Does Vanity Describe Other Cultures?: A Cross Cultural Examination of the Vanity Scale

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Does Vanity Describe Other Cultures? A Cross-Cultural Examination of the Vanity Scale

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Abstract

Vanity is a psychological construct that describes a person's excessive concern with physical appearance or achievement. A scale, recently developed to measure this construct, has been psychometrically validated using data from U.S. respondents. The goal of this paper is to determine if this scale can be used cross-culturally. If the scale has cross-cultural applicability, it can be used as a counseling device to guide and alert individuals to certain tendencies. The scale also can be used to track foreign cultures as they adopt a consumerism ethos more aligned to Western consumer culture. Based on data from 475 young adults in China, India, New Zealand, and the U.S., the scale was found to have similar dimensionality and factor structure, internal consistency, discriminant validity, and metric invariance. Implications and future directions for research are discussed.

As economies develop and prosper, social transformations seem to alter the mentality of consumers. For example, in the early 1950s, Riesman (1951) suggested that members of U.S. society were becoming less inner-
directed and more other-directed in needing the approval of others. A widely used instrument was later developed that could measure the inner- and other-directed nature of individuals (Barban et al. 1970; Kassarjian 1965). At the end of the 1970s, Christopher Lasch (1978) warned that American society was increasingly tending toward narcissism, which appears to be a form of vanity. Lasch's warning became an impetus for the development of the scale to measure narcissism, the Narcissistic Personality Inventory (Raskin and Terry 1988). Recently, more discussion has been given to the presence of vanity in American culture. For example, Newsweek reported that cosmetic surgery for vanity reasons is increasing dramatically not only for aging baby boomers but also for teenagers as well (Kalb 1999). Preoccupation with vanity, therefore, may signal a significant change among some consumers in society.

Such traits as inner-directedness or vanity should be of interest to consumer affairs specialists because these traits can influence motives of consumers in the marketplace and affect personal levels of well-being. The goal of this research is to examine the applicability of a scale to measure vanity in other cultures. In fact, a more basic question presents itself: Does vanity exist in the same form or structure as it does in the U.S.? Presently a way of measuring vanity has been developed, but its extension to other countries is unknown. Knowing the extent to which vanity is emerging in other countries is important. Such knowledge permits a better understanding of the evolving dynamics of other societies. Furthermore, the ability to measure vanity can serve as a counseling tool to guide or counsel individuals much like the use of personality tests or the consumer decision making style questionnaire that that has been examined cross culturally (Durvasula, Lysonski, and Andrews 1993; Fan and Xiao 1998).

The outline of this paper is as follows. First, the background on the vanity concept and its connection to globalization is explored. Next, details are provided about the methodology, including sample selection and the multivariate techniques used. After the results are reported, implications, conclusions, and future research avenues are discussed.

THE VANITY CONCEPT AND GLOBALIZATION

Rampant globalization is spreading a materialistic ideology throughout the world particularly in developing economies. In its wake, even villagers and common people are being transformed into modern-day consumers. Some suggest that global consumer cultures are emerging with shared sets of consumption-related symbols that relate to product categories, brands, and consumption activities (Terpstra and David 1991). As consumers increasingly identify with consumer culture, their levels of vanity also are likely to change. One major force in the creation, learning, and sharing of these various consumption symbols is the mass media, coming predominantly from the U.S. For example, Appardurai (1990) argues that such media gives a repertoire of images that encourage global consumers to participate in the cosmopolitan consumer culture; from these media "scripts can be formed of imagined lives, their own as well as others living in other places" (299). An example of this change can be found in Japan where skillful marketing by Japanese cosmetic companies is encouraging Japanese young men to become more vain about their appearance in terms of trimming their eyebrows and using cosmetics (Ono 1999).

Walker (1996) also notes the power of mass media in creating global consumption symbols, particularly MTV which reached over 230 million viewers in sixty-eight countries in 1996. Walker (1996) suggests that the penetration of television across the planet is producing a global culture of consumption or a global mall. As such, it is likely that, just as vanity seems to be increasing in the U.S., it is increasing in other parts of the world under the influence of the adoption of consumer culture. Parenthetically, another cross-cultural investigation has found materialism to be neither unique to the West nor directly related to affluence (Ger and Belk 1996).
Vanity has received very little attention in the consumer behavior or consumer affairs literature even though vanity has been a ubiquitous theme in Western societies and in advertising. Vanity is a concept that has been discussed for thousands of years. Aristotle stated that the vain have a blown up self-image, but they are not worthy of it. Hume (1951) said “Vanity is rather too esteem’d as a social passion, and a bond of union among men.” Rarely has the concept been cast in a favorable light, frequently being related to conceit, arrogance, boastfulness, haughtiness, and priggishness (Chakrabarti 1992). Christian morality quite clearly regards it as a vice. Discourse on vanity can be found in disciplines as diverse as linguistic anthropology (cf. Kovecses 1986), economics (cf. Hackner and Nyberg 1996), poetry (cf. Johnson 1993), and even consumer research (cf. Netemeyer, Burton, and Lichenstein 1995).

