Validation of the Consumer Values Versus Perceived Product Attributes Model Measuring the Purchase of Athletic Team Merchandise

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Abstract

Various consumer values and perceived product attributes trigger consumptive behaviors of athletic team merchandise (Lee, Trail, Kwon, & Anderson, 2011). Likewise, using a principal component analysis technique on a student sample, a measurement scale was proposed that consisted of nine factors affecting the purchase of athletic team merchandise. Using confirmatory factor analysis and multi-group invariance technique, the factorial structure and measurement equivalence of the model (included a new factor) was validated on a more generalizable sample in the current study. The overall model fit the data well. The overall findings of the current study contribute to the literature by exploring and filling the gap between existing studies and more generalizable data found in the present study.

Key words: invariance analysis, measurement equivalence

In an effort to understand motivations for the purchase of consumer goods, researchers have often classified consumers by the degree of similarity in their consumption values (Pitts & Woodside, 1984; Richins & Dawson, 1992). By the same token, other researchers indicated that comprehending what determines product consumption is clarified when both *consumer values* (Richins, 1994) and *perceived value* of a product are explicated (Sweeney & Soutar, 2001). Lee, Trail, Kwon, and Anderson (2011) argued that this distinction is vital but often neglected in the domain of sport. Lee et al. rationalized the importance of this distinction by stating "the perceived value of a product is often predicated on the consumer values for that individual, and thus these concepts are frequently confused within the research on these topics" (p. 90). They used additional schemes to distinguish consumer values from perceived product attributes in that the former is internal and is typically generalizable across various purchase situations, while the latter is product specific and is typically contingent on the product itself. Based on the relevant literature, it is worthwhile to develop a consumer model that incorporates both consumer values and product attributes. It is also important to gain a better understanding of the psychometric properties of consumers and target markets that actually purchase athletic team merchandise.

Scholars have argued that tradition associated with a sport team is a point of attraction that may exert sport consumption (Greenwell, Fink, & Pastore, 2002; Zhang, Pease, Hui, & Michaud, 1995; Zhang, et al., 1997). Surveying spectators from a National Basketball Association (NBA) team, Zhang et al. (1995) found that tradition was related to past NBA game attendance. In the context of minor league hockey game, a similar finding was discovered in that home team factor (e.g., history of home team) contributed to 15% of the variance in game attendance. This result was supported in Greenwell et al.'s (2002) study where they found that 16% of the variance was associated with customer satisfaction, which is often considered as a precursor to consumption in the marketing literature (e.g., Ryu, Han, & Kim, 2008). Using general professional sport consumers, Zhang, Lam, and Connaughton (2003) further supported the relationship between tradition and sport consumption behaviors (i.e., attendance and media). Based on the literature, it can be theorized that tradition should be considered as an important factor triggering sport consumption activity such as fans purchasing licensed merchandise of their favorite team.

Consumer Values (CV) and Perceived Product Attributes (PPA)

Consumer values are beliefs that guide an individual's purchase behavior (Rokeach, 1973) and diverse consumers are likely to have different preference criteria that are parallel to their preexisting values. However, it is uncertain whether values themselves are sufficient in explaining consumption behaviors. The perceived value of an object, on the other hand, is the "consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14). Relatedly, Vinson, Scott, and Lamont (1977) used slightly different terms in that global values denoted the beliefs that guide one's thought process, while evaluative values denote product attributes (e.g. cost, craftsmanship, and aesthetic appearance) that elicit one's beliefs. Likewise, consumer values are enduring principles that guide consumptive behaviors while product attributes are added benefits that may stimulate further consumptive behaviors. It is important to underline the Consumer Values-Perceived Product Attributes (CV-PPA) distinction especially with empirical evidence.

Measurement of Consumer Values and Perceived Product Attributes

Based on the framework developed by early researchers (i.e., Material Values Scale developed by Richins and Dawson (1992); Possession Rating Scale developed by Richins (1994); and Perceived Value scale developed by Sweeney and Soutar (2001), Lee et al. (2011) proposed a consumer values and perceived product attributes model related to buying athletic team merchandise. The background rationalization behind their research was that the three scales were designed to measure product consumption while having structural and/or contextual similarities and differences. While there have been a few studies explaining consumption of licensed sport apparel (e.g., Kwon, Trail, & Anderson, 2006), empirical examination of the role of consumer values in the process of making a purchase decision, or in knowing the perceived attributes of sport-related products, further rationalized the need for their study. To address this research limitation, Lee et al. (2011) proposed a consumer values-perceived product attributes (CV-PPA) model that explains why consumers buy athletic team merchandise. More specifically, using principal component analysis

(PCA) technique, they proposed nine dimensions of consumer values and perceived product attributes that affect the purchase of athletic team merchandise. Five of them were categorized under a consumer values dimension (i.e., *Social Approval, Materialism, Covetousness, Prestige/Status, and Escape*). Four of them were categorized under a perceived value dimension (i.e., *Price/Quality, Nostalgia, Craftsmanship, and Aesthetic Beauty*).

