A cross-cultural comparison of consumer vanity in the People's Republic of China, South Korea and Thailand: an exploratory study

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Abstract:

In response to calls regarding the applicability of marketing scales in other cultures, the current study re-examined the psychometric properties and measurement equivalence of the consumer vanity scale. The sample consisted of 723 undergraduate participants from China, South Korea and Thailand. Results revealed that the 21-item, four-factor (physical concern, physical view, achievement concern and achievement view) model of consumer vanity exhibited a satisfactory condition of psychometric properties across three samples. Multigroup analysis also revealed that the consumer vanity scales have partial factorial invariance. More specifically, the results as related to latent means comparison revealed that there are differences and similarities between the four dimensions of consumer vanity among Chinese, South Korean and Thai participants. Implications and future research directions are discussed.

Keywords: consumer vanity | cross-cultural | multi-sample analysis

Article:

Introduction

Increasing international marketing opportunities, growing globalization and rapid Internet adoption across the globe have made companies aware that they must develop effective marketing strategies to respond to these challenging phenomena. The expression 'think global, act local' has stimulated a debate among academics and practitioners as to whether localized or standardized marketing strategies should be privileged (Jin and Sternquist, 2003; Hult et al., 2004). While some researchers suggest that companies should adopt localized marketing strategies when

expanding into other markets due to cultural variations (Kim and Jin, 2002), others suggest the implementation of standardized marketing strategies in foreign markets (Moore et   al., 2003). Many have attempted to identify and understand consumers cross-culturally through the use of Western-origin marketing measures. However, the applicability and generalizability of Western-origin marketing measures to other cultures are still a major concern (Davis et   al., 1981; Griffen et   al., 2000; Durvasula et   al., 2001). Understanding the difficulties of applying measures to other cultures would aid academics and practitioners in identifying differences and similarities among cultures and enhancing the comparability of consumers across cultures.

The impact of technological advances and a globalized world market has resulted in a plethora of products and services (e.g. cosmetic products, plastic surgery) available to consumers across the globe. These global consumers have been bombarded with advertising messages that promote the importance of achievement, status and physical beauty; thus, these consumers may possess vanity which subsequently may affect the development of their self-identity. It has been stated that an individual's decision to consume goods/services depends on not only his or her intrinsic utility (e.g. inner-directed needs), but also extrinsic utility (e.g. other-directed needs for approval) (Roth, 1995; Durvasula et   al., 2001). However, one cannot make an assumption that the consumption decisions of these global consumers are identical. Thus, it is important for us to understand consumer vanity in a cross-cultural context. Such knowledge will allow practitioners, academics and consumer educators to better understand underlying consumer motives in the marketplace as well as how consumer vanity affects an individual's psychological well-being (self-esteem, self-consciousness) across cultures.

The study attempted to accomplish two key research objectives. First, the study examines and validates the applicability of consumer vanity measures in three East Asian countries: the People's Republic of China (hereafter 'China'), South Korea and Thailand. That is, the study questions whether consumer vanity measures exhibit acceptable psychometric properties (i.e. reliability and construct validity) in these three East Asian cultures as in the US. Researchers agree that 'valid measurement is the sine qua non of science' (Peter, 1979, p. 6); thus, additional studies seem warranted if researchers seek to understand the concept of consumer vanity and its implications in a global environment. Second, the study explores whether there are means differences in consumer vanity among consumers in three East Asian countries, if valid psychometric properties of consumer vanity measures are established. This particular research objective is accomplished through the establishment of measurement equivalence, which refers to 'whether or not, under different conditions of observing and studying phenomena, measurement operations yield measures of the same attribute' (Horn and McArdle, 1992, p. 117). This is a major concern in cross-cultural studies that use translated survey instruments (Mullen, 1995; Steenkamp and Baumgartner, 1998) because if measurement equivalence can be demonstrated, it could lead one to question whether the findings are actually based on cultural differences.

The participants in this study were selected from three East Asian countries (China, South Korea and Thailand). These countries were selected because of their shared value system; the cultural tradition of Confucianism (emphasizing virtue, interdependence and economic comfort at a modest level) has been most influential in shaping individual attitudes and behaviours in these East Asian counties (Hofstede, 1980; Park and Cho, 1995). In addition, Western marketing and advertising practices which emphasize material desires, immediate gratification, youth and a modern lifestyle (and thus support consumer vanity) tend to dominate these East Asian cultures (Cheng and Schweitzer, 1996; Chirapravati, 1996; Kim, 1996) even though the value is in conflict with traditional Confucian value system. Despite of being influenced from same value system –

the Confucian value system, researchers suggest that cross-cultural variations may have appeared due to the different degrees of economic, social and/or cultural transformation among these East Asian cultures (Fan and Xiao, 1998; Durvasula et al., 2001; Sarthou, 2004; Savage, 2005).

This paper presents the concept of consumer vanity and its psychological influences along with a review of the literature on cross-cultural studies and the consumer vanity scale. Next, the methodology and results were provided. Finally, the discussion, implications, limitations and future research directions were discussed.

Consumer vanity and its psychological influences

Consumer vanity is a psychological construct which is defined as 'a fixation on physical appearance and achievement of personal goals' (Netemeyer et al., 1995, p. 612). For Netemeyer and his associates, consumer vanity is a multidimensional construct comprised of four distinct components: '(1) a concern for physical appearance; (2) a positive (and perhaps inflated) view of physical appearance; (3) a concern for achievement; and (4) a positive (and perhaps inflated) view of achievement' (p. 612). The first two components capture the domain of physical vanity while the latter two components capture the domain of achievement vanity. While some suggest that consumer vanity can be considered a personality trait (or inner-directedness) driven by social influences, others argue that consumer vanity may be considered a secondary trait similar to conspicuous consumption (Mason, 1981; Durvasula et al., 2001). However, researchers agree that the social and economic environment of a country influences the degree of consumer vanity in individuals.

Specific to the domain of physical vanity, individuals who are concerned about their physical appearance are likely to be aware of their appearance relative to others. The use of physical attractiveness appeals in advertising is one example of how vanity affects people's concerns about their physical appearance. This may be due partly to the fact that advertisements featuring attractive endorsers are more persuasive than those featuring less attractive endorsers (Caballero et al., 1989; DeShields et al., 1996). Berscheid and Walster (1974) describe attractive individuals as 'perceived to be more sexually warm and responsive, sensitive, kind, interesting, strong, poised, modest, sociable and outgoing than persons of lesser physical activeness' (cited in Caballero et al., 1989, p. 16). Richins (1991, 1995) further explains that the use of attractive physical images in advertising tend to generate effective responses by making the viewer feel less attractive or satisfactory when compared with the images in the advertisement. In addition, the use of physical attractiveness in advertisements also affects viewers' psychological well-being. Using social comparison theory, Martin and Gentry (1997) found that young teenage girls tend to compare their physical attractiveness with that of models in advertisements, consequently altering their self-perception and self-esteem.

