

Effect of sports product selection attributes of physical education college students on purchase satisfaction and purchase behavior

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Abstract: The objective of this study was to examine the effects of product selection attributes on purchase satisfaction and purchase behavior of college students majoring in physical education. Using the convenience sampling method, this study used total 418 questionnaires collected from the college students majoring in physical education of four-year-course colleges. This study conducted the frequency analysis, exploratory factor analysis, correlation analysis, and multiple regression analysis, and this study obtained the conclusions as follows. First, all the sub-variables of sports product selection attributes, purchase satisfaction, and purchase behavior of college students majoring in physical education showed positive correlations. Second, the quality, price, and design of sports product selection attributes had positive effects on physical satisfaction of college students majoring in physical education while the quality, price, design, and advertising had positive effects on psychological satisfaction. Third, the quality, price, design, and advertising of sports product selection attributes had positive effects on positive word-of mouth of college students majoring in physical education while the quality, price, and advertising had positive effects on repurchase behavior. In conclusion, the quality, price, and design of sports product selection attributes were important variables affecting the purchase satisfaction of college students majoring in physical education while the quality, price, and advertising were important variables affecting the purchase behavior.

Keywords: *Purchase Satisfaction, Purchase Behavior, Physical Satisfaction, Psychological Satisfaction, Quality, Price.*

I. Introduction

With the continuous growth of the sports industry through the successful hosting of international mega sports events and the expansion of leisure time, the sales of sports products are also increasing in Korea [1]. According to the Ministry of Culture, Sports & Tourism [2], the total sales of domestic sports product industry are 31,000.3 billion won, which takes up 50.8% of the sports industry in Korea. The consumption weight of sports products of sports-related consumed amount per household is 66.8%, so the sports product industry is playing an important role to increase the creation of consumption expenditure and value added [3].

In order to pull the demand for sports products, the Korean government selected the vitalization of domestic demand through the development of excellent sports products as a core task [4], and the global sports product companies are showing innovative products in the sports product market by combining them with advanced technologies. Applying a new material or IT to sports apparel or sports equipment, they are receiving great responses from sports consumers [5].

As a change in the propensity to consume in accordance with the improvement of economic level, this phenomenon is expanded with changes in consumers' mindset or behavioral pattern, and diversification and individualization of needs. Because such changes in the propensity to consume are led to the preference for brand purchase [6], the sports consumers show the increased demand not only for high-quality sports products designed for athletes, but also for specially-produced sports products, so the sports product companies are required to conduct the sports marketing survey and analysis for understanding the propensity to purchase targeting sports consumers [7]. Especially, as the people with new values to enjoy their own lives and to create a new lifestyle, the college students who are the most sensitively responding in relation to brands, are self-assertive with distinct individuality as they have never experienced the economic poverty. The college students are positioned as front-runners of consumption culture by sensitively responding to a trend, creating a trend, and making their own consumption culture.

Due to the characteristic quality to look different from others, the college students tend to prefer and purchase famous brand products [8]. Regarding the general consumption behavior, the college students are showing some new consumption types different from the existing generations such as conspicuous consumption culture, hedonistic purchase & consumption, pursuit of trend and individuality, preference for famous brands, interest in new products, and propensity to impulsively purchase, and the pursued styles are also diversely appearing depending on each individual's propensity[9]. Thus, the college students' propensity to purchase sports products meets their needs by reflecting various social and psychological needs and also purchasing more differentiated sports products, rather than simply purchasing a product itself. Especially, the college students majoring in physical education regard the purchase of sports products not only as differentiation from others, but also as representation of individual image by fully expressing their own individuality. Thus, the college students majoring in physical education show such various and careful propensities when purchasing a sports product brand [7].

