

RACE, ETHNICITY, AND INFORMATION USE RELATED TO NATURAL RESOURCE RECREATION

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Abstract

As the demand for natural resource recreation increases, the need to understand how recreationists access information about recreation opportunities is heightened. Information used by recreationists is a critical variable in understanding decision-making. Further, given the increasing racial and ethnic diversification in the U.S., natural resource managers need a better understanding of racial and ethnic patterns in the use of natural resource communications. This study examined the relationship between race, ethnicity and information use related to natural resource recreation. Data for this study were originally collected as part of a statewide study of Texas outdoor recreation sponsored by the Texas Park and Wildlife Department (TPWD). Results indicated that race was the most consistent predictor across the various media, with White, non-Hispanic showing greater likelihood of utilizing the information sources. This suggests that the current TPWD media vehicles are not being significantly used by Hispanics and African Americans when compared to White, non-Hispanics.

1.0 Introduction

Of late, an overriding trend of increasing racial and ethnic diversification pervades the U.S. populace. This dynamism is evidently playing out in Texas. In fact, it is predicted that over the next forty years, there will be a marked upsurge in the minority populace in Texas, particularly in the Hispanic population, while the Anglo population is projected to decline in share of the entire population (Murdock et al. 2003). As such, the need for concomitant changes in the management of natural resource recreation to address the needs of these new stakeholders cannot be over emphasized. As the competitiveness of the management and administrative milieu for natural resource recreation intensifies, attention to strategic marketing efforts becomes of utmost importance (Lee et al. 2002). Manfredro (1989) identified information sources as a pivotal variable in understanding decision-making and choice behavior. The effective use of communication channels is a key factor in fostering increased participation in natural resource recreation. Moreover, the extent to which persons of diverse racial and ethnic backgrounds are being reached through various marketing and communicating strategies should be a prime concern of natural resource recreation managers.

2.0 Background to Study

Research in the realm of information use in natural resource recreation as it relates to race and ethnicity is relatively sparse. Previous research on race, ethnicity and leisure, has tended to be oriented towards examining participation as a dependent variable (e.g. Floyd et al. 1994; Gobster & Delgado 1992; Klobus-Edwards 1981; Washburne 1978), while few studies have focused on information use as the dependent variable (Thapa et al. 2002). Scholars have identified several factors that influence leisure participation among racial and ethnic minorities. For example, Washburne identified marginality and ethnicity as alternative explanations for underparticipation of African Americans in leisure. Additionally, Gobster and Delgado (1992) and West (1989) found that recreation participation among African Americans, Asian Americans and Hispanics was inhibited due to perceived discrimination. Notwithstanding, information use has been overlooked in recreation

research as a dependent variable that may be influenced by race and ethnicity. Little attention has been paid to racial/ethnic differences information use. Thapa et al. (2002) reported that white, non-Hispanic forest recreationists make greater use of available information sources than Hispanics. They also reported that whites also tended to seek information for orientation and educational purposes, while Hispanic information search was oriented toward instrumental purposes (e.g., information about parking, permits and other site/service attributes).

3.0 Purpose of Study

This study sought to determine the extent to which race/ethnicity affects the use of information sources. This preliminary examination studied information sources used by the TPWD. The objective of this study was threefold. First, the study examined the extent to which media sources of the TPWD are being utilized. Second, the extent and nature of information use among various racial and ethnic groups was explored. Third, the effect of race on information use, when controlling for other variables including age, gender, education, income and population size, was investigated.

4.0 Methods

4.1 Sample

Data for this study were drawn from a statewide telephone survey of the Texas population. A regional stratified random sample comprising Texas residents aged 16 and older was obtained. The sample was stratified based on the ten State Comptroller's economic regions. The rationale for this stratification was based on the notion that the ten State Comptroller's economic regions provide geographically-specific data for various ecological and socioeconomic areas in Texas (see Thomas and Adams 1998 for further details on study methods). Further, the sample reflected the ethnic diversity of the state. A total of 3,000 completed interviews were conducted from March 1 to April 30, 1998. The sample was apportioned such that each region would have 300 respondents. The survey included a series of questions addressing the extent to which the Texas Parks and Wildlife Department (TPWD) sponsored media were used. The media included a television program, a magazine, radio program, and the TPWD Internet site. Use of the particular media vehicle was measured in a yes/no format.