The domain of achievement vanity can be viewed similarly to the concept of conspicuous consumption and materialism. That is, those who are concerned about personal achievement are likely to be driven by status and success because individual achievements tend to reflect success (Netemeyer et al., 1995). Buunk et al. (1991) used social comparison theory to show how, in general, people usually compare themselves with others; they feel dissatisfied, inadequate or envious when the person they are comparing themselves with is more successful. Similar to the physical appearance domain of consumer vanity, the personal achievement domain of consumer vanity may also create a sense of negative personal well-being; when people compare themselves with others with greater achievements, it may result in self-doubt about one's own abilities.

Furthermore, researchers have reported that those with high levels of physical attractiveness (i.e. physical vanity) tend to enjoy greater occupational success (i.e. achievement vanity) (Dickey-Bryant et al., 1985). Miller (1970) stated that physical appearance and personal achievement are major aspects of the vanity concept, as these two aspects tend to elicit positive impressions upon initial social contact and help individuals achieve greater social acceptance (Kleck et al., 1974), exert greater social influence (Debevec et al., 1986), enhance credibility (Ohanian, 1991) and signal greater success (Dickey-Bryant et al., 1985).

Netemeyer et al. (1995) examined the implications of the consumer vanity concept as it is reflected in different media (TV commercials, print advertisements and Internet advertisements) and product consumption behaviours. As a result, they proposed the 21-item, four correlated dimensions of vanity [i.e. physical concern (PC), physical view (PV), achievement concern (AC) and achievement view (AV)] that capture individuals' concerns regarding their physical appearance and personal achievement. These scales have been developed and validated in the US with subjects who possess different variations of vanity such as the 1991 Who's Who Directory of college students, NCAA Division I football players and female fashion models (Netemeyer et al., 1995). The results revealed that the four-factor structure of consumer vanity displayed satisfactory confirmation of model fit and their psychometric properties across groups.

Despite the lack of cross-cultural vanity research, one study (Durvasula et al., 2001) has examined the psychometric properties and mean differences of the vanity scale across four countries (the United States, New Zealand, China and India) using a student sample. Their results revealed an acceptable level of measurement invariance, i.e. partial scalar invariance of these scales and satisfactory psychometric properties across these four cultures. They further reported that there are definite differences among these four cultural groups as related to dimensions of the consumer vanity concept. For example, American, New Zealander and Chinese consumers are more concerned about their physical appearance than their Indian counterparts, whereas Americans, New Zealanders and Chinese do not differ significantly regarding the dimension of PC. In addition, they found that Americans do not differ significantly from Chinese consumers related to PV. However, for the dimension of AV, Chinese consumers exhibited the highest scores and those scores were significantly different from the scores of their American, New Zealander and Indian counterparts. In contrast, New Zealander and Indian consumers do not differ significantly from each other. Related to AC, Americans are more concerned with achievements than their Chinese and Indian counterparts, but Americans do not differ significantly from New Zealanders in this respect. Therefore, the researchers concluded that the vanity scale is applicable across cultures, or at least to these four cultures.

Recently, Wang and Waller (2006) also examined the cross-cultural applicability of consumer vanity using college samples drawn from US and China. Using multigroup confirmatory factor analysis (MGCFA) to assess measurement equivalence, the results were similar to Durvasula et al. (2001) in that the consumer vanity measures established partial scalar invariance and displayed acceptable psychometric properties across two samples (i.e. the US and China). Related to latent factor means comparison, Wang and Waller's results revealed some similarities and differences as compared with Durvasula et al.'s (2001) study. Similar to Durvasula et al., Wang and Waller found that Chinese consumers displayed higher levels of achievement than their American counterparts. In contrast to Durvasula et al., Wang and Waller found that while Chinese consumers displayed higher levels of PV and AC than their American counterparts, Americans are more concerned with their physical appearance than their Chinese counterparts. In sum, the results from these two cross-cultural studies related to latent factor means of

dimensionality of consumer vanity are still inconclusive, suggesting that additional research needs to be done.

Consumer vanity in Confucian societies

While consumer vanity has been noted among East Asian consumers (Durvasula et al., 2001; Sarthou, 2004; Savage, 2005), their Confucianism may seem in direct contradiction to the concept of vanity. Confucian philosophies focus on thrift, modesty and humility in consumption that would help one to control the negative consequences of envy (Douglas and Isherwood, 1996). However, remarkable socio-cultural changes in the wake of modernization, swift industrialization and globalization have challenged traditional Confucian values in these East Asian societies. There, members of Confucian societies are likely to have similar shared sets of consumption-related symbols (e.g. products, brands, consumption activities) and also like to highly regard stereotypes of physical attractiveness as members of non-Confucian societies (Terpstra and David, 1991). For example, many East Asian men today are more likely to keep up with their physical appearance than ever before (Savage, 2005). Among East Asian consumers, there also exist differences in terms of consumer behaviours in Confucian cultures depending on nationality and age group. Synovate, a market research company in Asia, reported that Korean men were more likely to use cosmetic products (moisturizers, hair spray, colognes and perfumes) than Chinese men. When asked about the importance of their looks, almost 40% of men in Hong Kong and Taiwan were concerned with their appearance, not only for themselves but also with regard to how others view them (Sarthou, 2004; Savage, 2005).

It is also reported that, among younger East Asian women, the sales of cosmetic products (antiwrinkle creams, hair care products) have increased (The Economist, 2004), implying that they are more concerned with their physical appearance than members of the older, more traditional generation. As psychologist Nancy Etcoff states, 'good looks are a woman's most fungible asset, exchangeable for social position' and looks matter 'for reproductive success' (The Economist, 2004). In addition, plastic surgery is becoming a significant trend among young career-oriented Korean women who want to look more like their Western counterparts (Glain, 1993). These Korean women regard cosmetic surgery as a means to cure emotional problems (e.g. low self-esteem); they do not view surgery as a violation of their own values of beauty and cultural integrity (Glain, 1993). Likewise, Lee et al. (1993) found that young Chinese women perceived slenderness as ideal body type. Researchers also stated that younger Chinese women are becoming more and more fashion-oriented, 'able to indulge in costly foreign brands' (Tai and Tam, 1997, p. 291), and are likely to favour beauty and health products (Lee et al., 2004), reflecting the wide adoption of consumer vanity among this market segment. With respect to Thai consumers, two Thai subjects interviewed for this study mentioned that the use of foreign models and foreign languages (e.g. English, French and Japanese) in the marketing and advertising practices of Thailand is gaining in popularity; as well, the availability of beauty and healthcare products is increasing. These factors indicate an increasing awareness of consumer vanity among Thai consumers. In addition, the soft-sell approach of advertising that focuses on image building, emotional elicitation and status symbols (thus signifying vanity) dominates in Thai advertisements (Chirapravati, 1996).

In sum, it is evident that vanity is gaining popularity among the three Confucian societies examined in this study: China, South Korea and Thailand. However, the degree to which these consumers' vanity differs is of interest to this study.

