G., John, K. H., & McKean, J. R., (1988). *A comparison of long-run forecasts of demand hing, hunting, and nonconsumptive wildlife recreation based on the 1980 and 1985 national* . Tech. Rpt. No. 55. Fort Collins: Colo. Water Resour. Res. Inst., Colo. St. Univ.
G., Sanders, L. D., & McKean, J. R., (1990). The consumptive value of travel time creation trips. *Journal of Travel Research, 29,* 175-189.

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The Influence of Attitude Accessibility on Attitude-Behavior Relationships: Implications for Recreation Research

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Recreation researchers frequently employ the attitude concept in studying recreation phenomenon, yet there are times when attitude-behavior relationships are weak. One explanation for this is attitude accessibility, i.e. attitudes might not guide behavior because they are not accessed or available in memory. Factors affecting accessibility are direct experience and repeated pairing of an attitude with an object. These concepts were tested by examining attitude-behavioral intention relationships for three levels of prior site visitation and three levels of prior topic discussion. The attitude object was a person's support of controlled-burn fire policies for parks and natural areas. Results show that at higher levels of experience and discussion (1) there is an improved prediction of intentions to support the policy from attitudes, and (2) attitudes are more extreme. These findings have implications for the use of attitudes in predicting recreation behavior, for examining issues of non-participation in recreation, and in attempting persuasive communication in recreation settings.

KEYWORDS: *Preferences, opinions, non-participation, persuasion, fire policy.*

Application of the attitude concept[1] has been of enduring interest among researchers studying recreation and leisure phenomenon. As noted by Heberlein (1973), attitude measures are useful in serving an information function (e.g., providing information that allows managers to better meet user needs) and a social control function (e.g., if you know the attitudes

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[1] Various definitions of the attitude concept have been advanced. The definition has been, and remains, a matter of debate (Tesser and Shaffer 1990). For the purposes of this paper we accept the "working" definition of Vincent and Fazio (in press) that it is the association in memory between object and an evaluation.

cause specific behaviors, you can target these attitudes for change and elicit desirable behavior).

In the past three decades, however, there has been controversy about the validity of the attitude concept. Of central concern has been the issue of whether or not attitudes influence behavior. Much of the evidence regarding causality is found in literature that tests the ability of attitudes to predict behaviors. Research in the late 1960s and early 1970s showed weak attitude-behavior relationships, and psychologists (e.g., Bem, 1970; Wicker, 1969, 1971) debated the utility of the attitude concept. However, during the late 1970s and early 1980s, theoretical advancements and methodological refinements, such as are offered in Fishbein and Ajzen's Theory of Reasoned Action (Fishbein & Ajzen, 1975), led to improved predictions of behaviors from attitudes, and also to wider acceptance of the attitude-causes-behavior explanation (Cialdini, Petty & Cacioppo, 1981).

This positive shift in acceptance of the attitude concept was also apparent in applied fields such as recreation, where in the 1970s, attitudes were regarded with skepticism (Heberlein, 1973), but in the 1980s, applications increased with paritcular emphasis on the Theory of Reasoned Action (Cable, Knudson, Udd & Stewart, 1987; Young & Kent, 1985).

While recent reviews indicate acceptance that attitudes predict behaviors, the reviews also recognize that there are times when the attitude-behavior link is weak. In a review of attitudinal research, Cialdini, Petty and Cacioppo wrote, "no longer are researchers questioning *if* attitudes predict behavior (e.g., Wicker, 1969), they are investigating *when* attitudes predict behavior" (1981, p. 366). One approach taken in these investigations has been to examine the underlying cognitive processes by which attitudes influence behavior. The focus of this approach examines how variability in attitude accessibility, also referred to as attitude activation, affects the attitude-behavior relationship (Chaiken & Stangor, 1987). In the study described in this paper, we tested for the effects of attitude accessibility on the attitude-behavior relationship and explored the implications of accessibility for recreation research.