A multidimensional scaling (MDS) method was also used for establishing validity in their study. The PCA yielded five consumer values and four perceived product attributes, and this factor structure for the CV-PPA framework was validated via a MDS technique. They described the factor structure on a two-dimensional sphere using arbitrary vertical and horizontal lines. From the print layout view, consumer value clusters were located on the left side of the sphere (i.e., *Escape, Social Approval, Prestige/Status, Covetousness, and Materialism*) while perceived product attributes clusters were located on the right side of the sphere (i.e., *Nostalgia, Aesthetic Beauty, Price/Quality, and Craftsmanship*) suggesting distinct dimensions of consumer values and perceived product attributes. The PPA dimension was further classified into two sub-categories: symbolic and functional/utilitarian categories. The CV dimension was further classified into two sub-categories: social and hedonic categories.

Rationalization of the Current Study

Regardless of its conceptual rationalization and initial validation, several limitations of the CV-PPA model were recognized. First, because Lee et al.'s (2011) study relied on an exploratory analysis using a student sample, the measurement model needs to be confirmed on a large general population sample. Hair, Black, Babin, and Anderson (2010) argued that a developed model via exploratory methods should be replicated on general population data because approximately 50% of replication studies failed to confirm the original models. A confirmatory factor analysis (CFA) is an appropriate method to achieve this objective. Second, although theoretical relevance of CV-PPA is assumed, an empirical demonstration of the predictive validity of the CV-PPA is not yet known. Therefore, demonstrating predictive validity would assist practitioners as to the relative importance of the factors influencing consumption of athletic team merchandise. Additionally, Cheung and Rensvold (2002) suggested the use of multi-group invariance to ensure model comparability across samples when a multi-dimensional model is validated. Such replication and validation should be a priority before suggesting empirical significance of a model. This type of procedure is often ignored in studies that focus on exploring factorial structure of a model. In sum, using the proposed CV-PPA model would close those gaps. Therefore, the purpose of the present study was to validate the CV-PPA model. The specific objectives of this study were: (a) to modify the CV-PPA model by adding a factor, *Tradition*, (b) to test and validate the CV-PPA model using a general sample of athletic merchandise buyers (i.e., non-student sample) by means of CFA, and (c) to further validate the CV-PPA model via multi-group invariance to establish cross-validation.

Method

Sample and Procedures

Prior to distributing questionnaires, approval from the institutional review board (IRB) was obtained. A group of graduate students enrolled in sport management courses were recruited, and then they completed online research training. Using a stratified random sampling technique, a sample was collected from a general population attending collegiate football games at a Division I university in the mid-atlantic region of the U.S. A total of five data collection attempts were made throughout the 2011-2012 season. Brief instructions and study information were given to the respondents concerning the purpose of the study, voluntary participation, and anonymity of their identity. We used a screening question to verify if a prospective respondent had purchased athletic licensed merchandise. People who had no experience were excluded from the survey. As a result, a total of 527 usable surveys were returned. The mean age of the respondents was 35.02 (*SD* = 13.51). The gender of the participants was almost evenly split (50.01%) and the majority of participants were White/Caucasian (84%).

Instrumentation

The items in the CV-PPA scale were used to collect data in this study. The CV-PPA scale originally consisted of nine values dimensions (i.e., *Social Approval, Materialism, Price/Quality, Nostalgia, Covetousness, Craftsmanship, Escape, Prestige/Status, and Aesthetic Beauty*) with a total of 33 items. Three new items representing *Tradition* were added in the current study. Exact wording of the items are provided in Table 1. The original scale in Lee et al.'s (2011) study had Cronbach's alphas ranging from .53 to .90, and average variance extracted values ranging from .41 to .63 (also refer to *Psychometric Properties of the Scale* section for the values in the current study). The items were anchored by a 7-point Likert-type scale ranging from (1) strongly disagree to (7) strongly agree.