Vanity seems to sell as we can witness by looking at television or print ads; entire industries rely on our quest for physical beauty, such as sales of dieting-related products (with over $50 billion in sales) and the cosmetic industry (with over $18 billion in sales annually). Defining its exact meaning is subject to some interpretation. Yet, investigation in the way the term is used in social sciences, such as sociology, philosophy, and psychology and in the dictionary, suggests that there are two basic themes related to vanity: physical appearance and achievement. Netemeyer, Burton, and Lichtenstein (1995) define physical vanity as “an excessive concern for, and/or a positive (and perhaps inflated) view of, one’s physical appearance,” while achievement vanity is “an excessive concern for, and/or a positive (and perhaps inflated) view of, one’s personal achievements” (612).

The forces generating vanity for an individual or society are not easy to identify. Some theorists claim that vanity is a primary (biogenic) drive rather than a secondary (psychogenic) one, and that it is a personality trait influenced by social pressures or influences. Mason (1981), however, argues that vanity is a secondary trait, much like conspicuous consumption. As such, vanity seems to be influenced by the social and economic environment prevailing in a country. In this context, Riesman (1950) would likely agree that socialization by the overall cultural system of a society shapes a person’s nature. It can also be argued that even Adam Smith and Thorsten Veblen viewed specific socioeconomic conditions, such as a community’s cultural values as a contributor to a person’s vanity in seeking higher personal status and prestige within a community (Mason 1981).

The idea of physical vanity is easy to comprehend. There is a strong emphasis on outward appearance in Western culture, especially in the U.S. (Bar-Tel and Saxe 1976; Bloch 1993; Franzoi and Herzog 1987; Netemeyer, Burton, and Lichenstein 1995; Richins 1991). Television programs, magazines, and advertising include media that provide the public with a constant stream of beautiful women and handsome men. This media spreads such imagery throughout the world. Peirce (1990) analyzed the ideology constructed in Seventeen magazine and suggested that appearance is one of the primary concerns of a teenage girl. Petrie et al. (1996) found that the number of messages aimed toward men concerning physical fitness and health in the popular press have increased over the past thirty years, as has the general popularity of health and fitness activities. Numerous products are advertised based on claims of enhancing one’s appearance and/or the benefits associated with being considered physically attractive (Solomon 1985, 1992).

In American culture, noteworthy importance is given to one’s physical prowess. Means to achieve perfection in one’s physical being are found in articles discussing dieting, cosmetic surgery, use of steroids, clothing, and cosmetics, among others. Such concern for physical attractiveness, however, can result in harmful consequences to the individual, not only physically (e.g., eating disorders), but also psychologically (e.g., distorted self-concept leading to aberrant behavior).

Within academe, studies have reported that physical attractiveness is positively related to benefits such as increased social popularity and power, as well as increased self-esteem (Adams 1977; Goldman and Lewis 1977; Jackson, Sullivan, and Hymes 1987; Krantz 1987). Feingold (1992) concluded that attractive people are perceived
to be "more sociable, dominant, sexually warm, mentally healthy, intelligent, and socially skilled than unattractive people" (304). Several studies have shown that the biases toward attractive people begin in childhood (cf. Clifford and Walster 1973). Given the substantial benefits of attractiveness in our culture, it is not surprising that many individuals become highly concerned with their appearance and pursue greater physical attractiveness (Bloch 1993). Attractiveness does not come without its drawbacks, however. In his discussion of the attractiveness stereotype, Bassili (1981) notes that although subjects "assume that good looks are instrumental to leading a socially and sexually exciting life, this lifestyle is marred by vanity and self-centeredness" (italics added, 237).

Achievement vanity can be observed in American culture when consumers use consumption as a means of conveying success, status, or conspicuous consumption (Dholakia and Levy 1987). Material possessions then become a way of documenting the success of personal achievement.

These dimensions have considerable importance in consumer affairs because the advertising industry positions products on the basis of consumers' desires to make themselves more physically attractive or to show off their achievement to others. Furthermore, those studying ethics and public policy might ponder the social consequences when commercialism is used to broadcast the desirability of vanity.

Given the importance of understanding the vanity construct, Netemeyer, Burton, and Lichtenstein (1995) developed a scale to measure its sub-dimensions using American subjects. Development of the scale followed a careful psychometric process of item generation and purification of the final instrument. The instrument was later subjected to tests for dimensionality, internal consistency, and construct validity. Finally, the instrument was tested on three different groups of consumers who were likely to have variation in their scores on vanity. The three groups consisted of 267 members of the 1991 Who's Who Directory, twenty-seven members of a nationally ranked NCAA Division I football team, and forty-three female fashion models from a nationally known modeling agency. In summary, the instrument was found to have strong psychometric properties.

For the scale to be used in other countries and cultures, it is necessary to test its cross-cultural applicability. The goal of this study is to analyze the psychometric soundness of this scale in diverse cultures and to see if the structure of the vanity concept applies to these other cultures.