Such diverse changes in the sports product market environment mean the matters for consumers to consider in the process of selecting products have been diversified. Even though this diversity has expanded consumers' right to select, the decision-making process gets more complicated and diversified, so it gets more difficult to meet the needs of consumers who purchase sports products [10]. Thus, the sports product companies need to put efforts to periodically understand such complicated and diverse product selection attributes of college students. As a behavior composed of various factors such as consumers' psychological characteristics, product characteristics, sociocultural characteristics, and environmental characteristics, the product selection attributes are also working as important factors like taste or curiosity of each individual consumer [11]. Eventually, among various elements for college students to purchase sports products, the main factors that decide the actual consumption could be evaluated through product selection attributes. In case when purchasing sports products, the actual consumers consider many elements such as price, quality, brand, design, self-display, and advertising. Thus, in order to achieve the product sales goal in the position of companies, it would be necessary to understand the consumers' product selection attributes, and also to analyze the purchase behavior for purchase decision, and purchase satisfaction for repurchase.

The main variables the product selection attributes affect the most are purchase satisfaction and purchase behavior. The purchase satisfaction is the result caused by consumption experience, so today's sports marketing is not simply aiming to sell products to consumers, but delivering the satisfaction and seeking for consequential profits [12]. The purchase behavior of sports products is the consumption by experience, which is greatly influenced by situational emotions that are experienced in consumption process. Thus, the purchase is decided by getting influenced by various preceding variables. Reviewing the preceding researches on product selection attributes for the purchase of sports products, in the results of examining the relation between product selection attributes and consumer behavior when the participants in sports for all purchased sports products, the product selection attributes had positive effects on consumer behavioral intention such as repurchase, word-of-mouth intention, and consumer satisfaction [13].

As a determinant for purchasing golf gears, the price factor had the most important effect while the brand and price were shown as very important factors that could decide the purchase behavior [14]. Like this, despite such various and extensive researches related to sports products, there are not many researches related to product selection attributes, purchase satisfaction, and purchase behavior of sports products targeting the college students majoring in physical education. Therefore, this study aims to examine the core variables that are regarded as the most important when the college students majoring in physical education purchase sports products, and the effects of such variables on purchase behavior and purchase satisfaction.

II. Methods

1. Research Subjects

As a population, this study selected the college students enrolled in physical education-related departments of four-year-course colleges located in Chungcheongnam-do and Jeollanam-do of Korea. Using the convenience sampling method, this study used total 418 questionnaires after excluding 32 questionnaires with insincere responses or omitted survey contents. The general characteristics of research subjects are as <Table 1>.

Table 1. General characteristics of research subjects

Variable	Classification	Number	Percentage (%)
Sex	Male	297	71.1
	Female	121	28.9
School year	1 st year	96	23.0
	2 nd year	144	34.4
	3 rd year	108	25.8
	4 th year	70	16.8
Major field	Marine sports	103	24.6
	Sports for all	186	44.5
	Professional sports	129	30.9
Monthly expenditure	Less than 300,000won	86	20.6
	300,000-500,000won	137	32.8
	500,000-700,000won	105	25.1
	700,000won or up	90	21.5
Total		418	100

2. Research Tools

In order to examine the effects of sports product selection attributes on purchase satisfaction and purchase behavior of college students majoring in physical education, this study used the questionnaire as its research tool. The questionnaire was composed of

four items for the general characteristics of research subjects, 14 items for product selection attributes, eight items for purchase satisfaction, and seven items for purchase behavior.

The research tool for measuring the product selection attributes was composed of total 14 items including quality(4 items), price(4 items), design(3 items), and advertising(3 items) based on the items used for researches such as [13], [15]. The research tool for measuring the purchase satisfaction was composed of total eight items including physical satisfaction(5 items) and psychological satisfaction(3 items) based on the items used for researches such as [12], [16]. The research tool for measuring the purchase behavior was composed of total seven items including positive word-of-mouth(4 items) and repurchase behavior(3 items) based on the items used for researches such as [12], [13]. This questionnaire used the Likert 5-point scale(5 points: Very much likely ~ 1 point: Not at all).

3. Validity & Reliability

For the verification of validity, the exploratory factor analysis was used. For the exploratory factor analysis, this study selected only the items with factor loading as $\geq .50$ or more in each factor through the principal component analysis and Varimax orthogonal rotation method. To verify the reliability of research tools, this study used the Cronbach's α coefficient according to the criteria of internal consistency[17].