Data Analyses

The total sample (N = 537) was randomly split into two: one (n = 260) for calibration, and the other (n = 277) for cross-validation purposes. Descriptive statistics, correlation analysis, and confirmatory factor analysis (CFA) were conducted on the first random split sample. Measurement invariance tests were conducted using the second half of the data. For the purpose of CFA, multiple fit indices were used (i.e., χ^2; χ^2/df; RMSEA; SRMR; CFI). The cut-off values for the fit indices were as follows: $\chi^2/df < 3.0$; RMSEA < .08; SRMR < .10; CFI >.90 (Bollen, 1989; Hair et al., 2010; Kline, 2010). Construct validity was assessed by means of convergent validity and discriminant validity (Anderson & Gerbing, 1988). Convergent validity would be established if indicator loading is statistically significant and greater than .50 (Hair et al., 2010). Three tests were conducted to ensure discriminant validity: (a) no correlation was within two standard errors of unity (Anderson & Gerbing, 1988), (b) correlation is below .85 (Kline, 2010), and (c) no squared correlation was greater than the average variance extracted (AVE) value of either construct (Fornell & Lacrker, 1981). Two tests were employed to measure the reliability of the scales: construct reliability (CR) value is greater than .70 (Hair

Table 1. ***Means, Standard Deviations, Kurtosis, and Skewness***

Items	*M*	*SD*	*K*	*S*
Social approval				
It would give me social approval from others	3.92	1.76	-.979	-.170
It would make a good impression on other people	4.07	1.73	-.835	-.261
It would help me feel accepted	3.63	1.74	-.977	-.007
It would improve the way I am perceived by others	3.68	1.71	-.899	.007
Materialism				
I also enjoy spending money on things that aren't practical	2.84	1.77	-.610	.691
I sometimes buy things that I don't need*	4.60	1.77	-.751	-.455
Buying things give me a lot of pleasure	4.24	1.60	-.811	-.197
Possession of this type of product improves my self-image	3.42	1.64	-.820	.186
Price/quality				
It was a good product for the price	4.83	1.45	-.272	-.413
It would perform consistently	4.99	1.31	-.130	-.373
It was reasonably priced	4.80	1.47	-.267	-.441
It was well made	5.28	1.18	.280	-.539
It had consistent quality	5.23	1.18	.128	-.479
Nostalgia				
It was a record of my personal history	3.96	1.82	-.992	-.009
It would remind me of my skills, achievements, or goals	3.53	1.77	-.930	.223
It would remind me of my family or a group of people I belong to	4.57	1.80	-.790	-.426
It would remind me of particular events or places	5.13	1.57	-.029	-.763
It would remind me of my relationship with a particular person	3.77	1.83	-.986	.120
Covetousness				
My life would be better if I owned certain things I don't have	3.09	1.74	-.880	.398
I'd be happier if I could afford to buy more things	3.64	1.90	-1.154	.116
It would sometimes bother me quite a bit that I couldn't afford to buy all the things I'd like	3.54	1.70	-.915	.189
Craftsmanship				
It had good workmanship	4.77	1.32	.144	-.367
It would last a long time	5.04	1.30	-.083	-.466
It was made by a well-known manufacturer*	4.95	1.55	-.286	-.584
I know that the company who handles this product is highly skilled in their craft	4.83	1.54	-.466	-.437
Escape				
It would provide me freedom or independence	2.82	1.60	-.476	.583
It would allow me to spend time or share activities with other people	3.47	1.80	-.979	.194
It would provide enjoyment, entertainment, or relaxation	4.28	1.68	-.616	-.359
It would provide comfort or emotional security	3.34	1.64	-.783	.190
Prestige/status				
It was valuable in terms of money	3.62	1.60	-.769	.044
It required a lot of effort to acquire or maintain	2.62	1.47	-.155	.768
It would improve my status as perceived by others	3.17	1.64	-.970	.261
It would positively influence my status by appearing successful	3.17	1.69	-.976	.297
Aesthetic beauty				
It was beautiful or attractive in appearance	4.62	1.39	-.013	-.444
It would improve my appearance or the way I look	3.90	1.63	-.725	-.162
This product would make me look better	3.81	1.64	-.811	-.128
Tradition				
Many other people typically have it*	4.22	1.58	-.545	-.185
I feel that it is a tradition to have an item like this	4.50	1.75	-.771	-.402
It is a tradition	4.31	1.84	-.928	-.298

**Note. Items were excluded from the CFA due to low factor loadings*

et al., 2010) and AVE value is greater than .50 (Bagozzi & Yi, 1988).