The Concept of Attitude Accessibility

The influence of attitude accessibility has been introduced within the context of Fazio's and his associates' Process Model of Attitudes (Fazio, 1986; Fazio, Powell, & Herr 1983; Vincent & Fazio, in press), which is recognized as "the best developed program of research on attitude accessibility" (Chaiken & Stangor, 1987, p. 586). This model suggests that behavior is a function of one's perception of the situation in which the attitude object is encountered. Perceptions exert influence by controlling the information that is processed. Attitudes toward the object influence behavior by affecting the perception of the situation.

To illustrate, consider attitudes toward driving a four-wheel-drive vehicle in an area that is restricted from this use. Two different people arrive

at this area in their ORVs, faced with the possibility of driving off-road. Each person has a different perception of the situation because they have different attitudes toward ORV use. The first's attitude may be that driving ORVs in the backcountry is harmless and exciting. That person might perceive the location as (1) a highly remote area where few people go, (2) an area that can easily sustain use without showing signs, and (3) an area that lacks law enforcement. This person proceeds in travelling off-road. The second person's attitude is that ORV use in the backcountry is exciting but potentially harmful. That attitude would influence perception in a way that the person notices the area (1) has numerous rutted tracks, (2) is somewhat eroded with impacts to vegetation, and (3) has litter. Noticing these factors, this person does not travel off-road.

The Process Model recognizes that there are times when attitudes will not exert influence on perception and behavior, particularly when the relevant attitudes are not accessed, i.e., not retrieved or activated from memory. In the previous example, person 1 may once have read that ORVs have a negative effect on wildlife habitat, and might have developed a negative attitude toward ORV use. Since the person read this only once the association between the negative evaluation and ORV use is likely to be weak and not easily recalled. Because the association is weak, it is unlikely that the attitude will be accessed when the appropriate stimulus (e.g., the opportunity to travel off-road) is presented. In addition, because the person engages in ORV activity quite frequently, the association between use and positive evaluations (thrilling, harmless) is likely to be very strong and immediately accessed. The latter attitude would most likely guide this person's perception of the situation and subsequent behavior.

When attitudes are inaccessible, situational factors and a person's knowledge of the norms relevant for the situation will guide behavior (Vincent & Fazio, in press). For example, a person may decide not to travel off-road because it is socially unacceptable to do so or because important others would not do so. Conversely, they may decide to travel off-road because the apparent norm (as evidenced by tire tracks, by seeing others doing it, or by inference based on other similar situations) is that travelling off-road is acceptable.

Fazio and his associates (Fazio, 1986; Vincent & Fazio, in press) have identified two critical determinants of attitude accessibility. The first is repeated expression: the more an attitude is associated with an object, the greater the strength of association and the greater the likelihood this attitude is accessible. In the previous example, if person 1 had read or heard about the negative effects of ORV use on wildlife numerous times, the association would be stronger and would have a greater chance of being accessed when this person is presented with the opportunity to travel off-road. Fazio and others have demonstrated the effects of repeated expression in a number of studies (Fazio et al., 1982; Powell & Fazio, 1984). For example, in one study (Powell & Fazio, 1984), subjects were asked to express their attitudes toward issues from zero to six times. Later, subjects w

asked to indicate their attitudinal response to the issues. Response latency, the time elapsed between exposure to each issue and subject response, was used to indicate accessibility. Findings indicated latency was greatest for those who had not expressed their attitudes previously.

The manner of attitude formation is also important to attitude accessibility. Attitudes formed through direct experience are more likely to be readily accessible than others (Fazio, 1987; Fazio, Herr, & Olney, 1984). Following the previous example, if person 1 had the actual on-site experience of witnessing impacts to wildlife due to ORV use, as opposed to simply reading about impacts, the attitude would more likely be accessible. Fazio et al. (1982) demonstrated experience effects in a study where subjects familiarized themselves with intellectual puzzles by either working the puzzles (direct experience) or by being given explanations and visual examples of the puzzles (indirect). Subjects that had actually attempted the puzzles had a lower response latency compared to the subjects who had simply been told about the puzzles.

In summary, Fazio's Process Model proposes that attitude accessibility will have an important influence on the strength of the attitude-behavior relationship. Accessibility is theorized to depend, in large part, on repeated pairing of affect and object and on direct versus indirect experience with the attitude object. These concepts formed the basis for the hypotheses tested in our study.