1) Product selection attributes

Table 2. Results of analyzing the validity and reliability of product selection attributes

Item	Quality	Price	Design	Advert ising	h^2
Item01	.835	.066	.123	.167	.588
Item02	.826	.078	.123	.185	.518
Item03	.799	.195	.131	.149	.686
Item04	.753	.228	.124	.093	.572
Item05	.153	.782	.221	.041	.738
Item06	.165	.726	.119	.136	.744
Item07	.090	.709	.106	.224	.644
Item08	.110	.681	.191	.075	.716
Item09	.174	.161	.882	.062	.833
Item10	.150	.182	.871	.137	.838
Item11	.135	.312	.794	.160	.772
Item12	.182	.188	.104	.835	.726
Item13	.169	.031	.122	.832	.737
Item14	.169	.234	.099	.795	.777
Eigen value	5.336	1.813	1.485	1.257	
Variance%	38.112	12.947	10.607	8.979	
Cumulative%	38.112	50.059	61.666	70.645	
Reliability	.831	.834	.840	.842	

Kaiser-Meyer-Olkin=.853

Bartlett's unit matrix($\chi^2=2717.017$, $df=91$, $p=.000$)

Just as shown in <Table 2>, the product selection attributes were shown as Bartlett's unit matrix(2717.017), significance probability(.001), and KMO index(.853), so the selection of variables was shown as proper. In the results of conducting the factor analysis on 14 items of product selection attributes, total four factors were extracted, which explained about 70.6% of total variance. Regarding the subfactors of product selection attributes, the loading of quality was shown as .753~.835. The loading of price was .681~.782. The loading of design was .794~.882. The loading of advertising was .795~.835. The reliability value of product selection attributes was .831~.842, which was relatively reliable.

2) Purchase satisfaction

Table 3. Results of analyzing the validity and reliability of purchase satisfaction

Item	Physical satisfaction	Psychological satisfaction	h^2
Item03	.743	.047	.438
Item04	.709	.195	.358
Item05	.640	.230	.554
Item01	.635	.187	.541
Item02	.557	.219	.463
Item08	.109	.810	.551
Item07	.191	.743	.589
Item06	.297	.680	.668
Eigen value	3.102	1.058	
Variance%	38.780	13.231	
Cumulative%	38.780	52.011	
Reliability	.828	.830	

Kaiser-Meyer-Olkin=.831

Bartlett's unit matrix($\chi^2=649.007$, $df=28$, $p=.000$)

Just as shown in <Table 3>, the purchase satisfaction was shown as Bartlett's unit matrix (649.007), significance probability(.001), and KMO index(.831), so the selection of variables was shown as proper. In the results of conducting the factor analysis on eight items of purchase satisfaction, total two factors were extracted, which explained about 52.0% of total variance. Regarding the subfactors of purchase satisfaction, the loading of physical satisfaction was shown as .557~.743. The loading of psychological satisfaction was .680~.810. The reliability value of purchase satisfaction was .828~.830, which was relatively reliable.

3) Purchase behavior

Table 4. Results of analyzing the validity and reliability of purchase behavior

Item	Positive word -of-mouth	Repurchase behavior	h^2
Item01	.750	.152	.585
Item02	.746	.048	.559
Item03	.649	.253	.486
Item04	.649	.228	.735
Item06	.114	.801	.655
Item07	.158	.788	.646
Item05	.254	.658	.497
Eigen value	2.776	1.088	
Variance%	39.656	15.542	
Cumulative%	39.656	55.198	
Reliability	.833	.833	

Kaiser-Meyer-Olkin=.805

Bartlett's unit matrix($\chi^2=524.322$, $df=21$, $p=.000$)

Just as shown in <Table 4>, the purchase behavior was shown as Bartlett's unit matrix(524.322), significance probability(.001), and KMO index(.805), so the selection of variables was shown as proper. In the results of conducting the factor analysis on seven items of purchase behavior, total two factors were extracted, which explained about 55.2% of total variance. Regarding the subfactors of purchase behavior, the loading of positive word-of-mouth was shown as .649~.750. The loading of repurchase behavior was .658~.801. The reliability value of purchase behavior was .833, which was relatively reliable.