A multi-group invariance analysis was conducted to examine cross validation. A key benefit of examining cross validation is to ensure construct comparability across the different samples drawn from the same population of interest (Little, 1997). According to Meredith (1993), establishing configural invariance (i.e., confirming the CFA model simultaneously without imposing equality constraints) and metric invariance (i.e., having equivalent factor loadings across groups) are minimum requirements for ensuring cross validation across groups. AMOS 18 was utilized to test for a multi-group invariance analysis across the two samples. We adopted Jöreskog's (1971) χ^2 difference test to assess the model's measurement equivalency. For the χ^2 difference test, evidence of invariance would be established if the difference of the constrained model and unconstrained model is not statistically significant. This statistical evidence would indicate that the measurement models, when tested on different samples, have the same factor structure.

Results

Descriptive Statistics

Descriptive statistics indicated that mean scores ranged from 2.6 (*SD* = 1.47) to 5.28 (*SD* = 1.18). The assessment of normality was examined by means of skewness and kurtosis. The values ranged from .01 to .76 and .02 to .99 for skewness and kurtosis respectively, which were all within the acceptable range at the .05 probability level (Hair et al., 2010).

Table 2. ***Inter-Factor Correlations for CV-PPA***

	SA	MA	PQ	NO	CO	CR	ES	PS	AB	TR
Social approval	1									
Materialism	.82**	1								
Price/quality	.17**	.19**	1							
Nostalgia	.32**	.44**	.30**	1						
Covetousness	.47**	.62**	.04	.31**	1					
Craftsmanship	.21**	.25**	.88**	.33**	.18**	1				
Escape	.44**	.53**	.31**	.40**	.40**	.38**	1			
Prestige/status	.76**	.81**	.18**	.36**	.61**	.26**	.66**	1		
Aesthetic beauty	.61**	.73**	.22**	.42**	.55**	.30**	.57**	.75**	1	
Tradition	.33**	.41**	.13**	.60**	.30**	.19**	.27**	.37**	.36**	1

Note. ** Correlation is significant at the .01 level.

Initial Validation of the Scale

Using the first random split data set, it was found that the overall model fit on the CV-PPA scale with 10 factors was reasonably acceptable [χ^2 = 1814.18; χ^2/df = 2.76; RMSEA = .082 (CI = .078, .087); CFI = .835, SRMR = .084]. Examining the standardized regression weights resulted in identifying two items that did not meet the threshold (i.e., *Materialism2* and *Tradition1* = .397, .338, respectively). In addition, modification index suggested removing another item (*Craftsmanship3*) would improve model fit. After carefully examining the content of the item, it was revealed that the item connotes similar meaning with items of Quality. Therefore, the item was deleted. Following the deletion of the three items, we ran another CFA that resulted in an improved model fit [$\chi^2(549)$ = 1396.25; χ^2/df = 2.54; RMSEA = .077 (CI = .072, .082); CFI = .870; and SRMR = .079]. Based on examining the factor correlation, it was found that two factors (*Price/Quality* and *Craftsmanship*) had an excessively high correlation (r = .88), indicating the two constructs may refer to the same concept. In fact, this phenomenon was observed in Lee et al.'s (2011) work, in which the two constructs were captured in the same category based on a MDS method. Thus, following Kline's (2010) recommendation, the two latent constructs were combined and a CFA with the remaining 9 factors was conducted to see if the model fit improved. The CFA revealed the model fit was comparable to the 10 factor-model with 39 items but slightly worse than the 10-factor model with 36 items ($\chi^2(558)$ = 1443.46; χ^2/df = 2.56; RMSEA = .078 (CI = .073, .083; CFI = .864; and SRMR = .081). Since the 9-factor model was nested within the hypothesized 10-factor model, a χ^2 difference test was conducted for a statistical model comparison (Hair et al., 2010). The χ^2 difference was statistically significant ($\Delta\chi^2_{(9)}$ = 47.21, $p < .05$), suggesting the 10-factor model with 36 items should be retained for subsequent tests. Refer to Table 3 for the summary of model fits.

Convergent validity was assessed by examining indicator loading (Hair et al., 2010). All of the indicator loadings were statistically significant and above the threshold of .50 except two variables (*Materialism*1 = .49 and *Materialism*3 = .43). Although statistically the two variables were candidates for deletion for possible model fit improvement, the researchers were cautious to delete variables based on mere statistical interpretation. Theoretical

justification should accompany a decision when determining the possible elimination of variables (Bollen, 1989). Based on the theoretical relevance, it was decided to retain the two variables in the model.

