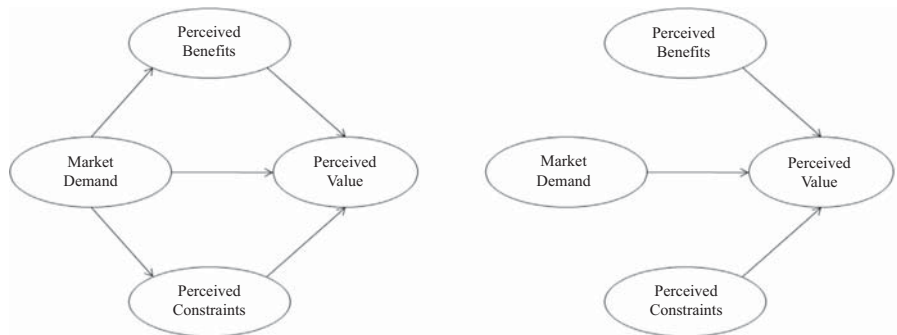
Notes: * $p < 0.05$; ** $p < 0.01$

Table III.
The direct and indirect effects of market demand on commitment

Direct/Indirect Effect	Path	Standardized coefficient
Direct effect	MD → MCO	0.28
Indirect effect	MD → PV → MSA → MCO	$0.72 \times 0.17 \times 0.60 = 0.07$
Indirect effect	MD → PB → PV → MSA → MCO	$0.73 \times 0.25 \times 0.17 \times 0.60 = 0.019$
Indirect effect	MD → PC → PV → MSA → MCO	$-0.38 \times 0.01 \times 0.17 \times 0.60 = 0.00039$
Indirect effect	MD → MSA → MCO	$0.58 \times 0.60 = 0.35$
Total effect		$0.28 + 0.07 + 0.019 + 0.00039 + 0.35 = 0.72$

Notes: MD, market demand; PB, perceived benefits; PC, perceived constraints; PV, perceived value; MSA, member satisfaction; MCO, member commitment. * $p < 0.05$; ** $p < 0.01$

Figure 2.
A comparison of the partially mediated model and the direct effect model



Model A: Partially mediated model

Model B: Direct effect model

The capability of the hypothesized model to explain variation in perceived value, member satisfaction and member commitment was estimated by R^2 value. A total 85 percent of variance in perceived value was explained by the market demand, perceived benefits and perceived constraints. The R^2 values for member satisfaction and member commitment were 0.54 and 0.69, respectively.

Discussion

Measurement model

With respect to the market demand variables, assessment of the psychometric properties of Kim *et al.*'s (2013) revised SMD-TKD scale indicated that the scale with seven factors was of good validity and reliability. The seven-factor model had one factor (Economic Condition Consideration) that was additional to the original SMD-TKD (Kim *et al.*, 2009). The resolved factor structure represents a parsimonious solution of measuring the market demand of martial arts schools. Findings in the current study confirmed these merits of the scale. Because the revised scale assesses the attributes of core product elements of a martial arts program, it is assumed that information obtained from adopting this measure would have direct relevance to improving the operation and marketing of programs, so that they become strongly positioned in a highly competitive marketplace. The perceived benefits variables were initially hypothesized to fall into two factors, namely, psychological benefits and physical benefits. However, the model fit indices did not support the two-factor model. Upon consideration of the statistical evidence, the scale was revised to a unidimensional construct. In the current study, the revealed presence of a perceived benefits factor indicates its potential role for understanding martial arts participants, and also signifies the importance and relevance of perceived benefits variables in one's propensity to make a commitment to martial arts training (e.g. Fuller, 1988; Richman and Rehberg, 1986).

When martial arts marketers recognized that perceived constrain factors affect participants' decisions to attend/remain or drop out in the programs, it is important to suggest strategies for maintaining members. This study identified three perceived constraints dimensions (i.e. intrapersonal, interpersonal and structural constraints) that might prohibit or hinder one from training at a martial arts school. This study found that intrapersonal constraints with regard to martial arts involved participants' psychological states and attributes that interacted with their preferences, and included such issues as the training activity being tiring and not fun. Interpersonal constraints consisted of social situations, competence of the instructor/master and negative attitude of the instructor/master. Finally, structural constraints consisted of external factors primarily related to lack of availability of the resources needed to participate in martial arts. In this study, the retained items, including time, location, transportation, crowdedness of school and affordability were found to be significant indicators among the structural constraints (Kim *et al.*, 2015). Previous studies have consistently found that more than 30 percent of respondents' perceived constraints were based on a lack of money and time. Lack of time as a constraint was indicated in a number of recreation/leisure participant studies, which was also the case in this study (Alexandris and Carroll, 1997). Data in the current study suggest that the perceived constraints regarding martial arts participation tend to play a significant role in explaining participants' behaviors and predicting their intentions to remain in martial arts schools. In order to overcome such constraints, it is important for program administrators and marketers to undertake promotional efforts to encourage internal motivation. For instance, it is important for martial arts programs to consider scheduling favorable operating hours with regard to participants' availability (e.g. after school, after work and weekends). Furthermore, schools should consider location, transportation service, class size and communication channels to enhance the effectiveness of program operations (Brady and Cronin, 2001; Kim *et al.*, 2009).

