

Segmentation of culturally diverse visitors' values in forest recreation management

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Abstract

The purpose of this study was to examine the potential utility of HOFSTEDE's measure of cultural values (1980) for group segmentation in an ethnically diverse population in a forest recreation context, and to validate the values segmentation, if any, via socio-demographic and service quality related variables. In 2002, the visitors to the Angeles National Forest (ANF) near metropolitan Los Angeles were surveyed. Using a systematic convenience sampling at sites known to be heavily used by visitors with diverse ethnic backgrounds, we obtained a sample of 444 Anglos, 312 Hispanics, and 319 Asians (overall N = 1174). We first attempted to confirm Hofstede's four cultural dimensions of values in the context of forest recreation. Given the poor fit of the data to the original four-dimensional cultural values model, we used exploratory factor analysis to find interpretable dimensions of cultural values in the data. We found three dimensions which we labeled Hierarchical Beliefs, Uncertainty Avoidance, and Femininity. We then used K-means cluster analysis to identify homogeneous groups of respondents based on similar responses to the cultural values dimensions and their age. The results showed that respondents can be segmented into three homogeneous groups, which we labelled Modernist, Mixed, and Postmodernist, based on Inglehart's Modernization and Postmodernization values. Socio-demographics, service quality, satisfaction, and behavioral intentions variables were used to validate and test for variations across segments. The findings provided evidence in support of the cross-cultural values scale's ability to identify distinct market segments. The findings and management implications are discussed.

Keywords: segmentation, culturally diverse visitors, values, Hofstede, Inglehart, forest recreation

1 Introduction

Recreation visitors to national forests are not all alike. Visitors with different values may have different expectations and needs, and have to be treated in different ways and be provided appropriate services. Culture (e.g., language, religion, values and the like) is a mental program that distinguishes members of a society and includes what the group thinks and does (HOFSTEDE 1980). Most definitions of culture use values as their core (ROKEACH 1973). Cultural values are the form of things that people have in mind, their models for

perceiving, relating, and otherwise interpreting them (GOODENOUGH 1957). Cultural values can provide potentially powerful explanations of visitor behaviour because they are inner- and central-oriented within a person's cognitive system, remarkably stable over time and serve as standards of conduct (MCFARLANE and BOXALL 2000; KAHLE *et al.* 1986; RAY 1997; ROKEACH 1973; SCHWARTZ 1975). In other words, cultural values may be crucial determinants of variation in recreation participation (PIZAM and CALANTONE 1987; WILLIAMS 2003; SCHWARTZ and BRISKY 1987). It has also been demonstrated that cultural values were significantly related to socio-demographics, perceptions of service quality, satisfaction and behavioural intentions in a park and recreation context (Li 2003, unpublished doctoral dissertation; Li *et al.* 2007b).

Marketing applications have used values as the criterion to examine distinct market segments for dividing the population into homogeneous groups of individuals for specific targets (e.g., BOOTE 1981, 1983; KAMAKURA and NOVAK 1992; MADRIGAL and KAHLE 1994). Research has suggested the usefulness of combining socio-demographics (e.g., age, gender, education) and cultural values as criteria of segmentation for product development, promotions and resource distribution (LI *et al.* 2003; ROSSMAN 1994). It has been common in marketing field and been of prominence when applying values segments to durable goods and lifestyle-defining activities, such as books, vacation travel, and leisure activities (BOOTE 1981; JOHNS and GYIMOTHY 2002; KENDY *et al.* 1988; MULLER 1991; RAY 1997; SHOEMAKER 2000). For example, MADRIGAL (1995) used a convenience sample of tourists to differentiate the List of Values (KAHLE *et al.* 1986) on travel types and found that independent travelers were significantly differentiated from group travellers by internal values such as self-fulfillment and accomplishment. On the other hand, the values of being well-respected and having warm relationships with others significantly differentiated group travellers. KAMAKURA and NOVAK (1992) again used the List of Values to differentiate segments based on a national probability sample of 1406 individuals. Their results showed that the values system of subjects can be divided into four segments including security motivated, maturity motivated, achievement motivated, and enjoyment motivated segments. Furthermore, the authors related these four segments to higher-order values constructs: three dimensions including hedonism, empathy, and achievement.