Hypotheses

To test the accessibility concept we used data from a study that examined attitudes toward controlled burn fire policies for parks and wilderness areas (Manfredo, Fishbein, Watson, and Haas, 1990). That study was conducted to assist in evaluating a wildland management policy that has been referred to interchangeably as a let-burn, controlled-burn or prescribed fire policy. This policy describes conditions under which fires will be allowed to burn without attempts at suppression; for example, fires will not be suppressed if they are started by lightning, are in areas managed to maintain natural conditions, and appear to pose no threats to private property and human life. The tenability of this policy was strongly debated in the aftermath of the 1988 fires in Yellowstone National Park and other parts of the western United States.

The attitude object examined in the present study was a person's support of the controlled-burn fire policy. The behavioral measure was the intention to support the fire policy. Measures of actual behaviors were not used in this study; however, numerous studies have shown that behavioral intention strongly predicts actual behaviors, and behavioral intentions are frequently used in tests of attitude-behavior relationships (e.g., Ajzen & Fishbein, 1980).

It is important to note that an intention to support a controlled-burn fire policy is a multiple act behavioral criterion and, as such, should predict

a general class of behaviors such as signing a petition, attending public meetings, writing a congressman, complaining to friends, and calling the National Park Service (Fishbein & Manfredo, in press). Our measures of intention and attitude, however, would not be expected to predict single acts or criterion such as attendance at an upcoming fire policy meeting.

Concepts of attitude accessibility propose that those people who have engaged in more discussion about the fire policy have greater accessibility to their attitudes about this topic. This would be the case because, in the course of discussion, there would be repeated occasions during which one's attitude would be paired with the controlled-burn fire policy. Furthermore, since those people with highly accessible attitudes are likely to have greater attitude-behavior consistency (i.e., greater prediction of behavioral intention from attitudes), we hypothesized and tested this in the present study:

> H_1: Those people who spent more time discussing the controlled-burn fire policy have greater attitude-behavioral intention consistency regarding this issue.

Another implication of Fazio's model is that those with more direct experience related to this topic (e.g., seeing fires, developing fire policy, visiting areas affected by the policy) would have greater attitude accessibility regarding the policy. We tested this notion in a second hypothesis:

> H_2: Those people with more on-site experience at Yellowstone National Park have greater attitude-behavioral intention consistency.

Finally, Powell and Fazio (1984) suggested that there is a positive association between attitude accessibility and attitude extremity. Attitude extremity refers to the strength with which an attitude is held, irrespective of its positive or negative direction, and has been measured as the "deviation from the mid-point of the attitude scale" (Powell & Fazio 1984, p. 141). In studying recreationists, attitude extremity might be particularly relevant. Often the intent is to influence the behavior of recreationists, yet those with extreme attitudes can be particularly difficult to affect (Petty & Cacioppo, 1981, 1986). Again, assuming that the amount of experience and of topic-relevant discussion are related to accessibility, we hypothesized that:

> H_3: Those who spent more time discussing the controlled burn policy will have more extreme attitudes toward the policy.

and,

> H_4: Those with higher levels of past visitation to Yellowstone National Park will have more extreme attitudes toward the controlled-burn policy.

Methodology

Data for this study were obtained using telephone interviews during March and April, 1989. The sampling frame included all households in the United States with working telephones. Sampling was conducted using

a two stage random digit dialing (Waksburg, 1978) design that was stratified into the area affected by the fire versus the remainder of the United States. For the purposes of sampling, the area affected was defined as the states of Montana and Wyoming. This design required a listing of all United States area codes and phone prefixes, obtained from the vertical and horizontal coordinate tapes published by AT&T. In the first stage of sampling, a random selection of telephone numbers were drawn and used in conducting interviews. A high proportion of these numbers were business or nonworking numbers. The nonbusiness working numbers were then used as the basis for second stage sampling, serving as the starting number for selecting a cluster of additional numbers. Additional numbers within a cluster were obtained by adding the number one to the last four digits of a working number.