For the perceived value variables, the current study initially proposed a four-dimension model based on Sweeney and Soutar's (2001) PERVAL scale: emotional value, social value, functional value (price/value for money) and functional value (performance/quality). However, these four dimensions were not replicated in this study. The functional value (performance/quality) did not emerge as an independent dimension for martial arts participation due to its high correlation with member commitment. Unlike a number of previous studies that measured perceived value via a single-item construct, findings of this study did confirm that perceived value for martial arts schools are of a multidimensional nature. Consequently, perceived value cannot be accounted for as simply the outcome of the trade-off between a single overall quality and constraints, as the concept of perceived value is much more complicated than a single-item construct can encompass (Bolton and Drew, 1991). It was certain that multiple dimensions of perceived value could better explain martial arts participation satisfaction than any single item alone.

Structural models and hypothesis testing

The goodness of fit of the overall measurement model permitted an examination of the structural relationships of market demand to the exogenous constructs in this study. All seven market demand factors were found to be predictive of the general latent variable of market demand, where the dimension of Economic Condition Consideration was shown to be the most important factor ($R^2 = 0.72$), accounting for 72 percent of the variance in market demand. With respect to the Economic Condition Consideration, such considerations as no hidden fees, reasonable membership fees and a refund and cancellation policy played significant roles in martial arts schools. Another important factor, Instructional Staff Quality (e.g. instructor reputation, friendliness, qualifications and handling problems promptly) was found to explain about 59 percent of the variance in market demand. This finding was consistent with previous indications that an instructor's attitude, expertise and actual behavior had a direct influence on current and new consumers' evaluations of program services (Bitner, 1990; Brady and Cronin, 2001; Kim *et al.*, 2009; Papadimitriou and Karteroliotis, 2000). Although the Locker Room Provision factor accounted for 13 percent of the variance in market demand, managers would be well-advised to take it seriously because it pinpoints the areas of locker room condition and maintenance for improvement. It is important to note that in Kim *et al.*'s (2009, 2013) studies, the Cultural Learning Activities factor was not found to have a significant impact on the consumption level of martial arts schools. Similarly, although Ko *et al.* (2010) indicated that culture learning was one of the motivation factors that would explain why people participate in martial arts, cultural activities were found to have no significant impact on the motivation of martial arts participants. Unlike these previous studies, the findings of the current study showed that the Cultural Learning Activities factor had a significant effect on market demand, indicating that martial arts participants were likely to acculturate to learn Asian philosophy, culture and heritage through training in martial arts schools (Kim *et al.*, 2009, 2013; Ko *et al.*, 2010).

With respect to the perceived constraints, the interpersonal constraints factor was shown to be most important ($R^2 = 0.88$), accounting for 88 percent of the variance in perceived constraints. Of items assessing interpersonal constraints, social interaction and relationship with the master/instructor were considered highly relevant by the participants. This was consistent with previous findings revealing that learning martial arts was a product of social interactions (Kim *et al.*, 2009, 2013). In terms of the perceived value variables, all three factors (i.e. emotion value, price value and social value) were highly predictive of the general construct of perceived value. Of these factors, emotion value accounted for 72 percent of the variance in perceived value. In a previous study, this factor was also found to be a critical aspect of a participant's value perceptions of participating in martial arts training

(Sweeney and Soutar, 2001). After the overall measurement model was found to fit to the data well, the structural model was conducted to test the hypotheses.

Following the concept of TRA, this study recognized the importance and necessity to study the sequential relationships of beliefs, attitude and intentions associated with martial arts school participations. To this end, the structural relationships of market demand on perceived benefits, perceived value, perceived constraints, member satisfaction and member commitment were examined. Market demand was found to be of significant impact on all exogenous constructs. Instead of only 28 percent variance in member commitment being directly explained by the market demand construct, a total of 72 percent variance in member commitment was explained in the structural model, including both direct and indirect influences, revealing a much higher explanatory power.