4. Statistical Processing

The collected data was analyzed by using the SPSS(ver 21.0) Statistics Program for total 418 questionnaires after excluding some questionnaires unsuitable for this study. For the collected data, this study conducted the frequency analysis, exploratory factor analysis, reliability analysis, correlation analysis, and multiple regression analysis. At that time, the significance level was $\alpha=.05$.

III. Results

1. Correlations of sports product selection attributes, purchase satisfaction, and purchase behavior of college students majoring in physical education

According to the correlation analysis of <Table 5>, all the product selection attributes, purchase satisfaction, and purchase behavior showed significantly positive(+) correlations. Also, the purchase satisfaction and purchase behavior also showed significantly positive(+) correlations. In the results of the correlation analysis through the Pearson's correlation coefficient, the value was shown as .346~.498, which was lower than the standard of multicollinearity(.080), so it was regarded as having no problem of multicollinearity.

Table 5. Results of correlations of product selection attributes, purchase satisfaction, and purchase behavior

Classification	Product	Price	Design	Advertising	Physical satisfaction	Psychological satisfaction	Positive word-of-mouth	Repurchase behavior
Product	-							
Price	.379***	-						
Design	.475***	.369***	-					
Advertising	.372***	.410***	.321***	-				
Physical satisfaction	.487***	.466***	.485***	.350***	-			
Psychological satisfaction	.498***	.447***	.430***	.364***	.484***	-		
Positive word-of-mouth	.379***	.471***	.349***	.371***	.619***	.407***	-	
Repurchase behavior	.458***	.406***	.346***	.460***	.410***	.450***	.441***	-

*** $p<.001$

2. Effects of sports product selection attributes on purchase satisfaction of college students majoring in physical education

1) Effects of product selection attributes on physical satisfaction

Just as shown in <Table 6>, the sports product selection attributes had statistically significant effects on physical satisfaction of college students majoring in physical education($F=64.448, p<.001$), and its explanatory power was about 38.4%($R^2=.384$) of total variance. Examining the Beta value which is the relative influence of product selection attributes on physical satisfaction of college students majoring in physical education, the product($\beta=.244, p<.001$), price($\beta=.250, p<.001$), and design($\beta=.253, p<.001$) had positive effects on it.

Table 6. Results of the multiple regression analysis on product selection attributes and physical satisfaction

	B	SE	β	t	Tolerance	VIF
(Constant)	1.371	.149		9.198***		
Quality	.204	.039	.244	5.270***	.698	1.433
Price	.193	.035	.250	5.581***	.745	1.342
Design	.190	.034	.253	5.585***	.724	1.382
Advertising	.058	.034	.075	1.709	.767	1.304

$F=64.448***, R^2=.384, \text{Adjusted } R^2=.378$

*** $p<.001$

2) Effects of product selection attributes on psychological satisfaction

Table 7. Results of the multiple regression analysis on product selection attributes and psychological satisfaction

	B	SE	β	t	Tolerance	VIF
(Constant)	.909	.180		5.062***		
Quality	.286	.047	.288	6.122***	.698	1.433
Price	.211	.042	.231	5.058***	.745	1.342

Design	.154	.041	.174	3.752***	.724	1.382
Advertising	.097	.041	.106	2.357*	.767	1.304
F=58.063***, R ² =.360, Adjusted R ² =.354						

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

Just as shown in <Table 7>, the sports product selection attributes had statistically significant effects on psychological satisfaction of college students majoring in physical education ($F=58.063$, $p < .001$), and its explanatory power was about 36.0% ($R^2=.360$) of total variance. Examining the Beta value which is the relative influence of product selection attributes on psychological satisfaction of college students majoring in physical education, the product ($\beta=.288$, $p < .001$), price ($\beta=.231$, $p < .001$), design ($\beta=.174$, $p < .001$), and advertising ($\beta=.106$, $p < .05$) had positive effects on it.