Methodology

Measurement

The present study used Netemeyer et al.'s (1995) 21-item vanity scale with 1 = strongly disagree and 7 = strongly agree as anchors. The consumer vanity scale is comprised of four dimensions as follows: (1) five items for PC (e.g. 'Looking my best is worth the effort'); (2) six item for PV (e.g. 'My body is sexually appealing'); (3) five items for AC (e.g. 'I want my achievements to be recognized by others'); and (4) five items for AV (e.g. 'Others wish they were as successful as me'). The instrument was developed in accordance with guidelines suggested for cross-cultural studies (Brislin, 1980; Douglas and Craig, 1983). The questionnaire was first developed in English and then translated into Chinese, Korean and Thai, respectively, by bilingual professors who are native speakers of their home language and who received their higher education (masters and/or doctoral degrees) in the US. The Chinese, Korean and Thai versions of the questionnaire were then back-translated into English by graduate students who are native speakers of their home language for the purpose of examining functional (i.e. whether the concept is equivalent with respect to functions from one country to country), conceptual (i.e. whether the concept was expressed in similar ways in each culture) and calibration (i.e. whether the same classification scheme was employed in each culture) equivalences (Brislin, 1980; Douglas and Craig, 1983). The homogeneity of questionnaires tends to signal the degree of internationalization of the concept studied (Deshpande et al., 2004). No major discrepancies were revealed in the translations of these three versions of the questionnaire.

Sample

The data were collected from undergraduate university students from three collectivist East Asian countries, namely Beijing (China), Seoul (South Korea) and Chonburi (Thailand). Although the use of student samples has been subject to criticism in terms of generalizability, these three convenience samples of university students were deemed appropriate because they provide homogeneity (Calder et al., 1981) which is an important issue for cross-cultural research (Poortinga and Malpass, 1986; Hofstede and Bond, 1988). In addition, in testing for marketing universals, a matched sample (e.g. through the use of students) is required (Mullen, 1995). Furthermore, as compared with more traditional older generations, young East Asians are more likely to be exposed to modern Western media (e.g. MTV, CNN, ABC) where they can keep up with contemporary consumer trends (Durvasula et al., 2001).

For this study, 723 usable questionnaires were returned; 207 were from China (76 women and 131 men), 268 were from South Korea (230 women and 67 men) and 248 were from Thailand (177 women and 71 men). Specifically, the majority of students in the Chinese and the Thai samples were sophomores and freshmen (93% and 99% respectively), whereas the South Korean sample was equally distributed across all four years of school (25% each). In addition, those students with business-related majors were similar in terms of age (the Chinese mean age was 19.86, SD = 0.97; South Korean mean age was 21.04, SD = 1.37; and Thai mean age was 19.25, SD = 1.24).

Results

Assessing psychometric properties

Dimensionality

Netemeyer et al. (1995) predicted and reported that the 21-item consumer vanity scale is comprised of four dimensions: PC, PV, AC and AV. To test the multidimensionality of consumer vanity in the current study, a set of confirmatory factor analysis (CFA) was performed using a covariance matrix input via LISREL 8.3 (Joreskog and Sorbom, 1993). This statistical procedure was selected because it allows for testing of a priori specified hypotheses for the underlying structure of a model (e.g. numbers of factors) and for a comprehensive investigation; it also provides a mechanism for establishing measurement invariance (Griffen et al., 2000). Covariance matrices were calculated among items captured from each subdimension of the vanity scale for an individual sample and used to estimate relevant measurement models.

As originally proposed, the 21-item, four-factor model of consumer vanity was examined in each sample individually (Netemeyer et $al.$, 1995). The results are as follows: for the Chinese sample, $\chi^2 (183) = 520.75, P < 0.001, \chi^2/d.f. = 2.85$, root mean square error of approximation (RMSEA) $= 0.09$, the comparative fit index (CFI) $= 0.90$, and the Tucker and Lewis index (TLI) $= 0.90$; for the South Korean sample, $\chi^2 (183) = 505.73, P < 0.001, \chi^2/d.f. = 2.76$, RMSEA $= 0.08$, CFI $= 0.93$ and TLI $= 0.92$; and for the Thai sample, $\chi^2 (183) = 825.59, P < 0.001, \chi^2/d.f. = 4.51$, RMSEA $= 0.10$, CFI $= 0.87$ and TLI $= 0.85$ (see Table 1). To evaluate the fit of the confirmatory factor models, several measures were used. Although the results of χ^2 of the 21-item, four-factor model of consumer vanity were significant across samples, the value of χ^2 is affected by the sample size. Thus, it is necessary to use other fit indices to evaluate the fit of the four-factor model. Researchers suggest that adequate fit requires values of 0.80 or higher for CFI and TLI, values of 1.00 or less for RMSEA (Brown and Cudeck, 1993; Netemeyer et $al.$, 1995; Hu and Bentler, 1999) and values of 5.00 or less for the normed chi-squares (Wheaton et $al.$, 1977). Based on these fit indices, the results revealed that the level of fit was satisfied for the Chinese and South Korean samples and was moderately satisfied for the Thai sample.

Instrument reliabilities

Cronbach α reliabilities of four dimensions (PC, PV, AC and AV) of consumer vanity were computed across samples. The results indicated that reliabilities ranged from 0.73 to 0.88 for the Chinese sample, from 0.79 to 0.82 for the South Korean sample, and from 0.77 to 0.90 for the Thai sample (see Table 1). In addition, the composite reliability estimates obtained through the CFA for an individual dimension of vanity were computed across samples. The estimates ranged from 0.74 to 0.88 for the Chinese sample, from 0.80 to 0.83 for the South Korean sample, and from 0.79 to 0.90 for the Thai sample (see Table 1). According to Nunnally and Bernstein (1994), these reliabilities are satisfactory because they are greater than 0.70 and in line with previous studies (Netemeyer et al., 1995; Durvasula et al., 2001). These results are in line with Durvasula et al.'s (2001) and Wang and Waller's (2006) studies.