Discriminant validity was assessed with three tests. Initial discriminant validity was evidenced in that, as suggested by Anderson and Gerbing (1988), no correlation between any of the constructs was within two standard errors of unity. However, when the Kline's (2010) criterion was applied, one correlation (*Price/Quality* and *Craftsmanship*) didn't meet the threshold (see Table 2). This aspect needs to be improved in future study. Using Fornell and Larcker's (1981) method, which is regarded as a more stringent test, it was revealed that six out of 45 correlations were above the AVE value of either construct. Based on the overall results, we concluded that discriminant validity was preliminarily demonstrated without serious caution.

Two tests for CR and AVE were performed to examine the reliability of the 10 factors in the model. Except for only one construct (i.e., *Materialism* = .64), all CR values met the cut-off criterion, ranging from .81 (*Craftsmanship)* to .94 (*Social Approval*). The AVE values of all latent variables ranged from .53 (*Escape*) to .88 (*Tradition*), except for two constructs (i.e., *Materialism* = .40 and *Nostalgia* = .48). In conclusion, the reliability tests generally indicated that the multi-item measurement was fairly reliable and internally consistent.

Table 3. ***Summary of Model Fit Indices***

Models	χ^2	*df*	χ^2/df	RMSEA$_{(CI)}$*	CFI	SRMR
Initial 10-factor model (39 items)	1814.18	657	2.76	$0.082_{(0.078;\ 0.087)}$	0.835	0.084
Final 10-factor model (36 items) [a]	1396.25	549	2.54	$0.077_{(0.072;\ 0.082)}$	0.870	0.079
9-factor model (36 items) [b]	1443.46	558	2.56	$0.078_{(0.073;\ 0.083)}$	0.864	0.081

**Note*: CI = Confidence Interval
a: Two items were dropped due to low factor loadings
b: Contained 9 factors after Price/Quality and Craftsmanship were combined due to high correlation (r = .88)

Cross-Validation via Multi-Group Invariance Analysis

Employing the second random split data, a multi-group invariance analysis was conducted to assess construct comparability across the two samples (Little, 1997). We performed the χ^2 difference test, where the χ^2 value of the unconstrained model was subtracted from the χ^2 value of the constrained model. As a result, the difference in χ^2 between the unconstrained model (χ^2 = 2890.84; *df* = 1098) and the fully-constrained model (χ^2 = 2945.00; *df* = 11348) was found to be statistically significant ($\Delta\ \chi^2(36) = 54.16$, $p < .05$). Byrne (2009) suggested that if the χ^2 difference test revealed that there was a statistically significant difference, more restrictive subsequent tests should be conducted to identify the source of inequivalence. Moreover, in social science, identifying a partial invariance model in which some, but not all, parameters are equivalent is frequently observed (Hair et al., 2010; Steenkamp & Baumgartner, 1998). Following the procedure recommended by Hair et al. (2010), we identified some indicators that showed a large difference in magnitude of factor loading by comparing the standardized loadings for the two models. A total of four indicators were identified as candidates to be freely estimated (*Nostalgia* 3, 4, *Covetousness* 3, and *Aesthetic Beauty* 1). The listed variables had at least .05 differences in magnitude of the factor loading. Consistent with the suggestion by Hair et al. (2010), only one variable at a time was freely estimated to create a partially invariant model. As a result of these tests, *Nostalgia* 4 ("It would remind me of particular events or places") was found to be the source of inequivalence (χ^2 = 2940; *df* = 1131; $\Delta\chi^2_{(35)}$ = 49.16, $p > .05$). In sum, it can be concluded that the CV-PPA model is partially invariant, supporting cross-validation and warranting further examination.

Table 4. ***Indicator Loadings, Construct Reliability, Average Variance Extracted for CV-PPA (n = 260)***