4.2 Measures

Information use was the dependent variable. This variable was operationalized as responses to four questions about TPWD sponsored media sources. Respondents were asked about their use of the TPWD information sources using the questions: Have you ever subscribed to the TPWD magazine; watched the Texas Park and Wildlife television program; listened to the Texas Passport Journal radio program; obtained information from outdoors on the Internet. If respondents answered "yes" to the last question, they were asked: did you access the TPWD web page (yes/no). Responses were measured using a YES/NO format coded as 1 and 0 respectively. Logistic regression was employed for primary data analysis.

The following socio-economic and demographic variables were used as independent variables: age, gender, income, education, population of community and race/ethnicity. Respondents' age ranged from 16 to 96 years. The mean age was 44.38, with a standard deviation of 17.82. Women constituted a slight majority of respondents (53.4%). Regarding education, the majority of the respondents had acquired a high school degree or their GEDs. In terms of racial/ethnic background, White/non-Hispanics comprised the largest segment (64.5%) of respondents. Hispanics followed with 24.0%. African American constituted 8.1% with other minorities comprising 3.3%. This trend tends to mirror the composition of the Texas population in 2000 according to statistics from the U.S. Census Bureau.

4.3 Overall Media Use

To address the first objective of studying the extent to which media sources were being used, frequencies were observed on the five media sources. Sixty-three percent of respondents reported having watched the TPWD television. About 23% of respondents reported subscribing to the magazine at some time in the past. The Internet (13.6%) and the radio program (5.2%) were the next most used information sources. Of the 384 respondents who used the Internet to obtain information about the outdoors, 41.7% visited the TPWD website.

4.4 Media Use by Race/Ethnicity

Addressing the second objective to examine how information use varies among persons from different racial/ethnic backgrounds, chi-square tests were used to determine whether or not an association exists between information source and race/ethnicity. There

Table 1.—Logistic Regression Analysis for TPWD Magazine Subscription.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	.142	.1865	.172	1.152	.940	1.412
Race	-.670	27.797	.000	.512	.399	.656
Age	.025	62.229	.000	1.025	1.019	1.031
Education	.108	5.536	.019	1.114	1.018	1.219
Income	.144	24.649	.000	1.154	1.091	1.222
Population Size	-.055	2.901	.089	.946	.888	1.008
Percent Correctly Classified	76.9%					
Nagelkerke R-Square	12.5%					
Goodness of Fit	$\chi^2 = 17.749$	$p = .023$				

was a significant association between race/ethnicity and magazine subscription ($\chi^2 = 124.86$, $p = .000$), television program ($\chi^2 = 7.98$, $p = .046$) and Internet search ($\chi^2 = 62.32$, $p = .000$). Eighty-two percent of Anglos reported having subscribed to the TPWD magazine. Just 11.2% and 3.9% of Hispanics and African Americans, respectively reported subscribing to the magazine. On the other hand, 60.2% of Hispanics and 70% of African Americans indicated they had watched the TPWD television program. Sixty-three percent of Anglo respondents gave this indication. For the Internet, among Anglos about 17% percent (16.8) reporting using the Internet for information on the outdoors. About 8% (7.7) of Hispanics and 3% (3.3) of African American reporting using the Internet. There was no evidence of an association between race/ethnicity and the use of the Website ($\chi^2 = 7.0$, $p = .071$) and the radio program ($\chi^2 = 5.25$, $p = .155$).

Addressing the third objective to determine the effects of race when controlling for other variables, the three information sources showing statistical significance (magazine, television and internet search) were regressed on the six independent variables specified previously. While the model analyzing magazine subscription does not fit the data very well, four variables were found to be significant (Table 1). As age increased respondents were 2.5% more likely to subscribe to the magazine. As their education increased their likelihood for magazine subscription increased by 11%; while as income increased, respondents were 15% more likely to subscribe to the magazine. Race appeared to be more significant, as the odds ratio revealed that non-Whites were approximately 49% less likely to subscribe to the magazine than Anglos.