Table 1. Confirmatory factor analysis (CFA) on 21-item four-factor model of vanity in China, South Korea and Thailand

	Factor loadings		
	China (t-value)	South Korea (t-value)	Thailand (t-value)
Dimension 1: physical concern (PC)			
PC1: The way I look is extremely important to me.	0.87 (14.63)	0.72 (12.75)	0.81(15.14)
PC2: I am very concerned about my appearance.	0.89 (15.22)	0.77 (13.93)	0.76 (13.12)
PC3: I would feel embarrassed if I was around people and did not look my best.	0.59 (8.92)	0.51 (8.33)	0.46 (7.11)
PC4: Looking my best is worth the effort.	0.28 (3.92)	0.71 (12.61)	0.52 (8.07)
PC5: It is important that I always look good.	0.28 (3.86)	0.77 (14.18)	0.67 (11.01)
Reliability	*0.73*	*0.82*	*0.77*
Composite reliability	*0.74*	*0.83*	*0.79*
Proportion of variance extracted	*41.20%*	*49.20%*	*43.40%*
Dimension 2: physical view (PV)			
PV1: People notice how attractive I am.	0.68 (10.55)	0.55 (9.03)	0.66 (11.29)
PV2: My looks are very appealing to others.	0.81 (13.69)	0.64 (10.98)	0.72 (12.85)
PV3: People are envious of my good looks.	0.72 (11.43)	0.55 (8.97)	0.72 (12.85)
PV4: I am very good-looking individual.	0.70 (11.02)	0.81 (14.83)	0.68 (11.72)
PV5: My body is sexually appealing.	0.81 (13.62)	0.75 (13.45)	0.91 (18.05)
PV6: I have the type of body that people want to look at.	0.71 (11.28)	0.61 (10.24)	0.90 (17.91)
Reliability	*0.88*	*0.81*	*0.90*
Composite reliability	*0.88*	*0.82*	*0.90*
Proportion of variance extracted	*54.83%*	*43.33%*	*59.67%*
Dimension 3: achievement concern (AC)			
AC1: Professional achievements are an obsession with me.	0.54 (7.61)	0.45 (7.11)	0.59 (9.57)
AC2: I want others to look up to me because of my accomplishments.	0.77 (11.82)	0.61 (10.22)	0.73 (12.55)
AC3: I am more concerned with professional success than most people Know.	0.74 (11.26)	0.71 (12.41)	0.65 (10.77)
AC4: Achieving greater success than my peers is important to me.	0.59 (8.47)	0.74 (13.11)	0.65 (10.72)
AC5: I want my achievements to be recognized by others.	0.41 (5.63)	0.79 (14.49)	0.73 (12.36)
Reliability	*0.76*	*0.79*	*0.80*
Composite reliability	*0.75*	*0.80*	*0.80*
Proportion of variance extracted	*39.00%*	*44.80%*	*45.00%*

Table 1. *(continued)*

	China (t-value)	South Korea (t-value)	Thailand (t-value)
Dimension 4: achievement view (AV)			
AV1: In a professional sense, I am very successful person.	0.79 (12.71)	0.84 (15.82)	0.67 (11.20)
AV2: My achievements are highly regarded by others.	0.64 (9.59)	0.73 (12.96)	0.62 (10.14)
AV3: I am an accomplished person.	0.72 (11.27)	0.67 (11.61)	0.68 (11.38)
AV4: I am a good example of professional success.	0.72 (11.16)	0.78 (14.36)	0.79 (14.12)
AV5: Others wish they were as successful as me.	0.51 (7.24)	0.46 (7.41)	0.75 (13.08)
Reliability	*0.81*	*0.82*	*0.83*
Composite reliability	*0.81*	*0.83*	*0.85*
Proportion of variance extracted	*46.60%*	*50.20%*	*52.20%*
Phi matrix			
PC (PV)	0.40 (5.97)	0.36 (5.53)	0.33 (5.05)
PC (AC)	0.41 (5.69)	0.75 (18.72)	0.74 (16.52)
PC (AV)	−0.01 (−0.07)	0.08 (1.08)	0.48 (7.66)
PV (AC)	0.28 (3.56)	0.28 (4.00)	0.22 (3.14)
PV (AV)	0.48 (7.38)	0.45 (7.55)	0.54 (9.93)
AC (AV)	0.56 (8.64)	0.29 (4.37)	0.65 (12.82)
X^2, d.f.	520.75, 183***	505.73, 183***	825.59, 183***
X^2/d.f.	2.85	2.76	4.51
Root mean square error of approximation	0.09	0.08	0.10
Comparative fit index	0.90	0.93	0.87
Tucker and Lewis's non-normed index	0.90	0.92	0.85

*** $p < 0.001$

Convergent and discriminant validity

Confirmatory factor analysis was conducted to examine the convergent and discriminant validity (Anderson and Gerbing, 1988). For the convergent validity, Table 1 showed that all the factor loadings of observed variables on their corresponding latent variables were significant at 0.001 levels, indicating the establishment of convergent validity (Bagozzi et al., 1991).

Discriminant validity was examined using three different tests: the chi-square difference test, the variance extracted test and the confidence interval test. For the chi-square difference test, the interfactor correlations in each pair of the construct are constrained to the unity one at a time. A significant lower of χ^2 of the unconstrained model as compared with the constrained model provides support for discriminant validity (Bagozzi and Phillips, 1982). In addition, the variance extracted test was performed by comparing the phi correlations squared with the variance extracted for each construct. If phi correlations squared were less than the variance extracted for each construct, then discriminant validity was evident (Fornell and Larcker, 1981). Finally, the most stringent test, the confidence interval test, was conducted by examining whether the interfactor correlations plus and/or minus 2× standard deviations contain the value of 1.00. If not, then the discriminant validity was found (Anderson and Gerbing, 1988). Based on the results of these three tests, it is concluded that discriminant validity was found in this study, indicating that these four dimensions of consumer vanity are distinct.

Assessing measurement invariance

To establish the cross-cultural applicability of the scale, it is very important to show that consumer vanity scales exhibit measurement invariance across cultures. Drasgow and Kanfer (1985) have suggested that factorial invariance (one of the measurement invariance forms) needs to be established prior to conducting cross-cultural comparisons. Factorial invariance occurs when the factor loadings of all items on the same constructs (i.e. latent variables) are equivalent across groups. This type of invariance is a prerequisite condition that needs to be established prior to conducting cross-cultural comparisons. If factorial invariance cannot be established, the psychometric conditions of the measurement are not invariant across groups. Therefore, the conclusions of cross-cultural comparisons related to consumer vanity scales 'are at best ambiguous and at worst erroneous' (Steenkamp and Baumgartner, 1998, p. 78).

A MGCFA using LISREL 8.3 was performed to test the measurement invariance of the 21-item, four-factor model of consumer vanity. According to Mullen (1995), MGCFA is preferred because it offers the most comprehensive diagnosis of measurement invariance as compared with other methods by allowing one to explore 'whether the respondents relate observed measures to latent constructs the same way in different populations' (p. 581).