Items	λ	*CR*	*AVE*
Social approval		.94	.81
It would give me social approval from others	.88		
It would make a good impression on other people	.92		
It would help me feel accepted	.87		
It would improve the way I am perceived by others	.88		
Materialism		.64	.40
I also enjoy spending money on things that aren't practical	.46		
Buying things give me a lot of pleasure	.48		
Possession of this type of product improves my self-image	.87		
Price/quality		.87	.59
It was a good product for the price	.62		
It would perform consistently	.71		
It was reasonably priced	.67		
It was well made	.92		
It had consistent quality	.90		
Nostalgia		.82	.48
It was a record of my personal history	.59		
It would remind me of my skills, achievements, or goals	.60		
It would remind me of my family or a group of people I belong to	.82		
It would remind me of particular events or places	.80		
It would remind me of my relationship with a particular person	.61		
Covetousness		.85	.65
My life would be better if I owned certain things I don't have	.75		
I'd be happier if I could afford to buy more things	.88		
It would sometimes bother me quite a bit that I couldn't afford to buy all the things I'd like	.81		
Craftsmanship		.81	.59
It had good workmanship	.82		
It would last a long time	.85		
I know that the company who handles this product is highly skilled in their craft	.63		
Escape		.82	.53
It would provide me freedom or independence	.73		
It would allow me to spend time or share activities with other people	.83		
It would provide enjoyment, entertainment, or relaxation	.70		
It would provide comfort or emotional security	.67		
Prestige/status		.82	.54
It was valuable in terms of money	.54		
It required a lot of effort to acquire or maintain	.55		
It would improve my status as perceived by others	.89		
It would positively influence my status by appearing successful	.89		
Aesthetic beauty		.88	.72
It was beautiful or attractive in appearance	.49		
It would improve my appearance or the way I look	.97		
This product would make me look better	.95		
Tradition		.94	.88
I feel that it is a tradition to have an item like this	.94		
It is a tradition	.93		

Discussion

Using a large sample from a general population, this study estimated the measurement model of the CV-PPA scale with a new factor included. The CV-PPA scale was designed to measure "consumer values" that influence purchase decisions and the items representing "perceived product attributes" of athletic team merchandise (Lee et al., 2011). A multi-group invariance analysis was additionally employed to examine measurement equivalency of the scale. The following section discusses the overall findings and compares them with results from previous research.

Consumer Values and Perceived Product Attributes that Impact Purchase of Athletic Team Merchandise

Consumer values or belief systems and perceived product attributes of athletic merchandise seem to play an important role in affecting consumptive behaviors in sport. Particularly, in the context of sport, as Lee et al.'s (2011) CV-PPA model suggests, various consumer values and product attributes trigger

an individual's purchase intentions of athletic team merchandise. To overcome the limitation in generalizability due to the use of student sampling in their research, the present study increased generalizability by using a large sample from a general population and expanded the previous research from both contextual and measurement perspectives. The overall results of the present study confirms the previous literature by suggesting that factors such as *Social Approval, Materialism, Price/Quality, Nostalgia, Covetousness, Craftsmanship, Escape, Prestige/Status, Atheistic Beauty,* and *Tradition* are good explanatory measures that help to clarify the purchase intention of athletic team merchandise for game attendees. The following is a discussion of the results and relevant literature.

Social approval. As discussed by Sweeney and Soutar (2001), social value can be "derived from the product's ability to enhance social self-concept" (p. 211). This implies that individuals intend to wear or possess athletic team merchandise to be socially accepted by others. A high correlation between *Social Approval* and *Materialism* in the present study indicates that the purchase of athletic team merchandise is a type of materialistic sport behavior sought to improve social perception by others. This finding is consistent between previous studies (e.g. Lee et al., 2011; Sweeney & Soutar) and the present study.

Materialism. This factor consists of three original items from the CV-PPA scale and one new item. Because the overall items were derived from the centrality subscale used by Richins and Dawson (1992), the new item was worded as "possession of this type of product improves my self-image." Based on Belk's (1984) definition of materialism, this factor indicates the general importance that sport consumers place in their lives by possessing materials like athletic team merchandise. Likewise, consistent with Richins and Dawson's (1992) and Lee et al.'s (2011) findings, sport consumers intend to possess or acquire quality athletic team merchandise in order to express personal success or to improve their self-image. A high correlation between *Materialism* and *Prestige/Status* in the present study may indicate that material possession including athletic team merchandise is a means to enhance consumers' status of who they are. It seems that sport consumers tend to buy athletic team merchandise even if the products may not be very practical, and this indicates the consumer's intention to meet materialistic needs by possessing athletic team merchandise.

Covetousness. As proposed by Lee et al. (2011), items under this construct represented an individual's desire to own more things, which is conceptually in the same line as *Materialism*. The squared correlation value suggests that close to 40% of duplication exists between *Covetousness* and *Materialism,* but this value also suggests that they are still empirically discriminant. The findings of the present study are consistent with Lee et al.'s (2011) research that in general, game attendees often purchase athletic team merchandise to own new things.