HOFSTEDE (1980) and his colleagues established four dimensions of national cultural values: Power distance, Individualism, Masculinity, and Uncertainty avoidance. Power distance describes the distribution of "power" among individuals and groups in society, and how inequalities in power are dealt with in these societies. Individualism is defined as a situation where ties between individuals are loose. Masculinity relates to an achievement, competition, and materialism orientation and the emotional characteristics that often dominate a particular society. Uncertainty avoidance focuses on intolerance of risk and the level of stress people express over an unknown future. Hofstede's cross-cultural study of values is now one of the most widely used among international management and marketing scholars. Studies have shown Hofstede's cultural measure to be generalizable across multiple contexts and societies (e.g., FURRER *et al.* 2000; MATTILA 1999). Moreover, CLARK (1990) argued that Hofstede's measure might account for many cultural differences among individuals, suggesting that it might also prove useful for assessing ethnic differences in forest recreation settings. INGLEHARD (1977, 1997) also studied cross-cultural values via the World Values Survey. They found differences in the emphasis placed on traditional gender roles versus gender equality, the importance of maximizing economic success versus maximizing subjective well-being, achievement versus individual autonomy, and emphasizing versus de-emphasizing traditional legal and religious authority. They characterized these differences along a continuum from what they termed "modernist" through "mixed" to "postmodernist" values.

Because culturally diverse populations have varying values, and values influence preferred behaviours (CHICK 1998, 2000; ZINN *et al.* 2002; ZINN and PIERCE 2002), it is important to study values among increasingly diverse populations in a variety of contexts. Without appropriate values segmentation, management of culturally diverse customers could become ineffective and inefficient. It is also essential for managers to understand the diverse values of customers they serve so as to provide niche services and management to their customers. Overall, we contend that differences in culture would be reflected in differences in ethnicity and use values to operationalize culture in framing this paper. Therefore, the purposes of this study are twofold: a) to examine the potential utility of HOFSTEDE's measure of cultural values (1980) for group segmentation in an ethnically diverse population in a forest recreation context, and b) to validate the values segmentation, if any, via socio-demographic and service quality related variables.

2 Method

2.1 Sampling

In 2002, the visitors to the Angeles National Forest (ANF) near metropolitan Los Angeles were surveyed. Because a simple random sample of all visitors would not efficiently yield adequate respondents of diverse ethnic groups, an on-site survey was administered at ANF sites frequented by ethnically diverse populations¹. The sampling sites were chosen in consultation with USDA Forest Service officers, on-site Forest Service rangers and volunteers, as well as through a literature review of previous studies about ethnic diversity in southern California (e.g., CARR and WILLIAMS 1992, 1993; CHAVEZ 2001). Eventually, 14 out of the 22 sites known to be heavily used by visitors of diverse ethnic backgrounds were identified and used in the sampling procedures².

We adopted a systematic convenience sampling approach; that is, at each site, every third visitor was asked to complete the on-site questionnaire (LI *et al.* 2007a; SALANT and DILLMAN 1994). A total of 1332 visitors were approached, 154 of whom declined or were unable to participate in the on-site survey. Of the 1178 informants who responded, four survey questionnaires were incomplete. This resulted in 1174 usable surveys, with a net response rate of 88 percent. Overall, 38 percent were white ($n = 444$), 27 percent Hispanic ($n = 312$), 27 percent Asian ($n = 319$), and 8 percent "other" including African-American, American-Indian, "other", and missing values ($n = 97$)³.

¹ The use of verbal surveys to determine "values" and preferences is a very common practice. Researchers need to acknowledge the limitations of this paradigm (KUMAR 1999).