Given that race was found to be a significant predictor of magazine subscription, the model was expanded to examine differences among racial/ethnic minorities in magazine subscription when compared to Anglos. Results for Hispanics and African Americans were relatively significant (Table 2). Hispanics and African Americans were found to be approximately 49% and 53% less likely to subscribe to the magazine respectively than Anglos.

Logistic regression analyses revealed that for television only two (age and race) of the six independent variables were found to be significant (Table 3). The odds ratios indicated that non-whites were approximately 23% more likely to watch the television program than Anglos.

The model was expanded using logistic regression to analyze the use of the television program within racial/ethnic groups. Results indicated that African Americans were almost twice as likely to watch the TPWD television program as Whites (Table 4).

A logistic regression model was run to analyze the likelihood of using the Internet for information on outdoor recreation opportunities. Of the six independent variables used to predict Internet search, only gender was not found to be significant (Table 5). Race and education were found to be particularly meaningful when controlling for other variables. As education increased, the likelihood of searching the Internet increased by 49%. Also, Hispanics and African Americans were found to be 68% less likely than Anglo Americans to search for outdoor recreation on the Internet.

To determine the nature and extent of differences among racial/ethnic groups in Internet use logistic regression

Table 2.—Logistic Regression Analysis for TPWD Magazine Subscription with Expanded Racial and Ethnic Categories.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	.142	.1865	.172	1.152	.940	1.412
Race						
Hispanic	-.691	20.621	.000	.501	.372	.675
African American	-.764	10.829	.001	.466	.295	.734
Other	-.370	1.467	.226	.691	.380	1.257
Age	.025	62.229	.000	1.025	1.019	1.031
Education	.108	5.536	.019	1.114	1.018	1.219
Income	.144	24.649	.000	1.154	1.091	1.222
Population Size	-.05	2.901	.089	.946	.888	1.008
Percent Correctly Classified	64.2 %					
Nagelkerke R-Square	1.8 %					
Goodness of Fit	$\chi^2 = 13.316 p = .101$					

Table 3.—Logistic Regression Analysis for TPWD Sponsored Television Program.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	-.059	.433	.511	.943	.792	1.123
Race	.204	4.191	.041	1.226	1.009	1.491
Age	.014	25.181	.000	1.014	1.008	1.019
Education	-.037	.826	.363	.963	.889	1.044
Income	.009	.119	.731	1.009	.960	1.061
Population Size	.003	.011	.918	1.003	.950	1.058
Percent Correctly Classified	64.2%					
Nagelkerke R-Square	1.8 %					
Goodness of Fit	$\chi^2 = 13.316 p = .101$					

Table 4.—Logistic Regression Analysis for TPWD Television Program with Expanded Racial and Ethnic Categories.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	-.059	.433	.511	.943	.792	1.123
Race						
Hispanic	.128	1.284	.257	1.136	.911	1.418
African American	.359	4.278	.039	1.432	1.019	2.012
Other	.379	2.003	.157	1.462	.864	2.472
Age	.014	25.181	.000	1.014	1.008	1.019
Education	-.037	.826	.363	.963	.889	1.044
Income	.009	.119	.731	1.009	.960	1.061
Population Size	.003	.011	.918	1.003	.950	1.058
Percent Correctly Classified	64.2 %					
Nagelkerke R-Square	1.9 %					
Goodness of Fit	$\chi^2 = 5.818 p = .668$					

Table 5.—Logistic Regression Analysis of Using the Internet for Information on Outdoor Recreation.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	.144	1.316	.251	1.155	.903	1.477
Race	-1.150	52.691	.000	.317	.232	.432
Age	-.044	83.589	.000	.957	.948	.966
Education	.402	51.922	.000	1.494	1.340	1.667
Income	.095	6.974	.008	1.099	1.025	1.179
Population Size	.093	5.493	.019	1.098	1.015	1.186
Percent Correctly Classified	85.3 %					
Nagelkerke R-Square	17.0 %					
Goodness of Fit	$\chi^2 = 3.383 p = .908$					

Table 6.—Logistic Regression Analysis for Internet Search with Expanded Racial and Ethnic Categories.