Escape. This factor consists of all four original items in the CV-PPA scale. These items represent the freedom or independence consumers may feel from the possession of athletic team merchandise. Also, the respondents tend to think that possessing athletic team merchandise is a means to secure social time and share activities with other people. It may be because consumers perceive sport consumption (i.e., sport spectators often purchase athletic team merchandise) as a way of relaxing and escaping from the confinements of routine life and/or employment. Likewise, the literature indicates the escape value as an important driving force behind game attendance (Trail, & James, 2001; Wann, 1995).

Prestige/status. This factor consists of four items. The overall results of the present study indicate that respondents believe that athletic team merchandise will improve their prestige or status as perceived by others. Wording of the items indicates that sport consumers' prestige or status may be enhanced because certain athletic team merchandise can be hard to acquire and/or is very expensive in terms of their cost. Accordingly, Lee et al. (2011) argued that sport consumers tend to judge the perceived benefits of athletic team merchandise in regard to social prestige that reflects one's relative status. In addition, a modest correlation between the social approval factor and prestige/status factor in the current study may imply comparative social status is improved by purchasing athletic team merchandise.

Price/quality. This construct consists of items measuring the price and quality of products. Consistent with previous studies (e.g. Lee et al., 2011; Richins, 2004; Sweeney & Soutar, 2001), the price of merchandise is an important decision point. However, probably because this construct represents price and quality of a product simultaneously, this construct was highly correlated with *Craftsmanship* in the present study (over 77% overlap). Due to this multicollinearity concern, we re-ran a CFA after combining *Price/Quality* and *Craftsmanship* constructs, but this did not improve the overall model fit. The chi-square difference test also suggests the 10-factor model did not merge the two constructs. This finding warrants further investigation (see section on Limitations and Directions for Future Research for further explanation and suggestion).

Nostalgia. This factor represents the individual's personal history through a piece of athletic team merchandise. Lee et al. (2011) indicated that purchased team products induce nostalgic appeal attached to athletic events, places, or athletes. Consistent with Branscombe and Wann's (1991) concept of team identity in spectator sports, individuals tend to purchase athletic team merchandise to remember historical moments in sports. The consistent findings of the present study indicate that this finding is generalizable across game attendees.

Craftsmanship. The frequency of purchasing athletic team merchandise is also explained by the product's craftsmanship. This factor consists of four items representing utilitarian aspects of team merchandise. Dhar and Wertenbroch (2000) previously indicated that various product attributes, including manufacturing quality influence purchase intention. This factor seems to be somewhat in contrast to materialism in that the above factor implies sole materialistic possession without any extra condition. The relatively weak correlation between *Craftsmanship* and *Materialism* may support this premise.

Aesthetic beauty. This construct consists of items from the appearance-related subscale in Richins' (1994) Possession Rating Scale. Lee et al. (2011) found that individuals highly rated these items indicating external aesthetic features of athletic team merchandise helped enhance their look. The *Aesthetic Beauty* construct was categorized under "Symbolic" higher-order dimensions in their study. This finding was consistent with the present study in that the

CFA suggested 10-factor model that included this construct and possessed good psychometric properties.

Tradition. The frequency of purchasing athletic team merchandise is further explained by *Tradition* in that consumers tend to perceive possessing athletic team merchandise as a tradition. Three new items represent this factor in the current study. This factor was most highly correlated with *Nostalgia* implying sport consumers may buy athletic team merchandise as a traditional way of remembering personal history (e.g. attendance at collegiate football division championship). As discussed in the introduction, this finding is generally consistent with the literature. More specifically, the current empirical finding is consistent with Zhang et al.'s (1995) finding (i.e., tradition was related to NBA game attendance) and Greenwell et al.'s (2002) finding (i.e., about 16% of the variance in customer satisfaction was explained by tradition factor). More recently, Zhang, et al. (2003) demonstrated a significant relationship between tradition factor and various sport consumption behaviors (i.e., attendance and media). Thus, this factor should continue to be validated as a new factor within the CV-PPA model in future studies.

Test of Measurement Equivalence

The CV-PPA model suggested that consumers' intention to purchase athletic team merchandise is affected by consumer values and perceived attributes of a product (Lee et al., 2011). The significance of this type of measurement is further justified by recognizing a need for scale validation. To fulfill this need, the multi-group measurement invariance test was employed and the overall results suggest that the same proposed constructs were being measured equally across two samples. This is evidence for stability of the chosen constructs as measured by the extended CV-PPA model. The test of MG invariance of a model has not been very common within the context of sport, making this study more meaningful.