**METHODOLOGY**

**About the Sample**

To examine the cross-cultural applicability of this scale, data were collected from four countries, of which two represent Western culture (U.S. and New Zealand) and two represent Eastern culture (China and India). The basic cultural differences and physical distances among these countries allows for a rigorous test to determine if the scale can be applied to other countries and if vanity has a similar structure in diverse cultures. The U.S. and New Zealand have highly developed economies that can be described as postindustrial with a large middle class possessing considerable purchasing power. In contrast, China and India represent developing economies that have made significant strides in opening up their economies to foreign investment. A middle class is now emerging in these two countries. Consumers in these countries have access to global media (e.g., CNN, MTV, STAR TV of Rupert Murdoch) and, therefore, exposure to the Western culture/practices. Given these globalizing influences, consumers are likely to develop desires similar to those in consumer-oriented cultures such as the U.S.

The samples were specifically chosen based on their comparable demographic characteristics because this is a prerequisite when examining the cross-cultural validity of measurement scales. Otherwise, it is difficult to determine whether those scales are truly invariant; problems related to scale applicability are confounded with
differences in sample characteristics (Steenkamp and Baumgartner 1998). Sample comparability can be achieved by matching the samples on certain characteristics of interest (Douglas and Craig 1983; Irvine and Carroll 1980; Sekaran 1983). In an effort to enhance the homogeneity or comparability of respondents, young educated adults were sampled across the four countries. Young adults are most likely to be in touch with modern media and with contemporary consumer trends. Hence, they are most likely to have been influenced by Western consumer culture and, therefore, be participants in the global consumer culture. All subjects were in the age group of nineteen to twenty-six with a median age of twenty-two years. Of the 475 total respondents, 170 were in New Zealand, 110 each in India and China, and 85 in the U.S. The sample consisted roughly of half men and half women.

About the Measures and Questionnaire Administration
Although the vanity construct can be considered a single variable, it does have four specific sub-dimensions according to Netemeyer, Burton, and Lichtenstein (1995), which were measured as follows: (1) physical concern (5 items), (2) physical view (6 items), (3) achievement concern (5 items), and (4) achievement view (5 items). Exhibit 1 describes the items measuring the two physical vanity subscales and the two achievement vanity subscales.

Exhibit I Items Comprising the Vanity Scale

**Physical-Concern Items**
1. The way I look is extremely important to me.
2. I am very concerned about my appearance.
3. I would feel embarrassed if I was around people and did not look my best.
4. Looking my best is worth the effort.
5. It is important that I always look good.

**Physical-View Items**
1. People notice how attractive I am.
2. My looks are very appealing to others.
3. People are envious of my good looks.
4. I am a very good-looking individual.
5. My body is sexually appealing.
6. I have the type of body that people want to look at.

**Achievement-Concern Items**
1. Professional achievements are an obsession with me.
2. I want others to look up to me because of my accomplishments.
3. I am more concerned with professional success than most people I know.
4. Achieving greater success than my peers is important to me.
5. I want my achievements to be recognized by others.

**Achievement-View Items**
1. In a professional sense, I am a very successful person.
2. My achievements are highly regarded by others.
3. I am an accomplished person.
4. I am a good example of professional success.
5. Others wish they were as successful as me.

Note: All vanity items are scored on seven-point strongly disagree to strongly agree scales.

The questionnaire was administered in English to those in the U.S., New Zealand, and India (because the Indian group was also fluent in English). Because Mandarin is the most popular language in China, the questionnaire was translated by a bilingual expert into Mandarin. A back translation process was used to make this translation to assure that the questions had similar meaning as the English version (Triandis 1972). This version of the
questionnaire was then administered to the Chinese subjects. None of the respondents in any of the countries expressed any difficulty in responding to the survey instrument when it was administered.

Multivariate statistical procedures were used to examine the data. Consistent with data analytic procedures for assessing the cross-national applicability of consumer behavior scales (cf. Durvasula et al. 1993; Steenkamp and Baumgartner 1998), three aspects of the vanity subscales were examined: dimensionality, internal consistency, and discriminant validity.

RESULTS

The validity of the vanity scale was assessed using covariance structure analysis of the data. All of the analyses are based on covariance matrices. In order to establish the cross-national applicability of the scale, it is necessary to show that the scale has measurement invariance across the countries, exhibits internal consistency and has discriminant validity. The strength of the vanity scale’s cross-national properties depends on the degree of its measurement invariance (i.e., invariance of factor structure, invariance of scale metric and invariance of factor correlated error variance). Several confirmatory factor analyses, performed at the multiple group (or cross-national) level, provided the basis for evaluating the vanity scale’s cross-national properties.

Equality of Covariance Matrices and Mean Vectors

As suggested by Steenkamp and Baumgartner (1998), the first step in assessing the cross-national validity of the twenty-one-item vanity scale is to determine whether covariance matrices and mean vectors are similar (or invariant) across the countries. In the event that they are invariant, then data can be pooled across the countries and separate country analyses need not be performed. As shown in Table 1, the $\chi^2$ fit of the model, where both the covariance matrix and the mean vector are invariant across the samples, is 2131.79 (756 df., $p < .05$), indicating a lack of fit for this model.