3. Effects of sports product selection attributes on purchase behavior of college students majoring in physical education

1) Effects of product selection attributes on positive word-of-mouth

Table 8. Results of the multiple regression analysis on product selection attributes and positive word-of-mouth

	B	SE	β	t	Tolerance	VIF
(Constant)	1.394	.172		8.086***		
Quality	.138	.045	.152	3.076**	.698	1.433
Price	.259	.040	.310	6.488***	.745	1.342
Design	.093	.039	.114	2.352*	.724	1.382
Advertising	.127	.040	.152	3.222***	.767	1.304
F=44.124***, R ² =.299, Adjusted R ² =.293						

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

Just as shown in <Table 8>, the sports product selection attributes had statistically significant effects on positive word-of-mouth of college students majoring in physical education ($F=44.124$, $p < .001$), and its explanatory power was about 29.9% ($R^2=.299$) of total variance. Examining the Beta value which is the relative influence of product selection attributes on positive word-of-mouth of college students majoring in physical education, the product ($\beta=.152$, $p < .01$), price ($\beta=.310$, $p < .001$), design ($\beta=.114$, $p < .05$), and advertising ($\beta=.152$, $p < .001$) had positive effects on it.

2) Effects of product selection attributes on repurchase behavior

Table 9. Results of the multiple regression analysis on product selection attributes and repurchase behavior

	B	SE	β	t	Tolerance	VIF
(Constant)	.732	.195		3.747***		
Quality	.273	.051	.258	5.381***	.698	1.433
Price	.167	.045	.171	3.675***	.745	1.342
Design	.070	.045	.074	1.574	.724	1.382
Advertising	.265	.045	.271	5.916***	.767	1.304
F=52.649***, R ² =.338, Adjusted R ² =.331						

*** $p < .001$

Just as shown in <Table 9>, the sports product selection attributes had statistically significant effects on repurchase behavior of college students majoring in physical education ($F=52.649$, $p < .001$), and its explanatory power was about 33.8% ($R^2=.338$) of total variance. Examining the Beta value which is the relative influence of product selection attributes on repurchase behavior of college students majoring in physical education, the product ($\beta=.258$, $p < .001$), price ($\beta=.171$, $p < .001$), and advertising ($\beta=.271$, $p < .001$) had positive effects on it.

IV. Discussions

The results of this study could be discussed as follows. To maximize the effectivity of purchasing sports products, the purchasers make rational decisions. The college students who are not guaranteed with a certain income have to unavoidably spend some money for school life, so it is so natural for them to be careful. Nevertheless, the companies or businesses should introduce the marketing by selecting the college students as the main customers because the college students lead or create a trend, and perform active

activities for showing their own distinct individuality. This phenomenon is also shown in sports. Especially, the college students majoring in physical education show the strong tendency to represent their own personal image through sports products by differentiating themselves from others and also fully expressing their own personal individuality [7].

This study was conducted to examine the correlations of sports product selection attributes, purchase satisfaction, and purchase behavior, and the effects of sports product selection attributes on purchase satisfaction and purchase behavior targeting the college students majoring in physical education. As a result, all the subfactors of product selection attributes and purchase satisfaction showed statistically significant correlations, and the quality, price, and design had positive effects on physical and psychological satisfaction. The sports products are working as teaching aids and equipment to college students majoring in physical education. The sports products are also playing auxiliary roles to improve the practice and function. The quality, price, and design of sports products have effects on physical satisfaction of college students majoring in physical education. The quality, price, design, and advertising of sports products have effects on psychological satisfaction of college students.

The advertising had no significant effects on physical satisfaction while it had significant effects on psychological satisfaction. Some sports stars who appear in advertising become a role model, and they wish to become a person like the sports stars or empathize with them, which could be shown as psychological satisfaction. In relation to research targeting the purchasers of outdoor products, [18] said the determinants of product selection would have positive effects on purchase satisfaction. In research targeting the members of golf club, [19] said the price, quality, and design would have significant effects on purchase satisfaction. The outdoor activities or golf are more enjoyed by office workers or adults who are relatively free from price compared to college students, so they probably showed more sensitive responses to the quality, design, or brand than price. In research targeting the members of social baseball club, [20] said the quality had positive effects on satisfaction for the selection of baseball gears, which is partially supporting the results of this study.