Factorial invariance, one of the measurement invariance forms, was assessed using procedures suggested by Joreskog and Sorbom (1993). An unconstrained model (Model 1) was first developed which was used as a baseline in a subsequent analysis. The unconstrained model involves the assessment of factor structure invariance across samples (except for the items fixed to 1.00 to identify the model) (see Fig. 1). At this level, the consumer vanity scale was examined to see whether the 21-item, four-factor scale of consumer vanity is applicable to these three samples; that is, indicators should load on the factor in a similar pattern across samples. The results revealed that the unconstrained model (Model 1) yielded a reasonable fit to the data, $\chi^2 = 1992.07$, d.f. $= 549$, $\chi^2/\text{d.f.} = 3.63$, TLI $= 0.88$ and CFI $= 0.90$.
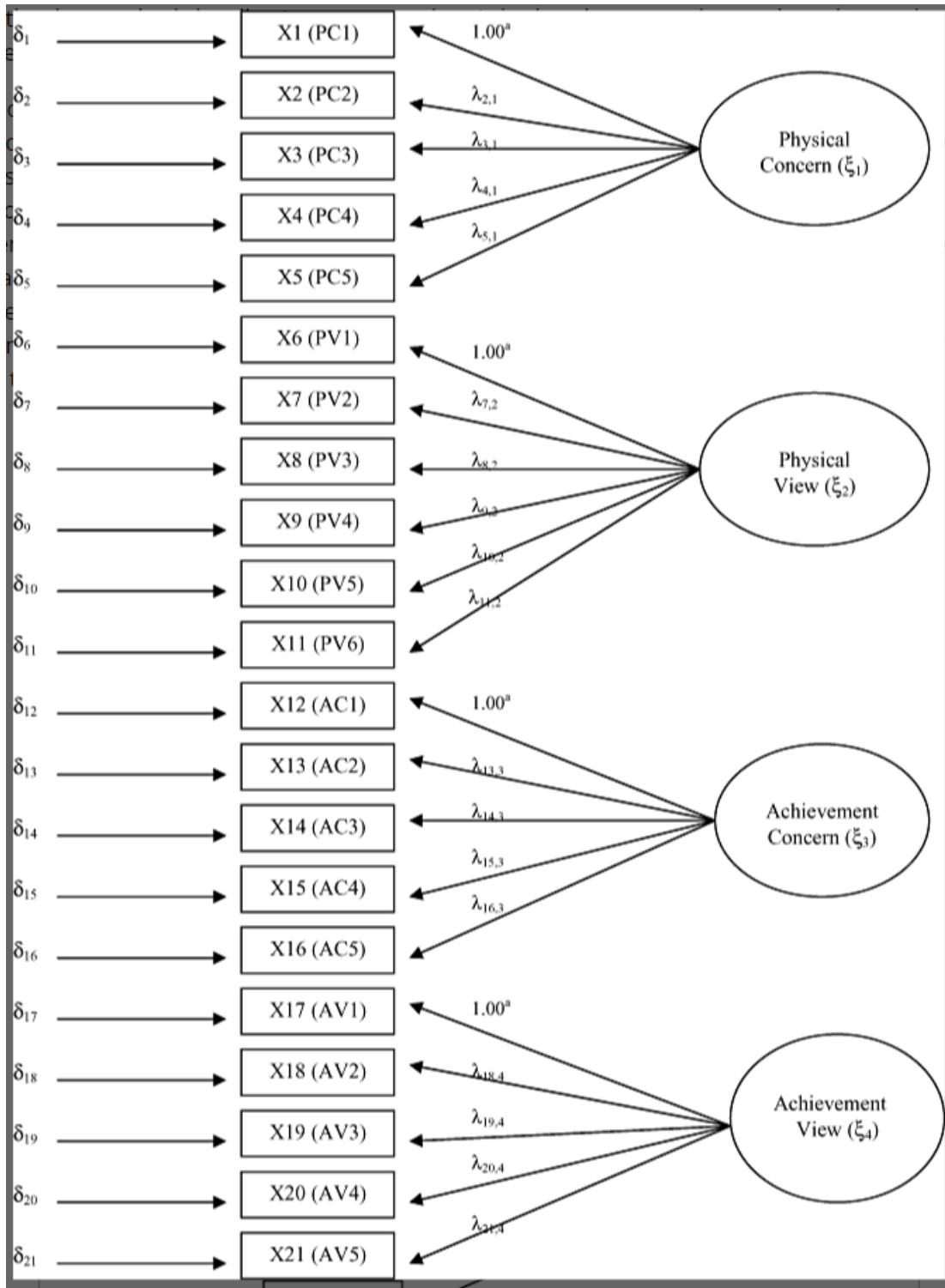
Figure 1. Measurement model for vanity. [a] Factor loadings fixed at 1.00 for identification purpose.

Table 2. Results of partial factorial invariance tests for vanity across three groups

Competing models	χ^2	d.f.	$\Delta\chi^2$	Δd.f.
1. Four vanity factors invariant	1992.07	549	–	–
2. All factor loadings invariant	2132.29	583	140.22***	34
3. Factor loadings on PC (ξ_1) invariant	2046.01	557	53.94***	8
3.1 With $\lambda_{2,1}$ invariant	1992.28	551	0.21	2
3.2 With $\lambda_{3,1}$ invariant	1994.59	551	2.52	2
3.3 With $\lambda_{4,1}$ invariant	2013.74	551	21.67***	2
3.4 With $\lambda_{5,1}$ invariant	2027.17	551	35.10***	2
4. Factor loadings on PV (ξ_2) invariant	2025.34	559	33.27***	10
4.1 With $\lambda_{7,2}$ invariant	1995.07	551	3.00	2
4.2 With $\lambda_{8,2}$ invariant	1992.25	551	0.18	2
4.3 With $\lambda_{9,2}$ invariant	2003.75	551	11.68***	2
4.4 With $\lambda_{10,2}$ invariant	1996.05	551	3.98*	2
4.5 With $\lambda_{11,2}$ invariant	1994.05	551	1.98	2
5. Factor loadings on AC (ξ_3) invariant	2025.07	557	33.00***	8
5.1 With $\lambda_{13,3}$ invariant	1992.69	551	0.62	2
5.2 With $\lambda_{14,3}$ invariant	1994.21	551	2.14	2
5.3 With $\lambda_{15,3}$ invariant	1995.61	551	3.54	2
5.4 With $\lambda_{16,3}$ invariant	2003.79	551	11.72***	2
6. Factor loadings on AV (ξ_4) invariant	2014.89	557	22.82**	8
6.1 With $\lambda_{18,4}$ invariant	1993.61	551	1.54	2
6.2 With $\lambda_{19,4}$ invariant	1992.12	551	0.05	2
6.3 With $\lambda_{20,4}$ invariant	1996.78	551	4.71	2
6.4 With $\lambda_{21,4}$ invariant	2008.97	551	16.80***	2

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Table 3. Cross-cultural comparison of vanity scale means

Dimension	Mean			χ^2_{diff} with $df_{diff} = 2$ (dimension-level invariance)	p-Value
	China	South Korea	Thailand		
Physical concern	5.01	5.28	4.69	32.59	<0.00
Physical view	3.37	3.94	3.42	8.03	<0.01
Achievement concern	4.80	5.46	4.94	71.08	<0.001
Achievement view	3.84	3.81	4.07	17.14	<0.001

To examine factorial invariance, the constrained model (Model 2) which involves the assessment of factor loadings invariance across samples was next estimated. In model 1 and model 2, the same pattern of loadings between the items and four subdimensions of vanity was specified (see Fig. 1). The hypothesis of factorial invariance was examined by comparing the differences in χ^2 statistics between Model 1 and Model 2. If the χ^2 differences between these two models are not significant, it suggests that the constrained model (Model 2) fit the data well, indicating that factorial invariance was accepted. The results of the constrained model (Model 2) showed that the increase in χ^2 of Model 2 over Model 1 was significant ($\Delta\chi^2 = 140.22, \Delta\text{d.f.} = 34, P < 0.001$), indicating that the factorial invariance model was rejected (see Table 2). That is, all factor loadings are not invariant across samples.