² About 90 percent of the survey responses came from three developed sites close to Los Angeles metropolitan area in the ANF. At sampling sites further from the urban edge, fewer visitors were encountered, especially on weekdays. The racial makeup of the Los Angeles county is 48.71 % White, 11.95 % Asian, and 4.94 % from two or more races. In addition, 44.56 % of the populations are Hispanic or Latino of any race.

³ Most of the survey respondents were hikers, backpackers as well as picnicking and scenic drive visitors, but also including small number of bikers, campers, resort guests, nature center visitors, and cabin owners.

2.2 Respondents characteristics

Respondents were more likely to be male (60 %, $n = 685$) than female (40 %, $n = 460$). They were largely young adults (mean age = 36), with only 5 % 60-years or older. The level of education was fairly high; 81 % ($n = 818$) of the participants had formal education beyond high school, 34 % ($n = 344$) had a college degree, and 24 % ($n = 238$) had a graduate degree. The household incomes were also high; with 54 % ($n = 501$) of the participants having household incomes over \$ 50000, and 26 % ($n = 246$) over \$ 80000. Mean years lived in the U.S. was 18 ($SD = 11.75$). Mean generations in the U.S. was 3 ($SD = 1.33$). Over half of the participants were born in the U.S., and over 20 % were born in Asian countries. More than 70 % ($n = 731$) were employed outside the home, 12 % ($n = 119$) were full-time students, and 14 % ($n = 138$) were full-time homemakers, retired, or others.

2.3 Data analysis

Confirmatory factor analysis (BOLLEN 1989) was applied to confirm the theoretical models of Hofstede's four dimensions of cultural values (i.e., Power distance, Individualism, Masculinity, and Uncertainty avoidance). We used exploratory factor analysis to explore interpretable dimensions of cultural values in the context of forest recreation. K-means cluster analysis (ALDENDERFER and BLASHFIELD 1984) was used to seek whether there were reasonable values segments among respondents. We used Chi-square and analysis of variance to test differences in socio-demographics, service quality, satisfaction, and behavioural intentions across the homogeneous groups derived from cluster analysis.

3 Results

The results from confirmatory factor analysis showed a poor fit of the data to Hofstede's four-dimensional model (Table 1). Given the poor fit of the data to the original four-dimensional cultural values model, we used exploratory factor analysis to find interpretable dimensions of cultural values in the data. We found three cultural values dimensions which we labeled Hierarchical beliefs, Uncertainty avoidance, and Femininity (Table 2). K-means cluster analysis (via SPSS 14.0 software) was used to identify homogeneous groups of respondents based on similar responses to the cultural values dimensions and their age (INGLEHART 1977). The reason we did not incorporate gender into the cluster analysis was that we had employed a Femininity values dimension in the analysis. We found differences in values segments which are consistent with shifts from Modernist toward Postmodernist values described by INGLEHART (1997). Results allowed us to segment respondents into three homogeneous groups labeled Modernist, Mixed, and Postmodernist.

Among the three clusters, the largest number of informants was in the Mixed group (41 percent of the sample). In addition, this segment was the most different from the other two in terms of the three dimensions of cultural values derived from the exploratory factor analysis (Table 3). We are not surprised that the Mixed group was the most numerous due to the diversity of the population in southern California in the U.S. Moreover, while conducting the on-site survey in the ANF, a few respondents asked how they could put themselves in

one or other ethnic category in the questionnaire as they were actually from mixed cultural backgrounds⁴. Other researchers have addressed similar situations with self-ascription to ethnic groups (e.g., SHAULL and GRAMANN 1998). We found that the largest differences occurred between the Modernist and Mixed groups. Compared to the Modernists, the Mixed group was less likely to agree with these three dimensions of cultural values and also tended to be younger.

Socio-demographic, service quality, satisfaction, and behavioural intention variables were used to validate the three values-based segments. Among the socio-demographic variables, gender, formal education, ethnicity, years in the U.S., generations in the U.S., and country of birth were all related to the three segments, but household income was not (Table 4). Furthermore, compared to the Mixed cluster, the Modernists were more likely to perceive high levels of service quality, be satisfied with their forest recreation visits, and have positive behavioural intentions toward national forests (Table 5).