Independent Variables	B	Wald	P	Exp (B)	95% CI	
					Lower	Upper
Gender	.144	1.316	.251	1.155	.903	1.477
Race						
Hispanic	-1.235	42.955	.000	.291	.201	.421
African American	-1.766	22.078	.000	.171	.082	.357
Other	-.047	.022	.881	.954	.512	1.775
Age	-.044	83.589	.000	.957	.948	.966
Education	.402	51.922	.000	1.494	1.340	1.667
Income	.095	6.974	.008	1.099	1.025	1.179
Population Size	.093	5.493	.019	1.098	1.015	1.186
Percent Correctly Classified	85.3 %					
Nagelkerke R-Square	18.1 %					
Goodness of Fit	$\chi^2 = 5.881 p = .661$					

analysis was conducted. Results indicated that when compared to Anglos, Hispanics and African Americans were less likely to obtain information from the Internet (Table 6). It should be noted that of the three models, this model revealed the largest difference among racial/ethnic groups in media use.

5.0 Discussion

This study examined the relationship between the independent variables of age, gender, education, income, population size and race/ethnicity and information use related to natural resource management. Logistic regression results confirmed that race/ethnicity was the most consistent predictor across the various forms. Generally, Anglos reported greater use of the TPWD sponsored media as information sources. However, members of minority groups, particularly African

Americans, were more likely to watch the television program. In addition to race/ethnicity, age was also found to be a statistically significant predictor of information use across the various media forms. Older respondents reported greater inclination to utilize the various TPWD sponsored media as their age increased. Basically, results indicated that the tendency of older adults to utilize the various media forms exceeded that of the younger age groups.

6.0 Implications and Future Research

As the management of natural resource recreation becomes more challenging in an increasingly competitive arena due to factors such as sparse funding, it is critically pivotal that managers devise effective marketing and management strategies (Lee et al. 2002). The notion that race/ethnicity was identified as the most significant

predictor various media forms suggests that it is inappropriate for managers to develop an undifferentiated marketing and communication strategy to target persons of diverse ethnic backgrounds. Participants in natural resource recreation are becoming increasingly ethnically diverse and as such it is imperative that such differences be taken into consideration when dealing with diversified markets. Since results of the study indicate that the TPWD sponsored media are not effectively reaching non Anglo-American audiences, further research is required to delve into the factors inhibiting minorities' access to information sources. Thereafter, research on appropriate alternative communication strategies such as informal information networks for non-Anglos should be conducted. Additional research is needed to furnish an understanding of the role of information use on recreation decision-making among racial/ethnic groups. Also, given that older persons tended to utilize media forms more than younger individuals, research should be conducted to develop strategies for captivating the attention of the youth via various media forms. Results from this study, coupled with that of future suggestions for research can furnish invaluable insight to managers to enable them to develop effective marketing programs, thereby resulting in more efficient use of management resources.

7.0 Limitations

Measurement of the dependent variable, information use, was a limitation of the study. A limited number of options of information sources were utilized. More options including informal sources could have been used. Also, asking more open-ended questions such as: "how do you obtain information about the Texas Parks and Wildlife?" could have been more appropriate and could elicit more information about possible alternative information uses. Additionally, respondents were not asked about the frequency of their usage of the various media forms. Neither were they asked about the specific purposes for the seeking information. Future studies should also seek to overcome such limitations. Regarding the sample composition, a segmentation of respondents based on their level of participation in natural resource recreation could furnish more valid information about their information usage patterns. Future research should examine the effect of behavioral involvement (i.e., level of participation) on the relationship between race/ethnicity and information use.

8.0 Citations

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