Because $\chi^2$ is affected by sample size, it is necessary to examine several other fit indices that have been widely used to evaluate measurement scales in cross-national research (cf. Durvasula et al. 1993; Netemeyer, Durvasula, and Lichtenstein 1992; Steenkamp and Baumgartner 1998). These are Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Root-Mean-Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), and the $\chi^2$/df ratio. Among them, the CFI and TLI are considered better measures of model fit (Bentler 1990) as they are relatively less affected by sample size. For adequate fit, high GFI and TLI values, and CR1 values in the high .80 range and above are needed with a RMSEA value of less than .1 and $\chi^2$/df ratio of 3 or less (Brown and Cudeck 1993; Hu and Bentler 1995; Netemeyer, Durvasula, and Lichtenstein 1991). Some have even recommended fit values of .95 and RMSEA values of .06 or less for a good fit (Hu and Bentler 1999). Because GFI, CFI, and TLI are all less than .8 and the RMSEA value is .11, it can be concluded that the model of invariant covariance matrices and mean vectors is not supported. Further, the model where only the covariance matrices are considered to be invariant ($\chi^2 = 1795.46$, 693 df., RMSEA =.1) and the model where only the mean vectors are considered to be invariant ($\chi^2 =291.60$, 63 df., RMSEA=.14) also do not fit the data well. Together, these results imply that neither the covariance matrices nor the mean vectors can be pooled across the countries. The configural invariance model is then estimated and used as the basis for comparing other more restricted vanity scale models.

Table 1 Multiple Group Analysis of the Vanity Measure (Four-Factor Correlated Model).

<table>
<thead>
<tr>
<th></th>
<th>$\chi^2$ value</th>
<th>df</th>
<th>rmsea</th>
<th>prob. (rmsea &lt;.05)</th>
<th>GFI</th>
<th>CFI</th>
<th>TLI</th>
<th>$\chi^2$/df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equality of $\Sigma$ and $\mu$</td>
<td>2131.79</td>
<td>756</td>
<td>.11</td>
<td>.04</td>
<td>.79</td>
<td>.71</td>
<td>.68</td>
<td>2.82</td>
</tr>
<tr>
<td>Equality of $\Sigma$</td>
<td>1795.46</td>
<td>693</td>
<td>.11</td>
<td>.23</td>
<td>.80</td>
<td>.77</td>
<td>.72</td>
<td>2.59</td>
</tr>
<tr>
<td>Equality of $\mu$</td>
<td>291.60</td>
<td>63</td>
<td>.14</td>
<td>.05</td>
<td>.99</td>
<td>.95</td>
<td>.36</td>
<td>4.63</td>
</tr>
<tr>
<td>Configural invariance</td>
<td>1537.58</td>
<td>732</td>
<td>.09</td>
<td>.74</td>
<td>.82</td>
<td>.83</td>
<td>.81</td>
<td>2.10</td>
</tr>
<tr>
<td></td>
<td>Full metric in variance</td>
<td>Scalar invariance</td>
<td>Partial scalar invariance</td>
<td>Factor variance invariance</td>
<td>Factor covariance invariance</td>
<td>Error variance invariance</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square</td>
<td>1606.65</td>
<td>1902.38</td>
<td>1758.01</td>
<td>1790.80</td>
<td>1833.57</td>
<td>2609.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>783</td>
<td>834</td>
<td>813</td>
<td>825</td>
<td>843</td>
<td>906</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMSEA</td>
<td>.09</td>
<td>.09</td>
<td>.09</td>
<td>.09</td>
<td>.09</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRMR</td>
<td>.81</td>
<td>.78</td>
<td>.79</td>
<td>.79</td>
<td>.79</td>
<td>.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFI</td>
<td>.81</td>
<td>.79</td>
<td>.80</td>
<td>.80</td>
<td>.79</td>
<td>.64</td>
<td></td>
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<td>AIC</td>
<td>2.05</td>
<td>2.28</td>
<td>2.16</td>
<td>2.17</td>
<td>2.18</td>
<td>2.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Configural (or Factor Structure) Invariance
The hypothesized model of vanity, as proposed by Netemeyer, Burton, and Lichtenstein (1995), consists of four vanity subscales (i.e., physical concern, physical view, achievement concern, and achievement view), which are assumed to be separate, yet correlated. The basic or minimum requirement for the vanity measure to be invariant cross-nationally is to show that the hypothesized four-factor correlated model provides a good fit across the countries. That is, items of the scale must exhibit significant nonzero loadings on salient factors and zero loadings on non-salient factors (Horn and McArdle 1992). For example, the five-item subscale measuring physical concern must have significant and nonzero loadings on the physical concern factor and zero loadings on all other factors. Similarly, items measuring other scales must have nonzero loadings on their respective factors and zero loadings on all other factors.

In addition, the four sub-dimensions of the vanity scale must exhibit discriminant validity by showing that each of the correlations among the subscales is below unity. If the fit of this model, based on confirmatory factor analysis results, is acceptable, then the vanity scale has the same factor structure cross-nationally, and it has configural invariance.