The target for sampling was to obtain 400 subjects in each stratum to allow estimates of the proportion of people supporting the fire policy, with a .05 error of estimation for the 95% confidence interval. The formulas for estimating sample size were from Mendenhall, Ott and Scheafer (1971) and were computed assuming the population proportion was .5, error of estimation was .05 and the population was greater than 1 million in each stratum.

Interview Instrument

When contacted by a telephone interviewer, subjects were told they would be asked questions about fire policies for areas such as Yellowstone National Park, and then given a generic definition of the policy. The definition indicated that the policy would allow fires to burn themselves out if (1) they were in areas set aside by the government as natural, and (2) were not affecting lives or private property.

Questions regarding the attitude-behavior relationship were measured within the Theory of Reasoned Action conceptual framework (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). This theory suggests that (1) behaviors are a function of behavioral intention, and (2) behavioral intention is a function of the attitude toward performing the behavior and the subjective norm regarding the behavior. A subjective norm is defined as a cognitive representation of the extent to which significant others think one should hold an intention or enact a behavior.

To measure *behavioral intentions,* subjects were asked if it was extremely true (+3), quite true (+2), slightly true (+1), neither true/false (0), slightly false (−1), quite false (−2), or extremely false (−3) that they supported the controlled burn policy. *Attitudes* toward the policy were measured on three bipolar scales in response to the question, "Would you say that your supporting the controlled-burn policy is . . . good-bad, beneficial-harmful, wise-foolish." Scoring was assigned as +3 (e.g., extremely good), +2 (e.g., quite good), +1 (e.g. slightly good), 0 (e.g., neither good/bad), −1 (e.g., slightly bad), −2 (e.g., quite bad), or −3 (e.g., extremely bad).

A general measure of subjective norms was used instead of measures of specific referents (e.g., what one's friends, parents, rangers, environmental groups think one should do) because (1) pretesting indicated that intentions to support the controlled-burn policy were primarily attitudinally-based (e.g., subjective norms did not predict intentions), and (2) there was an interest in minimizing the length of telephone interviews. The question asked to assess the influence of *subjective norms* was, "Would most people important to you think that you should or should not support a controlled-burn policy?" Responses were obtained on a seven point (+3 to −3) bipolar scale, with "should" and "should not" as end points, and "extremely," "quite," "slightly," and "neither" as scale points.

To measure *previous experience,* subjects were asked how many previous trips they had taken to Yellowstone National Park. *Amount of prior discussion* was measured by asking subjects the amount of time they spent discussing the 1988 Yellowstone fires: "a few minutes," "a few minutes to half an hour," "one half hour to one hour," or "one hour or more." Although we did not ask specifically about discussing the fire policy, we assumed that discussions of the fire itself would also include the fire policy topic because, as is evident in media reports, the policy was the center of the controversy surrounding the summer 1988 fires (New York Times, 1988a, 1988b).

Analysis

Analysis that tested the ability of attitudes and subjective norms to predict behavioral intentions followed the procedures recommended by Fishbein and Ajzen (1975; Ajzen & Fishbein, 1980). The first step in analysis was to compute an attitude index by summing the three attitude items. Cronbach's alpha, a measure of internal consistency, was computed to check the reliability of this index. As in the preponderance of previous studies using the Theory of Reasoned Action, the prediction of intentions from attitudes and subjective norms was tested using least squares multiple regression (see Sheppard, Hartwick & Warshaw, 1988, for a meta analysis of studies).

To test the hypotheses about whether or not prediction increases with increases in prior experience and discussion, separate regression analyses were conducted for three levels of each of these variables. Prior experience was categorized into "those who had never been to Yellowstone," "visitors who had been to Yellowstone once in the past five years," and "visitors who had been more than once in the past five years." This breakdown of past visits was made because (1) the sample size was not large enough to conduct separate analyses for all levels of visitation, and (2) based on previous findings by Powell and Fazio (1984), we expected that the marginal effect (on attitude accessibility) of increased number of visits would diminish as visits increased, i.e., the greatest effects would be at low levels of repeated visitation.

Level of discussion was grouped into "those who had no discussion on

the fire," "those who discussed it one hour or less," and "those who discussed it one hour or more." That is, we grouped all three categories in the minutes-to-one hour range due to our concern about respondents' ability to provide accurate, detailed recollections of time spent discussing the fire.