Table 1. Indices statistics of confirmatory factor analysis for Hofstede's 4-dimension model of cultural values. ^a GFI: Goodness of Fit Index; ^b NFI: Normed Fit Index; ^c CFI: Comparative Fit Index; ^d RMR: Root Mean Square Residual.

Acceptable fit rule of thumb: $\chi^2/df = 2$ to 5; GFI ≥ 0.90 ; NFI > 0.90 ; CFI > 0.90 ; RMR = 0.05 to 0.10 (BOLLEN 1989).

Model	χ^2	χ^2/df	GFI ^a	NFI ^b	CFI ^c	RMR ^d
4 items per dimension	1367.16	13.95	0.80	0.70	0.71	0.13

⁴ In the sample, there were 97 respondents who indicated themselves as "other", which accounted for eight percent of the total responses.

Table 2. Reanalysis of Hofstede's cultural values items with exploratory factor analysis.

^a Item scores ranged from 1 (strongly disagree) to 5 (strongly agree). ^b Total variance explained is 52.33 %. Factor 1, Hierarchical beliefs, explained 25.28 %; factor 2, Uncertainty avoidance, explained 17.09 %, and factor 3, Femininity, explained 9.96 % of variance. ^c $n = 788$. Cases were excluded listwise. Principal components extraction and Varimax rotation methods were used. ^d Item deleted due to low and inconsistent factor loadings.

Hofstede's original cultural value dimensions and items ^a	New factors		
	Factor 1 Hierarchical beliefs ^b	Factor 2 Uncertainty avoidance	Factor 3 Femininity
Power distance			
1. Inequalities among people are both expected and desired. ^c	.61	.20	.14
2. Less powerful people should be dependent on the more powerful.	.75	-.00	.12
3. Inequalities among people should be minimized.	.04	.17	.19
4. There should be, and there is to some extent, inter-dependencies between less and more powerful people. ^d	.37	.34	.22
Individualism			
5. Everyone grows up to look after him/herself and his/her immediate family only.	.71	.01	.07
6. People are identified independently of the groups they belong to. ^d	.51	-.00	.43
7. An extended family member should be protected by other member in exchange for loyalty.	.65	.07	.19
8. People are identified by their position in the social networks to which they belong. ^d	.49	.40	-.21
Masculinity			
9. Money and material things are important.	.67	.21	-.08
10. Men are supposed to be assertive, ambitious, and tough.	.75	.18	-.06
11. Dominant values in society are the caring for others and preservation.	.21	.20	.78
12. Both men and woman are allowed to be tender and to be concerned with relationships.	-.07	.44	.70
Uncertainty avoidance			
13. High stress and subjective feeling of anxiety are frequent among people.	.05	.81	.16
14. Fear of ambiguous situations and of unfamiliar risks is normal.	.09	.85	.11
15. Uncertainty is a normal feature of life and each day is accepted as it comes.	.06	.82	.21
16. Emotions should not be shown.	.69	-.10	.15

Table 3. Three-cluster solution of cultural values and age via cluster analysis.

¹ Hierarchical beliefs, Uncertainty avoidance, and Femininity scores ranged from 1 (strongly disagree) to 5 (strongly agree). ² Age in years used as a continuous variable. ³ Group means sharing different superscripts differ significantly at 0.05 level in a post-hoc Scheffe test. *** Significant at the 0.001 level.

	Modernist ³ (n = 287)	Mixed (n = 358)	Postmodernist (n = 230)	F for ANOVA
Hierarchical beliefs ¹	3.6 ^a	2.9 ^b	2.2 ^c	485.0***
Uncertainty avoidance ¹	4.0 ^a	3.1 ^b	4.0 ^a	332.1***
Femininity ¹	4.2 ^a	3.0 ^b	4.0 ^c	369.0***
Age ²	37.7 ^a	34.0 ^b	33.5 ^b	9.8***

Table 4. Comparison of Socio-demographics of Modernist, Mixed, and Postmodernists in the Angeles National Forest.