Essentially, *H1-H5* were supported. Further, perceived benefits of martial arts participation were found to have a positive impact on perceived value, indicating that participants would select a martial arts school that meet their expected benefits and value. This finding was consistent with Holbrook's (1996) suggestion that the martial arts customer who has perceived the benefits of a given product or service may be expected to experience a positive perceived value attached to his or her experience with that product or service. With respect to the effects of the perceived constraints on perceived value, a negative impact on the perceived value was identified although it was not statistically significant. Previous studies (i.e. Snoj *et al.*, 2004; Tam, 2004) have consistently found that perceived constraints negatively influence the perceived value of a mobile phone. In particular, Tam (2004) indicated that perceived constraints, such as monetary and time costs, would have a negative effect on perceived value in the competitive marketplace. Apparently, findings of this study failed to confirm this notion; future studies are needed to further examine this issue.

Perceived value was found to exert influence on member satisfaction and commitment. This finding was consistent with the findings of previous research indications that perceived value would be an important concept that influences customer satisfaction and behavioral intentions in both pre-purchase and post-purchase stages (Cronin *et al.*, 2000; Eggert and Ulaga, 2002; Fornell *et al.*, 1996; Heskett and Schlesinger, 1994; Tam, 2004; Woodruff, 1997), which would in turn positively influence member commitment. Accordingly, highly perceived value for martial arts program would be a significant element in an organization's efforts for maintaining long-term customer relationships.

Implications

The tested structure model in this study has provided in-depth information about the relationships of market demand factors to a number of exogenous belief-attitude-intention constructs, which has provided researchers and practitioners with needed evidence to develop effective marketing strategies and campaigns by tapping into such key concepts as perceived benefits, perceived value, perceived constraints and member satisfaction when highlighting the core attributes of martial arts programs that enhance its value and benefits perceived by martial arts members. This inter-variable approach between perceived value and member satisfaction address some practical implications. The link between perceived value and member satisfaction emerged clearly in this study. Ignoring perceived value in martial arts school may cause lowered member satisfaction and decreased member commitment. Therefore, martial arts school should join its efforts to contribute more value to their member. For example, martial arts participants are encouraged to search for instructors with such positive qualities as patience, knowledge and strong communication skills. Prospective participants should also search for schools with adequate facilities, including padded or sprung floors, full-length mirrors and roomy practice spaces with no obstructions.

A well-trained instructor with outstanding expertise in martial arts and professional attitude can deliver high quality program service. Quality instructors should assist participants in achieving both instructional and personal goals through martial arts training. From the marketing perspective, the popularity of martial arts schools is commonly reflected by highly qualified instructors and their unique pedagogical content that satisfies the needs of martial arts participants (Kim *et al.*, 2013; Kim and Zhang, 2015). With respect to cultural learning, martial arts programs can serve as an expressive institution through which participants are acculturated to the traditional eastern culture, philosophy and heritage. In addition, one of the specific features of martial arts training is a unique opportunity to learn eastern language such as Korean, Japanese and Chinese during the lesson (Kim *et al.*, 2009; Kim and Zhang, 2015). Therefore, it is not surprising that martial arts managers emphasize these positive outcomes in their promotional materials and websites. In addition, in order to increase satisfaction and commitment for current and prospective martial arts members, martial arts managers could use digital marketing (e.g. martial arts school website and social media) that has become fundamental for a successful business today. For example, websites provide dynamic images, videos, storylines and texts that are combined with interactive mechanism to communicate with members. In addition, social media is a powerful marketing channel (e.g. Facebook, Instagram, Twitter, Snapchat) that is a convenient way for consumers to share happenings at martial arts clubs. As a common practice, digital marketing has become the essential source for informing, attract and sustain consumers.

The findings of this study indicate that participants' perceived constraints contributed to the reduction of their perceived value ratings and member satisfaction. Martial arts program managers need to identify the constraints with their programs and work to minimize their existence and influence. For example, finding a good master/instructor may be even more important than finding the right school due to the importance of interpersonal constraints. When martial arts managers developed programs, employing and promoting highly reputable instructors are imperative; as a result, the level of perceived intrapersonal constraints would decrease. Another example is structural constraints that is related to pricing strategies, which is generated from the descriptive statistics revealing that a flexible payment option, reasonable membership fee and various payment methods were critically considered by program participants. Thus, martial arts school administrators may consider applying family discounts, long-term membership discounts and referral discounts to recruit martial arts members in an effort to decrease structural constraints. Identifying these perceived constraints would be fundamental for martial arts schools to understand customer expectations, perceived performance and their discrepancy, and develop effective marketing schemes to meet the expectations of consumers.