As shown in Table 1, the hypothesized model has a $\chi^2$ value of 1537.58 (732 df., $p < .05$), which is statistically significant. However, Table 1 shows that all the other fit indices are indeed above .80. The RMSEA value is .09, and the p-value for the test of close fit (i.e., RMSEA < .05) is .74. Further, the $\chi^2$/df ratio is 2.1. In summary, based on various fit indices, it can be concluded that the hypothesized four-factor correlated model fits the data adequately.

Another indication of the strength of the hypothesized model is the item factor loading scores. All of the item loadings are significant ($p < .05$) on their respective salient factors. Out of a total of eighty-four factor loadings across the countries, eighty-one of the (within-country) standardized loadings (i.e., 96%) exceeded .6. These results, again, suggest that the hypothesized model fits the data adequately across the samples. Tests for discriminant validity were performed next on the hypothesized model. For this purpose, the $\phi$ estimates (i.e., correlations among the four vanity scales) and the associated standard errors are reported in Table 2. These $\phi$ estimates range from .19 to .54 in New Zealand, .07 to .66 in the U.S., .26 to .61 in India, and .20 to .59 in China. For any pair of vanity subscales to be distinct and possess discriminant validity, the confidence interval around these $\phi$ values (i.e. $\phi + 2 \times$ std. error) should not contain a value of 1. Judging from the $f$ values and the associated standard errors, this is indeed true for the various pairs of vanity subscale correlations. In addition, across the four samples, for any pair of vanity subscales, the square of the $f$ value is less than the average variance extracted estimate for each of those vanity scales (as shown in Table 3). In summary, these two tests support the discriminant validity of the four vanity subscales (Fornell and Larcker 1981).

Based on the analyses above, the hypothesized model fits the data well cross-nationally, with significant and nonzero factor loadings on salient factors and zero loadings on non-salient factors. Discriminant validity tests indicate that correlations among the four vanity subscales are significantly below unity. Hence, the factor structure for the vanity measure is similar (i.e., invariant) across the countries and has configural invariance.
### Table 2 Factor Correlations and (Standard Errors)

<table>
<thead>
<tr>
<th></th>
<th>Physical Concern</th>
<th>Physical View</th>
<th>Achievement Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>.41 (.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>.07 (.13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>.61 (.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>.59 (.09)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievement Concern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>.25 (.08)</td>
<td>.29 (.08)</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>.57 (.10)</td>
<td>.07 (.13)</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>.54 (.09)</td>
<td>.49 (.09)</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>.50 (.11)</td>
<td>.29 (.11)</td>
<td></td>
</tr>
<tr>
<td>Achievement View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>.19 (.08)</td>
<td>.51 (.07)</td>
<td>.54 (.07)</td>
</tr>
<tr>
<td>United States</td>
<td>.24 (.12)</td>
<td>.31 (.11)</td>
<td>.66 (.08)</td>
</tr>
<tr>
<td>India</td>
<td>.26 (.10)</td>
<td>.54 (.08)</td>
<td>.47 (.09)</td>
</tr>
<tr>
<td>China</td>
<td>.37 (.11)</td>
<td>.59 (.08)</td>
<td>.20 (.11)</td>
</tr>
</tbody>
</table>

### Metric Invariance

The configural invariance reported above indicates that the factor structure is similar across the countries, but it does not imply that consumers in those countries respond to the items in the same way. A stronger test for measurement invariance is to show that the scale has metric invariance. This test demonstrates whether cross-national consumer responses to various scale items can be meaningfully compared. If a single-scale item exhibits metric invariance, then it has similar scale intervals for all four countries. Hence, different scores on each item can be meaningfully compared among the countries. If the entire scale, consisting of various items, is metrically invariant, then cross-national difference scores on the scale indicate corresponding cross-national differences on the underlying construct (cf. Rock, Werts, and Falugher 1978; Steenkamp and Baumgartner 1998).

Metric invariance can be established by showing that factor loadings of the scale items are invariant (or same) cross-nationally. Analogous to beta coefficients in regression analysis, the factor loadings show how changes in observed scores are related to corresponding changes in scores of the underlying construct.