To test hypotheses 1 and 2, separate regression analyses were performed for each level of these two variables. Following procedures recommended by Draper and Smith (1981), we used the extra sums of squares approach to test whether or not the three equations for each variable were different from the equation for the entire sample.

Hypotheses 3 and 4 were tested adapting procedures used by Powell and Fazio (1984). First, to establish a measure of the standard deviation from the midpoint of the attitude scale, negative scores were multiplied by −1, creating a score ranging from 0 to 9. The higher the score, the more extreme the attitude. Group differences, according to level of experience and topic discussion, were tested on the attitude extremity index using analysis of variance. To determine whether or not extremity differences would be due to directional differences in attitudes toward the fire policy, comparisons among groups were also made on the unmodified attitude measure. Student-Newman-Keuls test was used to determine specific mean differences.

Results

A sample size of 913 subjects was obtained during the telephone interviews. There were 522 subjects in the national sample and 391 in the affected region. Sample size differences between strata are due to variability in the size of first stage samples and contact rates. These two strata were grouped for subsequent analyses.

Prior to tests of hypotheses, we examined the internal consistency of the attitude index. Cronbach's alpha was quite high (.95), indicating a reliable measure of attitude.

Hypothesis 1 proposed that those people who spent more time discussing the fire policy issue would have greater attitude-behavioral intention consistency. Table 1 shows the regression results for three levels of discussion. Three points are particularly important in these results. First, although not directly related to our hypotheses, it is worth noting that the prediction of behavioral intentions from attitudes and subjective norms is quite high for all levels of discussion (R^2 = .75). This study joins a host of others that provide support for the Theory of Reasoned Action (e.g., Sheppard et al., 1988).

Second, as theorized, the prediction of intentions from attitudes at the three levels of discussion were significantly different from the equation for total sample (χ^2 = 6.62, $p \leq .05$, 4 and 911 *df*). The R^2 was .61 for those who did not discuss the fires, .78 for those who discussed it for less than one hour, and .87 for those who discussed it for one hour or more.

Third, in support of the accessibility explanation, the improvement in prediction is attributable to the attitude variable, rather than to the sub-

TABLE 1

Results of Multiple Regression of Intentions to Support Controlled Burn Policies on Attitudes and Subjective Norms by Past Visitation Levels and Levels of Discussion About the Yellowstone Fires

	Results of Multiple Regression					
		Standardized Betas		Sums of Squares		
	Adjusted[1] R^2	Subj. Norm	Attitude	Regression	Residual	Chi[2] Square
Total Sample	.76	.14	.76	3550.5	1137.2	
Amount of Discussion						
None	.61	.15	.66	895.0	567.8	6.62*
<1 hour	.79	.12	.79	1025.8	279.9	
1 hour or more	.87	.13	.82	1651.6	241.9	
Past Visitation to Yellowstone National Park						
None	.72	.17	.71	2163.6	839.5	2.53*
Once	.79	.17	.75	310.2	83.4	
More than once	.84	.14	.88	1075.7	201.5	

[1] All beta and adjusted R^2 values are significant ≥.001.
[2] Chi square tests are for differences between the equations for the total sample and the three equations for each variable.
* Significant at $p \leq .05$.

jective norm variable. Beta weights for the subjective norm remained relatively constant across discussion levels, while beta weights for attitude increased from .66 to .82. Given these findings, Hypothesis 1 was not rejected.

Hypothesis 2 suggested that attitude-behavior consistency would increase with increased on-site experience at Yellowstone National Park. In support of this hypothesis, we found that prediction of intentions was significantly different among these three equations (χ^2 = 2.53, $p \leq .05$, 4 and 911 *df*). Prediction of an intention to support the policy increased from R^2 = .72 for those who had not visited Yellowstone within the past five years, to .79 for those who had visited once, and to .84 for those who had visited more than once. Again, improvements in prediction accuracy across levels of discussion were due to changes in attitudes; betas increased from .71 for nonvisitors to .88 for return visitors.