In the results of examining the preceding researches in the field related to sports products regarding the product selection attributes, when the overall satisfaction with product quality or price was higher, the satisfaction with purchase was high. This was already verified in the results of this study targeting the college students majoring in physical education, and the factors like quality, price, and design are important factors that could increase the purchase satisfaction. Among the product selection factors, the advertising did not have effects on physical satisfaction of college students majoring in physical education. In relation to this, the actual effect of advertising is not increasing the physical satisfaction, but a strategy for increasing the psychological satisfaction, so the sports product companies would need to actively utilize the athlete endorsement, and also to continuously perform various advertising activities.

Next, in the results of examining the relation and influence between sports product selection attributes and purchase behavior targeting the college students majoring in physical education, all the sub-variables of product selection attributes and purchase satisfaction showed the statistically significant correlations. The quality, price, design, and advertising had positive effects on positive word-of-mouth while the quality, price, and advertising had positive effects on repurchase behavior. Such results show that the college students majoring in physical education perform the positive word-of-mouth and repurchase behavior in the quality, price, and advertising when they select sports products. In other words, once the quality of product is increased and the price is reasonably decided, they would perform the positive word-of-mouth and repurchase behavior by focusing more on quality and price rather than brand or excellence of design. In research targeting the purchasers of women's outdoor sports apparel, [21] said the selection of outdoor sports apparel products would have positive effects on word-of-mouth intention. In research targeting the members of golf club, [19] reported that various product selection attributes such as brand, image, design, and color would have effects on repurchase intention. [22] presented all the price, function, design, and service would have significant effects on purchase satisfaction of the members of soccer club, which has the same context as the results of this study.

Just as shown in such results of this study, as a method to increase the purchase behavior of college students, the sports product companies would need to establish the strategies considering the college students who are sensitive to price even though it is also important to execute various marketing strategies in the current pandemic situation without free sports activities. Examining the recent pattern of purchasing sports products of college students, the propensity to purchase online is relatively highly shown than visiting offline shops [23]. It is because the online malls present relatively-cheaper prices than offline shops while there are no huge differences in quality. The satisfaction with online product purchase is led to word-of-mouth or repurchase tendency, so the companies would need to perform extensive advertising activities through SNS.

The product selection attributes have a considerable meaning as a product marketing material besides a simple sales material [24]. The consumers regard the product selection attributes as important because the cause for behaviors of each individual consumer is definitely examined. The product selection attributes become the root that fundamentally causes the selection of each individual consumer; the product selection behavior of consumers has the complementary relation with selection factors: and they could meet the needs and expectation of decision-making [25]. Contrary to other general daily products, the sports products maximize not only the existential value of consumers, but also the functions of college students majoring in physical education, which should be considered.

V. Conclusions

The objective of this study was to examine the effects of product selection attributes on purchase satisfaction and purchase behavior of college students majoring in physical education. Using the convenience sampling method, this study used total 418 questionnaires collected from the college students majoring in physical education of four-year-course colleges in Chungcheongnam-do and

Jeollanam-do. Using the SPSS 21.0 Statistics Program for data-processing, this study conducted the frequency analysis, exploratory factor analysis, correlation analysis, and multiple regression analysis, and this study obtained the conclusions as follows.

First, all the sub-variables of sports product selection attributes, purchase satisfaction, and purchase behavior of college students majoring in physical education showed positive correlations.

Second, the quality, price, and design of sports product selection attributes had positive effects on physical satisfaction of college students majoring in physical education while the quality, price, design, and advertising had positive effects on psychological satisfaction.

Third, the quality, price, design, and advertising of sports product selection attributes had positive effects on positive word-of-mouth of college students majoring in physical education while the quality, price, and advertising had positive effects on repurchase behavior.

In conclusion, the quality, price, and design of sports product selection attributes were important variables affecting the purchase satisfaction of college students majoring in physical education while the quality, price, and advertising were important variables affecting the purchase behavior. The advertising was an important factor for the purchase of sports products of college students. Therefore, the product advertising should be able to increase the consumer loyalty by highlighting the factors that could increase the consumers' trust in products.

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