* Significant at the 0.05 level, ** significant at the 0.01 level, *** significant at the 0.001 level.

¹ For Chi-square test, numbers reported in cells refer to cell percentages. ² Mean with different subscript letter significantly differed at the p = 0.05 level after Scheffe test adjustment. ³ The number showed in the brock indicated the degree of freedom.

Cramer's V was a measure of association, with values 0.10 or less considered weak, between 0.10 and 0.30 moderate, and 0.30 or higher considered strong (TANUR 1977).

Characteristics		Values segments			ANOVA & Chi-square tests ³
		Modernist	Mixed	Postmodernist	
Gender ¹	Female	37	38	51	$\chi^2_{(2)} = 12.57^{**}$, Cramer's V = 0.12
	Male	63	62	49	
Household income ¹	Less than \$ 20000	13	19	14	$\chi^2_{(10)} = 11.32$, Cramer's V = 0.087
	\$ 20000 – \$ 34999	17	16	18	
	\$ 35000 – \$ 49999	17	18	14	
	\$ 50000 – \$ 64999	16	14	11	
	\$ 65000 – \$ 79999	12	12	12	
	\$ 80000 or more	26	21	31	
Formal education ¹	Not complete high school	3	4	2	$\chi^2_{(12)} = 21.39^{*}$, Cramer's V = 0.115
	High school diploma/ GED	12	15	8	
	Technical or business school	5	6	2	
	Some college	15	18	20	
	College degree	35	35	35	
	Some graduate work	5	6	7	
	Graduate degree	25	17	27	
Ethnicity ¹	Whites	28	37	55	$\chi^2_{(4)} = 36.49^{***}$, Cramer's V = 0.150
	Hispanics	35	28	22	
	Asians	37	35	23	
Generation in the US ¹	1 st generation	35	37	21	$\chi^2_{(6)} = 22.71^{***}$, Cramer's V = 0.145
	2 nd generation	24	13	23	
	3 rd generation	18	14	20	
	4 th generation	24	36	36	
Country born ¹	USA	51	60	73	$\chi^2_{(2)} = 24.79^{***}$, Cramer's V = 0.176
	Outside USA	49	40	27	
Years stayed in the US ²	Number of years stayed in USA	15.8 ^a	17.5 ^{ab}	20.1 ^b	F(2, 386) = 3.76 [*]

Table 5. Comparison of perceptions of service quality, satisfaction and behavioural intentions of Modernist, Mixed, and Postmodernists in the Angeles National Forest.

Significant at $p \leq 0.01$; *Significant at $p \leq 0.001$. ¹ Service quality and behavioural intentions index/dimension coded on a 5-point scale from 1 = Strongly disagree to 5 = Strongly agree, while satisfaction index on a 9-point scale from 1 = not at all satisfied to 9 = extremely satisfied. ² Mean with different subscript letter significantly differed at the $p = 0.05$ level after Scheffe test adjustment. ³ Service quality dimension was created by taking the mean of the service quality items within the same dimension; service quality index, by four service quality dimensions; satisfaction index, by three satisfaction items, and behavioural intentions index, by five behavioural intentions items.

Dependent variable Index/dimension ¹	Modernist		Mixed		Postmodernist		F for ANOVA
	Mean ²	SD	Mean	SD	Mean	SD	
Service quality index ³	3.95 _a	.58	3.64 _b	.68	3.77 _c	.57	21.05***
Facilities	3.94 _a	.59	3.64 _b	.72	3.80 _a	.60	17.43***
Service	4.00 _a	.67	3.72 _b	.81	3.87 _{ab}	.74	11.02***
Information	3.86 _a	.72	3.50 _b	.76	3.55 _b	.75	20.59***
Management	4.02 _a	.62	3.69 _b	.74	3.87 _c	.65	19.12***
Satisfaction index	6.94 _a	1.4	6.55 _b	1.5	6.84 _{ab}	1.6	5.72**
Behavioural intentions index	4.20 _a	.54	3.78 _b	.72	4.01 _a	.63	34.73***