Researchers argue that in a practical sense, factorial invariance is very difficult to achieve, especially when dealing with multiple groups, suggesting partial factorial invariance (Marsh and Hocevar, 1985; Byrne et al., 1989). Thus, a series of MGCFA models were carried out to determine whether partial factorial invariance can be established (i.e. which latent variables display different factor loadings across groups). The test for factorial invariance of each latent variable was performed separately, resulting in four constrained models being assessed separately. For each constrained model, the factor loadings of one latent variable were constrained to be invariant across groups while allowing the factor loadings of other constructs to vary.

Table 2 revealed that the factorial invariance was rejected for all four latent variables across groups: PC: $\Delta\chi^2 = 53.94, P < 0.001$; PV: $\Delta\chi^2 = 33.27, P < 0.001$; AC: $\Delta\chi^2 = 33.00, P < 0.001$; and AV: $\Delta\chi^2 = 22.82, P < 0.01$. Then, the data were further analysed to determine which items for each latent variable were invariant. For PC, results revealed that $\lambda_{2,1}$ ($\Delta\chi^2 = 0.21, P > 0.05$) and $\lambda_{3,1}$ ($\Delta\chi^2 = 2.52, P > 0.05$) were invariant across groups. For PV, results revealed that $\lambda_{7,2}$ ($\Delta\chi^2 = 3.00, P > 0.05$), $\lambda_{8,2}$ ($\Delta\chi^2 = 0.18, P > 0.05$) and $\lambda_{11,2}$ ($\Delta\chi^2 = 1.98, P > 0.05$) were invariant across groups. For AC, results revealed that $\lambda_{13,3}$ ($\Delta\chi^2 = 0.62, P > 0.05$), $\lambda_{14,3}$ ($\Delta\chi^2 = 2.14, P > 0.05$) and $\lambda_{15,3}$ ($\Delta\chi^2 = 3.54, P > 0.05$) were invariant across groups. And for AV, results revealed that $\lambda_{18,4}$ ($\Delta\chi^2 = 1.54, P > 0.05$), $\lambda_{19,4}$ ($\Delta\chi^2 = 0.05, P > 0.05$) and $\lambda_{20,4}$ ($\Delta\chi^2 = 4.71, P > 0.05$) were invariant across groups. As there only six items of the total 21 were not invariant, it is concluded that partial factorial invariance was established. The partial factorial invariant model showed an adequate fit to the data ($\chi^2 = 2024.95, \text{d.f.} = 571, \text{TLI} = 0.89$ and CFI $= 0.90$). Also, the increase from the partial factorial invariant model over the unconstrained model was not significant ($\Delta\chi^2 = 32.88, \Delta\text{d.f.} = 22, P > 0.05$).

Latent means comparisons

With an establishment of partial factorial invariance of the consumer vanity scale, this implies that cross-cultural comparisons of latent means are meaningful (Drasgow and Kanfer, 1985; Byrne et al., 1989). Latent means comparisons were performed using CFA. For example, for the PC, $\lambda_{4,1}$ and $\lambda_{5,1}$ were found to be not invariant across groups; latent means were compared by allowing these two items to vary while the other loadings in the PC construct were constrained to be invariant across groups. Table 3 revealed that, for the PC scale, the model yielded an inferior fit value as compared with the partial factorial invariance model ($\Delta\chi^2 = 32.60, \Delta\text{d.f.} = 2, P < 0.001$). Thus, it is assumed that the mean of the PC was significantly different across groups. Similarly, the models for PV, AC and AV also yielded an inferior fit value when compared with

the partial factorial invariance model (PV: $\Delta\chi^2 = 8.03, \Delta d.f. = 2, P < 0.01$; AC: $\Delta\chi^2 = 71.08, \Delta d.f. = 2, P < 0.001$; and AV: $\Delta\chi^2 = 17.14, \Delta d.f. = 2, P < 0.001$ respectively). Thus, it is assumed that the means for PV, AC and AV were significantly different across groups.

The data were further examined to identify which group means differ from others on all four vanity subscales. Thus, a series of pair-wise mean difference tests were performed. Results revealed that for PC, South Koreans (M = 5.28) scored significantly higher than their Chinese (M = 5.01) and Thai (M = 4.69) counterparts (t = 2.89, P < 0.05; t = 6.58, P < 0.05 respectively). In addition, Chinese participants scored significantly higher than their Thai counterparts (t = 3.45, P < 0.05). Such findings imply that while South Koreans tended to display higher concern for their physical appearance than Chinese and Thai participants, Thai participants tended to have the least concern for their physical appearance. For PV, South Koreans (M = 3.94) also scored significantly higher than their Thai (M = 3.42) and Chinese (M = 3.37) counterparts (t = 5.50, P < 0.05; t = 5.93, P < 0.05 respectively). However, no significant difference was found between Thai and Chinese participants on this dimension (t = −4.28, P > 0.05). Thus, this implies that South Koreans were more likely to pay attention to their own appearance than Thai and Chinese participants, whereas Thai and Chinese participants did not differ in paying attention to their own appearance.

Regarding AC, South Koreans (M = 5.46) scored significantly higher than their Thai (M = 4.94) and Chinese (M = 4.80) counterparts (t = 5.60, P < 0.05; t = 6.97, P < 0.05 respectively). However, no significant difference was found between Thai and Chinese participants related to this dimension (t = −1.35, P > 0.05). This implies that while South Koreans were more concerned about their personal achievements than Thai and Chinese participants, Thai and Chinese participants did not differ in their concerns regarding their achievements. Finally, for AV, Thai participants (M = 4.07) scored significantly higher than their South Korean (M = 3.84) and Chinese (M = 3.81) counterparts (t = −3.05, t < 0.05; t = −2.25, t < 0.05 respectively). However, no significant difference was found between South Korean and Chinese participants related to this dimension (t = −0.46, t > 0.05). Thus, this implies that Thai participants tended to pay more attention to their personal achievements than their South Korean and Chinese counterparts, whereas South Korean and Chinese participants tended to view their personal achievements on a similar level.