As participants feel more satisfied with an organization's offerings, they will be more likely to be repeat customers and refer others to join (Eggert and Ulaga, 2002; Fornell *et al.*, 1996; Maxham and Netemeyer, 2002; Zhou and Zhang, 2017). Zhang (2015) also recognized the importance of providing quality programs and the necessity of developing diversified programs in order to achieve market penetration and expansion by considering sociodemographic variables when planning marketing strategies. Better understanding of target segmentation facilitates market penetration and expansion of martial arts schools in terms of offering a variety of customized quality programs and activities. For example, the findings of the current study indicate that mental control training, self-defense and cultural learning experiences were critical reasons for adult participants to practice martial arts; thus, marketers might wish to consider developing special programs that focus on these topics. Very importantly, the findings of this study revealed that martial arts school offerings should be based on the market demand factors (i.e. attributes of core products) that have been identified as leading to high consumer satisfaction level and

consumer commitment. Based on these, martial arts school administrators should position their marketing strategies by increasing perceived benefits and decreasing perceived constraints in an effort to recruit and retain participants. In organizational perspective, first, martial arts organizations are suggested to have a close working relationship with the government that martial arts originate from. For example, the Korean Government has selected Taekwondo as one of the three most valuable cultural brands of Korea for promotion around the world in 2014. Second, martial arts organizations should unify its global network structure for managing sub groups effectively and efficiently. A systematic network with other martial arts schools would assist to strategize for achievement of diversification and expansion. Although each instructor has his/her own unique teaching style, all have held true to the standards and values of the association and have provided the highest quality of service such as sharing the curriculum and assisting the globalization of overseas martial arts institutes. Martial arts school administrators may wish to consider developing special curricula activities and elements that foster cultural and psychological learning and improvement. At last, an integration of martial arts club is helpful in developing structures, policies and procedures to enhance the efficiency and efficiency of administration. Every year the martial arts leaders' forum will be beneficial for exchanging relevant information such as sharing curriculum and supporting globalization of overseas martial arts organizations.

Limitations and future research

Several opportunities for future study are noted as follows: first, future studies are needed to confirm the model by using data collected from different martial arts contexts to allow for further generalizability of the model. Second, unique characteristics of various forms of martial arts schools should be studied. In order to better understand individual participants in martial arts schools, future studies should examine individual characteristic variables, such as age, gender, ethnicity, education and belt ranking, as moderating variables. Individual demographic characteristics affect a participant's propensity to perceive experience dimensions. Future studies also need to examine whether there are differences in experience variables depending on individual consumers' characteristics.

Third, this study was delimited to the adult population who is overall of low consumption level of martial arts. In fact, a majority of martial arts school attendants are school aged children (Statsta, 2017). Thus, future studies need to examine those marketing factors pertinent to the youth population; in particular, the proposed structural model or alternative models should be tested with a sample of youth martial arts participants. Fourth, within the "perceived constraints" variable, some possible constraints which are mentioned in the theoretical framework section have not been included as items (e.g. risk of injury). In addition, future study will be examined the extent to which constraints such as intrapersonal, interpersonal and structural constraints have more influence on satisfaction and commitment. Finally, in this study member satisfaction was measured via items captured within a unidimensional construct. In the future, multiple aspects of consumer satisfaction should be considered. Instead of the perception-only conceptual framework adopted in this study to assess member satisfaction, the expectation-confirmation paradigm may be utilized as various researchers have proposed the merits of this approach (e.g. Oliver, 1997; Zeithaml *et al.*, 1985).

Conclusion

This study was conducted to ensure that the selected antecedent concepts, including market demand and psychological factors, were fully focused and studied in detail and depth. Generating what-to-do and how-to-do implications that were specific to martial arts school and marketing practices were the priority of the investigators of this study.

This undertaking stems from the importance of understanding participants' behavior, including how and why people participate in martial arts schools. It is important to note that this study is a first attempt to conceptually and empirically investigate through rigorous psychometric testing the dimensions marketers and managers of martial arts schools should understand the various psychological and market demand factors that can influence participant behavior. Doing so will allow administrators to meet the needs and desires of the participants and consequently increase their satisfaction within their schools. To retain current members and gain new ones, it is necessary for martial arts schools to identify those variables that may affect current and potential members' decisions to attend clubs. This study provides administrators with a guide in marketing efforts to recruit and retain martial arts participants.

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