### Table 3 Measures of Internal Consistency for Vanity Subscale

<table>
<thead>
<tr>
<th></th>
<th>Physical Concern</th>
<th>Physical View</th>
<th>Achievement Concern</th>
<th>Achievement View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>.85</td>
<td>.91</td>
<td>.84</td>
<td>.87</td>
</tr>
<tr>
<td>United States</td>
<td>.81</td>
<td>.85</td>
<td>.76</td>
<td>.90</td>
</tr>
<tr>
<td>India</td>
<td>.80</td>
<td>.85</td>
<td>.76</td>
<td>.84</td>
</tr>
<tr>
<td>China</td>
<td>.67</td>
<td>.80</td>
<td>.71</td>
<td>.86</td>
</tr>
<tr>
<td>Average Variance Extracted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>.54</td>
<td>.63</td>
<td>.51</td>
<td>.58</td>
</tr>
<tr>
<td>United States</td>
<td>.45</td>
<td>.so</td>
<td>.39</td>
<td>.65</td>
</tr>
<tr>
<td>India</td>
<td>.45</td>
<td>.so</td>
<td>.39</td>
<td>.52</td>
</tr>
<tr>
<td>China</td>
<td>.30</td>
<td>.41</td>
<td>.33</td>
<td>.55</td>
</tr>
</tbody>
</table>
Table 1 shows the fit indices of the hypothesized model when constraining the factor loadings to be invariant (or same) across the four samples. The fit of this model, as indicated by the $\chi^2$ statistics, is 1606.65 (783 df). The $\chi^2$ difference in fit between this model, and the configural invariance model is 69.07 (51 df.). Based on the extrapolated value from the $\chi^2$ distribution table of 69, this difference is barely significant at [alpha] of .05. This test shows that the full metric invariance model provides an equally good fit as compared to the configural invariance model. When comparing the fit of alternative models, Marsh (1994) suggested that other measures of fit be examined such as GFI, CFI, and TLI. The results in comparing the GFI, CR, and TLI are similar to those for the configural invariance model and remained unchanged. The RMSEA of .09 with a nonsignificant p-value for close fit of .81 is also within the acceptable range. Collectively, these fit indices suggest that the more restrictive metric invariance model for the vanity measure fits the data equally well.

Scalar Invariance
Mean comparisons on the vanity scale can only be performed if it can be shown that the scale exhibits scalar invariance (Meredith 1993). As suggested by Steenkamp and Baumgartner (1998), when scalar invariance exists, then cross-national differences in means of the observed items can be attributed to differences in the underlying vanity scale measures. Scalar invariance was tested for by examining the fit of the model, where the vector of item intercepts (i.e. $t$) is made invariant across the samples. The fit of this model is 1902.38 (834 df.). This model provides an inferior fit of the data as compared to the full metric invariance model ($\chi^2$ difference = 285.73, 51 df., $p < .05$). While the RMSEA of .09 (p-value for test of close fit = .24) and $\chi^2$/df ratio of 2.28 suggest an adequate fit, both CFI and TLI are slightly below .79. In summary, these results provide mixed support for the scalar invariance model. Next, a partial scalar invariance model was tested by releasing the in variance constraint on some of the intercepts. This partial scalar invariance model has a $\chi^2$ fit of 1758.01 (813 df.). The difference in fit is significant ($p < .05$) when compared to both the configural invariance model and the full metric invariance model. However, GFI, CFI, and TLI are all .80 or higher. RMSEA of .09 (p-value for test of close fit = .69) and $\chi^2$/df ratio of 2.16 suggest that the partial scalar invariance model provides an adequate fit of the data.

Employing the partial scalar invariance model as a basis, then, the mean comparison test was performed. The model that assumed invariance of factor means for the four vanity subscales yielded a $\chi^2$ fit of 1835.32 (825 df.). This fit is significantly inferior to the partial scalar invariance model ($\Delta \chi^2 = 77.71, df. = 12, p < .05$) where the factor means are freely estimated. This result implies that the mean values of the four vanity subscales are indeed different across the cross-national samples.

Factor Covariance Invariance and Error Variance Invariance
For a measurement scale to be equally reliable across the countries, it must be shown that factor loadings, factor covariances, and error variances are all invariant or the same across the countries. Factor loading invariance has already been established by showing that the hypothesized model has cross-national metric invariance. Table 1 shows the fit of the model where factor variances were constrained to be invariant. The $\chi^2$ fit of this model is 1790.80 (825 df.). The fit indices, such as GFI, CFI, and TLI, are .80. The $\chi^2$/df ratio is 2.17. The RMSEA value is .09, and the p-value for test of close fit (RMSEA <.05) is .68. These results indicate that the model, where vanity subscale variances are assumed to be invariant across the samples, provides an adequate fit of the data.

To establish factor covariance invariance, another confirmatory factor analysis was performed, where factor covariances were also constrained to be the same across the countries. The $\chi^2$ fit of this model is 1843 (843 df). The difference in fit between this model and the configural invariance model as well all other models is significant ($p < .05$), implying that this model, with a higher $\chi^2$ value, provides an inferior fit. However, the other fit indices (e.g., GFI, CFI, and TLI) have a value of .79. The RMSEA index of .09 is within the acceptable range.
value for test of close fit = .64), and the \( \chi^2/df \) ratio of 2.18 is considered acceptable. Based on these fit indices, support for invariance of vanity subscale covariances is mixed.

Finally, an examination was performed to determine whether the error variances of the vanity measure are also invariant across the samples. The \( \chi^2 \) fit of the error variance invariance model, where factor loadings, factor covariances, and error variances are assumed to be the same across the countries, is 2609.02 as shown in Table 1. As compared to the factor covariance invariance model, the difference in fit is 775.45 (63 df., p < .05), which is rather large. The other fit indices (GFI, CFI, and TLI) are also noticeably low, and the RMSEA value of .12 also indicates a poor fit. Only the \( \chi^2/df \) ratio is within the acceptable range. Hence, based on the fit indices as a whole, the assumption of error variance invariance is not supported.