Discussion and implications

Despite the soundness of the psychometric condition established in the current study, a major concern regarding the importance of measurement invariance issues in cross-cultural setting has been addressed (Poortinga, 1989; Mullen, 1995; Steenkamp and Baumgartner, 1998; Durvasula et al., 2001). With evidence of partial factorial invariance, consumer vanity scales are applicable to other countries, or at minimum with these three East Asian college student groups. Given the rise of globalization of consumer culture, having valid and useful measures such as these becomes very important, especially in a global arena with a more integrated marketplace. Furthermore, the current study provides evidence of non-invariant items/dimensions identification (i.e. items PC4, PC5, PV3, PV4, AC5 and AV5) which was not fully addressed in Durvasula et al.'s (2001) study. These six non-invariant items may also suggest that consumers from these three East Asian countries may interpret these items in a different light. Thus, the identification of non-invariant

items/dimensions is important to help cross-cultural researchers further determine which, if any, items/dimensions are needed for revision/modification.

Like Sarthou (2004) and Savage (2005), who reported that, although East Asian consumers tend to adopt a Western-style concept of consumer vanity (e.g. cosmetic surgery), there are some differences between them, this current study found that there are indeed differences among these three Confucian societies with respect to the four dimensions of vanity: PC, PV, AC and AV. For example, Korean consumers are more concerned about their physical appearances than their Chinese and Thai counterparts. Concern regarding physical appearance among Koreans is also reflected in how they pay attention to their own physical attractiveness as compared with Chinese and Thai consumers. In addition, Thai consumers pay more attention to their personal achievements than their Korean and Chinese counterparts. Such findings tend to suggest that while Korean consumers are more likely to focus on physical appearances (both concerns and perceptions) and to express concerns about personal achievements as compared with Chinese consumers, the self-concept related to AV is more pronounced among Thai consumers as compared with the other two groups. These findings may also suggest that 'standardized marketing strategies' should be performed with caution despite common shared values among these three East Asian consumers. Instead, global marketers may consider alternative 'localized marketing strategies' when expanding to these East Asian markets.

In general, the findings of the current study suggest a shared degree of consumer vanity established in these three East Asian countries. Thus, global marketers need to develop and execute different marketing products/services and advertising strategies that reflect the consumer vanity concept across cultures. Such a concept of consumer vanity may enhance the understandings of academics, practitioners and consumer educators in terms of consumers' values and self-concept that material possessions and physical beauty may signify. In addition, these findings also help consumer educators in other countries better understand how consumers in these countries may alter their self-esteem through the internalization of Western images and lifestyles, which may consequently help consumers improve the quality of their lives.

Limitations and future research

As with most research, this study is subject to limitations. The use of a student sample may limit the generalizability of results, despite the appropriateness of the sample for the study. Future researchers may consider using a less homogeneous, non-student sample. Also, examining the differences between those generations who are most influenced by Western culture (e.g. teenagers) and those who are least influenced (e.g. baby boomers) may provide interesting findings. In addition, given the partial factorial invariance, consumer vanity scales are subject to future validation using different samples from other countries in order to assure the confidence of a valid instrument. In addition, overall the statistics indicate a sufficient, but not strong, case for the construct reliability and validity of the scale. As Steenkamp and Baumgartner (1998) stated, when measures of association between variables are compared across groups, measurement reliabilities should 'be the same so that measurement artifacts do not bias the substantive conclusion' (p. 82). Future research may need to replicate this study by adding measurement error equivalence as an indicator of measurement reliability.

Also, some measures displayed low factor loadings of items in particular sample group (e.g. items PC4 and PC5 assessing PC in Chinese sample) that might cause one to question the construct validity. However, special care needs to be taken when deciding whether items with low

factor loadings should be eliminated as this practice tends to be atheoretical. It is also important to acknowledge the trend of having large values of chi-squares when using large sample sizes and the other fit indicators seem to meet the minimum standard for acceptability. Replication of this study is certainly needed before generalizing results. Longitudinal studies should be considered due to the impact of globalization. Last, the use of the consumer vanity concept in conjunction with other types of values (e.g. personal values) and other predictive constructs (e.g. self-concept, willingness to have cosmetic surgery, intention to consume healthy diet, etc.) may enhance our understandings of global consumer cultures.

References

Anderson, J.C. & Gerbing, D.W. (1988) Structural equation modeling in practice: a review and recommended two-step approach. Psychological Bulletin, 103, 411–423.

Bagozzi, R.P. & Phillips, L.W. (1982) Presenting and testing organizational theories: a holistic construal. Administrative Science Quarterly, 27, 459–489.

Bagozzi, R.P., Yi, Y. & Phillips, L.W. (1991) Assessing construct validity in organizational research. Organizational Science Quarterly, 36, 421–458.

Berscheid, E. & Walster, E. (1974) Physical attractiveness. In Advances in Experimental Social Psychology (ed. by L. Berkowitz), Vol. 7. Academic Press, New York.

Brislin, R.W. (1980) Translation and content analysis of oral and written materials. In Handbook of Cross-Cultural Psychology (ed. by H.C. Triandis & J.H. Berry), pp. 389–444, Allyn and Bacon, Inc., Boston, MA.

Brown, M.W. & Cudeck, R. (1993) Alternative ways of assessing model fit. In Testing Structural Equation Model (ed. by K.A. Bollen & J.S. Long), pp. 136–162. Sage, Newbury Park, CA.

Buunk, B.P., Vanyperen, N.W., Taylor, S.E. & Collins, R. (1991) Social comparison and the drive upward revisited: affiliations as a response to marital tress. European Journal of Social Psychology, 21, 529–546.

Byrne, B.M., Shavelson, R.J. & Muthen, B. (1989) Testing for the equivalence of factor covariance and mean structures: the issue of partial measurement invariance. Psychological Bulletin, 105, 456–466.

Caballero, M.J., Lumpkin, J.R. & Madden, C.S. (1989) Using physical attractiveness as an advertising tool: an empirical test of the attraction phenomenon. Journal of Advertising Research, 29, 16–22.

Calder, B.J., Phillips, L.W. & Tybout, A.M. (1981) Designing research for applications. Journal of Consumer Research, 8, 197–207.

Cheng, H. & Schweitzer, J.C. (1996) Cultural values reflected in Chinese and U.S. television commercials. Journal of Advertising Research, 36, 27–45.

Chirapravati, V. (1996) The blossoming of advertising in Thailand. In Advertising in Asia: Communication, Culture, and Consumption (ed. by K.T. Frith), pp. 223–240, Iowa State University Press, Ames, IA.

Davis, H.L., Douglas, S.P. & Silk, A.J. (1981) Measure unreliability: a hidden threat to cross-national marketing research. Journal of Marketing, 108, 98–108.

Debevec, K., Madden, T.J. & Kernan, J.B. (1986) Physical attractiveness, message evaluation, and compliance: a structural examination. Psychological Reports, 58, 503–508.

DeShields, O.W. Jr, Kara, A. & Kaynak, E. (1996) Source effects in purchase decisions: the impact of physical attractiveness and accent of salesperson. International Journal of Research in Marketing, 13, 89–101.

Deshpande, R., Farley, J.U. & Bowman, D. (2004) Tigers, dragons, and others: profiling high performance in Asian firms. Journal of International Marketing, 12, 5–29.