Limitations and Directions for Future Research

In the current study, an initial CFA revealed that *Price/Quality* and *Craftsmanship* had a high factor correlation (r = .88), indicating that the factors may measure the same concept while theoretical separation between the two constructs was proposed and empirically determined in a previous study (Lee et al., 2011). Indeed, the model comparison between the two-factor combined model (i.e., 9-factor) and the initially hypothesized model (i.e., 10-factor) revealed the two factors were empirically distinct, supporting the finding of Lee et al.'s (2011) study. However, a careful examination of the contents of the two factors disclosed that there was a close overlap between items measuring quality and craftsmanship aspects. One way to improve this content and construct validity is to employ a more stringent measure of quantitative content validity suggested by Dunn, Bouffard, and Rogers (1999). In this approach, item examination by an expert panel should focus on the constructs examining three aspects, including relevance, representativeness, and clarity. Once the panel provides its evaluation, the three aspects are simultaneously assessed via several procedures, including content validity coefficient, rater homogeneity coefficient, and rater reliability coefficient. Through this approach, researchers can gain a better insight of how constructs are represented by items. This may lead to improved content validity, which is a necessary step to establish good construct validity.

Conclusion

There are some important findings from this research due in part to the larger and more diverse sample providing for better generalization of the data. The expanded data set also allowed for systematic data analysis including two confirmatory factor analyses using two random split samples. Additional analysis that employed the use of a cross-validation test using multi-group invariance analysis was subsequently conducted. This infrequently used cross-validation method strengthened the measurement scale and provided evidence for stability of the chosen constructs.

The overall information in the present study confirms the previous literature by suggesting that factors such as *Social Approval, Materialism, Price/Quality, Nostalgia, Covetousness, Craftsmanship, Escape, Prestige/Status, Atheistic Beauty,* and *Tradition* are appropriate measures that clarify the purchase intention of athletic team merchandise. As a result, a 10-factor model was suggested that consists of various personal values and perceived value constructs that influence the purchase intentions of athletic team merchandise by those who attend collegiate sport events.

The development of a consumer model that incorporates both what a consumer values within their own belief system and what they perceive are the attributes of a sport-related product to be purchased is an important area to study in a competitive consumer market. Understanding the motivations or psychometric properties of consumers and the target markets that purchase athletic team merchandise is also of critical importance to the marketing and selling of consumer goods.

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Table 5. ***Indicator Loadings, Construct Reliability, Average Variance Extracted for CV-PPA (n = 277)***

Items	λ	CR	AVE
Social approval		.95	.83
It would give me social approval from others	.92		
It would make a good impression on other people	.91		
It would help me feel accepted	.90		
It would improve the way I am perceived by others	.91		
Materialism		.64	.40
I also enjoy spending money on things that aren't practical	.45		
Buying things give me a lot of pleasure	.46		
Possession of this type of product improves my self-image	.88		
Price/quality		.89	.63
It was a good product for the price	.67		
It would perform consistently	.71		
It was reasonably priced	.68		
It was well made	.94		
It had consistent quality	.92		
Nostalgia		.78	.4
It was a record of my personal history	.60		
It would remind me of my skills, achievements, or goals	.58		
It would remind me of my family or a group of people I belong to	.76		
It would remind me of particular events or places	.65		
It would remind me of my relationship with a particular person	.62		
Covetousness		.83	.61
My life would be better if I owned certain things I don't have	.71		
I'd be happier if I could afford to buy more things	.88		
It would sometimes bother me quite a bit that I couldn't afford to buy all the things I'd like	.75		
Craftsmanship		.82	.61
It had good workmanship	.77		
It would last a long time	.87		
I know that the company who handles this product is highly skilled in their craft	.69		
Escape		.80	.50
It would provide me freedom or independence	.68		
It would allow me to spend time or share activities with other people	.81		
It would provide enjoyment, entertainment, or relaxation	.69		
It would provide comfort or emotional security	.63		
Prestige/status		.81	.54
It was valuable in terms of money	.52		
It required a lot of effort to acquire or maintain	.56		
It would improve my status as perceived by others	.86		
It would positively influence my status by appearing successful	.91		
Aesthetic beauty		.86	.69
It was beautiful or attractive in appearance	.52		
It would improve my appearance or the way I look	.96		
This product would make me look better	.94		
Tradition		.92	.86
I feel that it is a tradition to have an item like this	.91		
It is a tradition	.94		