In summary, results of various multiple group analysis suggest there is adequate support for configural invariance, metric invariance, partial scalar invariance, and factor variance invariance. There is mixed support for factor covariance invariance but not for error variance invariance. When evaluating the fit of various models, GFI, CFI, and TLI values above .90 or even .95 indicate stronger model fit (Hu and Bentler 1999). It must be noted, however, that over-parameterized models with large degrees of freedom, such as the ones examined in this study, are likely to obtain only adequate levels of fit (Podskoff and MacKenzie 1994). Further, high levels of fit are difficult to obtain when evaluating scales with five or more items per subscale (Floyd and Widaman 1995). This is indeed true in the present study where the number of items per vanity subscale range from five to six.

Establishment of (partial) scalar invariance is the minimum condition necessary for making practical mean comparisons on the scale cross-nationally. Therefore, while the vanity construct can be conceptualized similarly across the countries and scale differences meaningfully compared cross-nationally, it cannot be assumed that the scale items are equally reliable across the countries.

Internal Consistency

Even though the vanity measure does not possess equally reliable items across the countries, it does not tell the extent to which the four vanity subscales are reliable in each of the four countries. To assess internal consistency of the four vanity scales, composite reliability estimates were computed from the confirmatory factor analysis output. These estimates are considered to be analogous to coefficient alpha (Fornell and Larcker 1981) and are shown in Table 3. A reliability estimate of .7 is regarded as the minimum necessary value for acceptable scale reliability.

An examination of the four samples shows that only one reliability estimate (i.e., reliability of physical concern subscale in China) was slightly below the acceptable level. Twelve of the sixteen reliability estimates (i.e., 75%) are above .8. For all four vanity subscales, all of the item loadings are significant (p < .05). A total of eighty-one out of eighty-four (within-country) standardized factor loadings exceeded .6.

The average variance extracted values in Table 2 indicate the average variance extracted from each vanity subscale by the hypothesized model. These estimates are generally .5 or above for the physical view and achievement view subscales, with relatively lower values for the physical concern and achievement concern subscales. In summary, the results shown in Table 5 suggest that the four vanity scales have relatively acceptable internal consistency (reliability) estimates, with physical view and achievement view subscales exhibiting relatively stronger reliability estimates (i.e., above .8) with higher average variance extracted values.

Mean Comparisons

The multiple group analyses discussed above show that the vanity measure, comprising the four subscales, has partial scalar invariance. Partial scalar invariance implies that the difference scores on the scales can be
meaningfully compared across the countries (Steenkamp and Baumgartner 1998). The multivariate mean test, which assumed invariance of factor means across the samples, provided an inferior fit as compared to the partial invariance model, where the means were freely estimated. The next step is to determine whether the mean of each subscale is different across the samples, and, if so, which sample's mean is different from the mean of the other samples. Table 4 shows the results of various mean comparison tests. It is clear that the model, which assumes invariance of means for the physical concern scale, yields a fit value that is inferior to the partial scalar invariance model (Δχ² = 21.45, df. = 3, p < .0001). Hence, it can be assumed that the mean of the physical concern scale is significantly different across the four samples. Likewise, it can be seen from Table 4 that the means of the other vanity scales also exhibit significant cross-national differences (p < .005).

Table 4 Cross-National Comparison of Vanity Scale Means

<table>
<thead>
<tr>
<th>Base Model: Partial Scalar Invariance</th>
<th>Mean Values</th>
<th>U.S.(b)</th>
<th>India(c)</th>
<th>China(d)</th>
<th>Δχ²(3df.)</th>
<th>Mean val. Invariant</th>
<th>prob&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanity Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Concern</td>
<td>2.63bc</td>
<td>2.61cd</td>
<td>2.14abd</td>
<td>2.52abc</td>
<td>21.45</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Physical View</td>
<td>3.91bc</td>
<td>3.65</td>
<td>3.61ad</td>
<td>3.87c</td>
<td>14.24</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>Achievement Concern</td>
<td>3.37c</td>
<td>3.41cd</td>
<td>2.88ab</td>
<td>3.13b</td>
<td>16.83</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Achievement View</td>
<td>3.61bd</td>
<td>3.22acd</td>
<td>3.62bd</td>
<td>4.04abc</td>
<td>25.65</td>
<td>.0001</td>
<td></td>
</tr>
</tbody>
</table>

Note. For any vanity scale, italicized letters next to any country's mean value indicate the other countries' means from which this mean differs at alpha= .05, as indicated by Bonferroni pairwise mean comparison tests. For example, the mean physical concern score for India is 2.63. This mean is significantly different (p < .05) from the mean physical concern scores for New Zealand (or N.Z.), United States (or U.S.), and China.