Dickey-Bryant, L., Lautenschlager, J., Mendoza, L. & Abrahams, N. (1985) Facial attractiveness and its relation to occupational success. Journal of Applied Psychology, 71, 16–19.

Douglas, S.P. & Craig, C.S. (1983) International Marketing Research. Prentice Hall, Englewood Cliffs, NJ.

Douglas, M. & Isherwood, B. (1996) The World of Goods. Routledge, New York, NY.

Drasgow, F. & Kanfer, R. (1985) Equivalence of psychological measurement in heterogeneous populations. Journal of Applied Psychology, 70, 662–680.

Durvasula, S., Lysonski, S. & Watson, J. (2001) Does vanity describe other cultures? A cross-cultural examination of the vanity scale. Journal of Consumer Affair, 35, 180–199.

Fan, J. & Xiao, J. (1998) Consumer decision-making styles of young-adult Chinese. Journal of Consumer Affairs, 32, 275–294.

Fornell, C. & Larcker, D.F. (1981) Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18, 39–50.

Glain, S. (1993) Cosmetic surgery goes hand in glove with the new Korea – what would Confucius say about the Westernization of eye, nose, and breast? Wall Street Journal (eastern edition), 23 November, p. A1.

Griffen, M., Babin, B.J. & Modianos, D. (2000) Shopping values of Russian consumers: the impact of habituation in a developing economy. Journal of Retailing, 76, 33–52.

Hofstede, G. (1980) Culture's Consequences: International Differences in Work-Related Values. Sage, Newsbury Park, CA.

Hofstede, G. & Bond, M.H. (1988) The Confucius connection: from cultural roots to economic growth. Organizational Dynamics, 16, 4–21.

Horn, J.L. & McArdle, J.J. (1992) A practical and theoretical guide to measurement invariance in aging research. Experimental Aging Research, 18, 117–144.

Hu, L. & Bentler, P.M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural Equation Modeling, 6, 1–55.

Hult, T.G., Kandemir, D., Keillor, B.D., Lages, C.R. & Lages, L.F. (2004) Think global, act local in global service marketing. Marketing News, 38, 29–30.

Jin, B. & Sternquist, B. (2003) The influence of retail environment on price perceptions: an exploratory study of US and Korean students. International Marketing Review, 20, 643–660.

Joreskog, K.G. & Sorbom, D. (1993) LISREL 8 User's Reference Guide. Scientific Software International, Chicago, IL.

Kim, K.K. (1996) Advertising in Korea: international challenges and politics. In Advertising in Asia: Communication, Culture, and Consumption (ed. by K.T. Frith), pp. 125–153. Iowa State University, Ames, IA.

Kim, S. & Jin, B. (2002) Validating the retail service quality scale for US and Korean customers of discount stores: an exploratory study. Journal of Services Marketing, 16, 223–237.

Kleck, R.E., Richardson, S.A. & Ronald, L. (1974) Physical appearance cues and interpersonal attraction in children. Child Development, 45, 305–310.

Lee, J.S.Y., Yau, O.H.M., Chow, R.P.M., Sin, L.Y.M. & Tse, A.C.B. (2004) Changing roles and values of female consumers in China. Business Horizon, 47, 17–22.

Lee, S., Ho, P. & Hsu, L.K.G. (1993) Fat phobic and non-fat phobic anorexia nervosa: a comparative study of 70 Chinese patients in Hong Kong. Psychological Medicine, 23, 999–1017.

Marsh, H.W. & Hocevar, D. (1985) Application of confirmatory factor analysis to the study of self-concepts: first- and higher-order factor models and their invariance across groups. Psychological Bulletin, 97, 562–582.

Martin, M.C. & Gentry, J.W. (1997) Stuck in the model trap: the effects of beautiful models in ads on female pre-adolescents and adolescents. Journal of Advertising, 26, 19–33.

Mason, R.S. (1981) Conspicuous Consumption. St. Martin's Press, New York, NY.

Miller, A.G. (1970) The role of physical attractiveness in impression formation. Psychonomic Science, 19, 241–243.

Moore, M., Kennedy, K.M. & Fairhusrt, A. (2003) Cross-cultural equivalence of price perceptions between US and Polish consumers. International Journal of Retail and Distribution Management, 31, 268–279.

Mullen, M. (1995) Diagnosing measurement equivalence in cross-national research. Journal of International Business Studies, 26, 573–596.

Netemeyer, R.G., Burton, S. & Lichtenstein, D.R. (1995) Trait aspects of vanity: measurement and relevance to consumer behavior. Journal of Consumer Research, 21, 612–626.

Nunnally, J.C. & Bernstein, I.H. (1994) Psychometric Theory. McGraw-Hill, New York, NY.

Ohanian, R. (1991) The impact of celebrity spokespersons' perceived image on consumers' intent to purchase. Journal of Advertising Research, 31, 46–53.

Park, I.H. & Cho, L.-J. (1995) Confucianism and the Korean family. Journal of Comparative Family Studies, 26, 117–134.

Peter, J.P. (1979) Reliability: a review of psychometric basics and recent marketing practices. Journal of Marketing Research, 16, 6–17.

Poortinga, Y.H. (1989) Equivalence of cross-cultural data: an overview of basic issues. International Journal of Psychology, 24, 737–756.

Poortinga, Y.H. & Malpass, R.S. (1986) Making inferences from cross-cultural data. In Field Methods in Cross-Cultural Research (ed. by W.J. Lonner & J.W. Berry), pp. 17–46. Sage, Beverly Hills, CA.

Richins, M.L. (1991) Social comparisons and idealized images of advertising. Journal of Consumer Research, 18, 71–83.

Richins, M.L. (1995) Social comparison, advertising, and consumer discontent. American Behavioral Scientist, 38, 593–607.

Roth, M.C. (1995) The effects of culture and socioeconomics on the performance of global brand image strategies. Journal of Marketing Research, 32, 163–175.

Sarthou, C. (2004) Vanity, thy name is man. Business World, 27 December, p. 1.

Savage, M. (2005) Male vanity triggers new brand prospects. Media, 14 January, Hong Kong, p. 5A.

Steenkamp, J.-B.E.M. & Baumgartner, H. (1998) Assessing measurement invariance in cross-national consumer research. Journal of Consumer Research, 25, 78–90.

Tai, S.H.C. & Tam, J.L.M. (1997) A comparative study of Chinese consumers in Asian markets – a lifestyle analysis. Journal of International Consumer Marketing, 9, 25–42.

Terpstra, V. & David, K. (1991) The Cultural Environment of International Business. Southwestern, Cincinnati, OH.

Wang, P.Z. & Waller, D.S. (2006) Measuring consumer vanity: a cross-cultural validation. Psychology and Marketing, 23, 665–687.

Wheaton, M., Muthen, B., Alwin, D.F. & Summer, G.F. (1977) Assessing reliability and stability in panel models. In Sociological Methodology (ed. by D.R. Heise), pp. 84–136. Jossey-Bass, San Francisco.