4 Discussion

The findings provide evidence that supports measuring cross-cultural values to identify distinct market segments in forest recreation settings. The value profiles found in this study were meaningful enough to offer managers, translating abstract cultural values into actionable portraits on which to base service and product development, communication strategies, and other marketing actions to match different visitor segments' value orientations. In order to target and position these three values segments, the USDA Forest Service personnel should offer services meeting the needs of the different niche markets of diverse forest recreation visitors. For example, the Postmodernists tended to be females, to be white, to have resided longer in the U.S., to agree with Femininity values, disagree with Hierarchical Beliefs values, and to perceive lower service quality in the National Forest. To help the Postmodernist group enjoy the National Forest, managers could design recreation facilities and services to better meet the needs of the Postmodernists (e.g., increase safety information for females by making use of signs, brochures, or emergency telephones, and the presence of Forest Service officers, rangers, and volunteers to reduce the threat of violence, crime and other concerns); encourage the use of persuasive, courteous, non-coercive communication that guides visitors while minimizing hierarchical distance between visitors and Forest Service personnel. Moreover, developing programs employing indirect management that allow visitors to have more friendly and non-enforcement-related interactions with Forest Service personnel and other visitors of different cultural groups may also help reduce cultural values gaps and power distances among Postmodernists, other visitors and officials (LEE *et al.* 2001), leading to enhanced perceptions of service quality, increased customer satisfaction and more positive comments about the agency.

For the Modernists, we suggested more Forest Service officers, rangers, or volunteers should patrol the forest to endorse the management assurance of the park authority because this segment tended to agree with the values of Hierarchical beliefs. Additionally, compared to the other two values segments, the Mixed group tend to perceive the lowest service quality, to be least satisfied with their recreation visit, and to have the lowest positive behavioural

intentions with respect to national forests. Great efforts need to be made to help these under-served visitors (e.g., the Mixed group tended to be the first generation in the US) enjoy their trips so as to promote an environment in which the diverse cultural values of all visitors can be not only accommodated but also be reflective and respected in national forest.

Our results suggest several areas where additional research is needed. First, we found dimensions that differed from Hofstede's when we used his cross-cultural measure of values in the forest recreation context. Our findings suggest that additional testing of other measures of cultural values will be needed. Specifically, we suggest testing KAHLE *et al.*'s List of Values (1986) against Hofstede's and providing appropriate cross-validation of measures in this context (NOVAK and MACEVOY 1990). Second, our findings revealed that there were significant relationships between marketing factors (e.g., service quality, satisfaction, behavioural intentions) and segments based on values. To date, there is little literature based on cultural anthropological approaches to researching customer services in the context of park and recreation. We suggest that further research take advantage of extant research and literature (e.g., LI *et al.* 2007b; MATILA 1999; FURRER *et al.* 2000) and apply the concepts and findings to the park and recreation context so as to better understanding the relationships between cross-cultural values and marketing factors. Third, in order to ensure a highly diverse sample, we employed a systematic selection approach at sites known to be heavily used by visitors with diverse ethnic backgrounds. This meant, of course, our sample was not random. But in practice, the sample effectively approximated a random one as long as the sample units are uniformly distributed over the population. In particular, this approach is easy to use in an outdoor environment (SALANT and DILLMAN 1994). Finally, this study focuses on domestic cultural groups in southern California in the United States; that is, we only include the values of intra-cultural ethnic groups in the sample. We suggest that future research survey individuals from a variety of ethnic and national groups so that more diverse values could be incorporated into the data analysis (SEGAL *et al.* 1993). The findings should provide useful and meaningful insights for values segmentation of diverse visitors in forest recreation.

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5 References

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