To identify which country's means differ from the others for the four vanity subscales, several pair-wise mean difference tests were performed, and the χ² fit values were compared. For example, the model where the mean of the physical concern scale was assumed to be the same for the U.S. and New Zealand sample provided a χ² fit value of 1759.35. This fit is not significantly different from the partial scalar invariance model where the two means were freely estimated (Δχ² 1.34, df. = 1, p > .05). Hence, it can be assumed that for the physical concern subscale, the U.S. and the New Zealand samples do not have significantly different mean values. The results in Table 4 show that the means for the physical concern subscale for New Zealand (2.63), U.S. (2.61), and China (2.52) are significantly higher (p < .05) than that for India (2.14). This implies that the Indian sample shows much less concern for its physical appearance. The results for the achievement view sub-dimension show interesting differences. The Chinese sample has the highest mean (statistically different) compared to the other groups, while the U.S. sample has the lowest significantly different mean. In summary, these results demonstrate definite differences among the vanity sub-dimensions among the four countries.

CONCLUSION

The results of this investigation are conclusive in demonstrating that the vanity scale is directly applicable to the four countries examined. The findings based on multiple-group analyses correspond closely to those reported by Netemeyer, Burton, and Lichenstein (1995). The scale, therefore, appears to be useful in both Eastern and Western cultures. Adequate support for metric invariance and partial scalar invariance also exists, implying that ratings on the vanity scales can be meaningfully compared. The factor variances among the vanity scales are also invariant across the countries. Only the error terms are not invariant, implying that the scales do not possess the
same reliability levels across the countries. However, the composite reliability estimates do support internal consistency of the vanity scales.

The mean comparisons tests show significant mean differences on the vanity measure for physical concern, physical view, achievement concern, and achievement view scales. Further, the mean physical view and achievement view scores are higher than those for physical concern and achievement concern.

Because the samples used for this study are not representative of all the consumers in each country, issues of generalizability need to be addressed. Younger generations of Asian and East Indian consumers have experienced a very different socialization process than older generations because of radical changes in the economic environment. Before the economic reforms in 1978 in China, Western media had much less influence than today. Moreover, advertising was drastically limited and consumers had few opportunities to express themselves through achievements and material acquisitions. After the introduction of economic reforms in 1978, younger generations were exposed to more Western style advertising and the consumerism mentality. Younger generations in China are reported to be more likely to seek advertised and brand name products unlike older generations who ignore advertisements and brand names (Fan and Xiao 1998).

In India prior to 1990, the economy was much more insulated from the West. Television was controlled by the state-owned station Doordarshan, and the consumerist mentality was not as evident as it is today when CNN, BBC, and Star TV are the most popular television networks. Hence, younger generations have been exposed to Western consumerism practices that may have had a bigger impact on their development compared to older generations who were enculturated during a different economic era in India. Suffice it to say that in both India and China, there may be rather large differences between generations in vanity, given the metamorphosis that has occurred in the marketing environment.

The findings of this study have implications for consumer education. The study found that there were differences and commonalities in the levels of vanity expressed by the young respondents. These variations may illustrate consumer behavior differences among the cultures. The variations may also be due in part to the dynamics of economic development. It is likely that young adults in China and India have high aspiration levels in wishing to join the modern consumption lifestyle—a lifestyle that was once unattainable in these countries, given their, heretofore, less developed status. The perspectives these young adults see today in Western media, such as American movies and advertisements, give them images to emulate. These images may encourage them to express their identities through achievements and physical appearance. Will younger generations in India and China develop more vanity as their countries' economies grow and as more of them wish to join the global consumer culture discussed above? Will there be a desire for elective cosmetic surgery in these countries as they adopt some of the consumer values of postindustrial American society? These are just a few questions that are relevant to consumer affairs.

The instrument examined in this paper allows future researchers to examine vanity in other countries and among other groups with the confidence of knowing that the instrument is valid. Longitudinal studies of various segments in these countries using the vanity instrument can help to explain the changing mentality of consumers on an important dimension. Knowing that excessive vanity can be harmful, appropriate and effective consumer educational materials for Asian and East Indian consumers can be developed. Raising consciousness is the first step in educating consumers. Use of the vanity instrument can give an individual insight into his or her own behavior and applies well to the dictum by Socrates, "Know thyself."

The authors would like to acknowledge the helpful feedback provided by Richard G. Netemeyer, Louisiana State University, and an anonymous reviewer of JCA.
ENDNOTE

(1.) To get around this problem, Kishton and Widaman (1994) used item parcels in place of the original set of items. This possibility was tested by running a partial disaggregated model. This was accomplished by adding items to form summed indicators. For example, three items of physical view subscale were summed to form one indicator and the other three items to form another indicator, and likewise for physical concern, achievement view, and achievement concern. As a result, the four-factor model will have two measures per factor, respectively. Bagozzi and Heatherton (1994) provided the rationale behind this approach along with examples. Employing the eight-item partial disaggregated vanity scale model, the researchers have reanalyzed the data. The fit indices are now much higher and more supportive of the model fit. With the exception of the error variance invariance model, all other models provide a better fit with GFI, CFI, and TLI being above .9.

REFERENCES