Hypothesis 3 suggested that higher levels of topic discussion would be accompanied by greater attitude extremity, which is supported by our results (Table 2). Analysis of variance indicated significant differences (F = 12.2, $p \leq .001$) on attitude extremity by the three levels of discussion. The

Student-Newman-Keuls test for mean differences indicated that the mean attitude score for those who discussed the policy more than one hour (m = 6.2) was more extreme than the mean for those who discussed the policy less than one hour (m = 5.5) and for those who didn't discuss the policy at all (m = 5.1). It should be noted that these differences are not due to differences in the direction of attitudes; analysis of variance revealed no differences among these three groups on the unmodified attitude scale (Table 2).

Finally, Hypothesis 4 proposed that higher levels of visitation to Yellowstone would be related to more extreme attitudes toward the controlled-burn policy. Indeed, significant differences among groups were found (F = 3.16, $p \leq .05$). The Student-Newman-Keuls test indicated that the only attitude extremity difference was between those who had not visited Yellowstone (m = 5.5) and those who had visited it more than once (m = 6.0). Those who had visited the area (m = 5.3) just once did not differ from either group. Again, these differences were unrelated to directional differences in attitudinal scores. Analysis of variance revealed that the three visitation groups did not differ on the unmodified attitude index.

Discussion

This study explored conclusions drawn from Fazio's and his associates' concept of attitude accessibility and its affect on attitude-behavior relationships. Although our study was a preliminary test of attitude accessibility, the findings support this concept by demonstrating that the more one has discussed an issue and has had direct experience with it (both of which are theorized to increase accessibility), the greater the likelihood that behavioral

TABLE 2

Differences on the Attitude Measure and the Attitude Extremity Measure by Levels of Past Visitation and Levels of Discussion About the Yellowstone Fires[1]

	Past Visitation to Yellowstone National Park				*Amount of Discussion*			
Measures	None m	One Time m	>One Time m	F Test	None m	<One Hour m	>One Hour m	F Test
Attitude Measure	0.5	0.5	0.9	0.5	0.5	0.8	1.0	0.7
Attitude Extremity Measure	5.5[a]	5.3[a,b]	6.0[b]	3.2*	5.1[a]	5.5[b]	6.2[c]	12.2***

[1] Means with different superscripts were found to have significantly different means using Student Newman Keuls.
* Significant at $p \leq .05$.
*** Significant at $p \leq .001$.

intentions can be predicted from attitudes. We also found that experience and repeated discussion are related to attitude extremity.

Further research on attitude accessibility would be useful because it has direct implications for recreation research. One implication involves the use of attitudinal information to predict the behavior of recreationists. This research would be particularly relevant in studying recreation non-participation. Researchers have proposed that non-participation is a function of constraints, preference, and participation. For example, Romsa and Hoffman (1980) have proposed that constraints intervene between the preference-participation relationship, i.e., all people have the same propensity to participate but because some people are constrained, they cannot act upon their preferences.

In another approach, Crawford and Godbey (1987) suggested that barriers influence both preference and action. Generally these approaches assume that a preference, which we view as an attitude toward an activity, is well formed within the individual. However, attitude accessibility theory suggests that many people are likely to have a weak association between an activity and their evaluation of the activity. The result would be that attitudes toward activities would be poor predictors of participation, and, in fact, that is the common finding in non-participation studies (Crawford & Godbey, 1987). The weak association might also result in attitudes that appear highly transitory; when attitudes are inaccessible, situational factors present at the time of questioning would play an important role in influencing response. Interestingly, Crawford and Godbey (1987) noted that transitory attitudes are a major issue in studying non-participation.

From an applied perspective, the effects of attitude accessibility might suggest limitations in using attitude information to estimate future recreation trends and to guide provision of new activities and programs. If subjects have had little experience with an activity or program, and have had no opportunity to discuss the topic, there may be low attitude accessibility and a higher likelihood that behavior may not be consistent with attitudes.

Future research might explicitly examine the influence of accessibility in studies of non-participation, by using open-ended elicitation studies such as Fishbein and Ajzen recommend (e.g., Ajzen and Fishbein, 1980) for assessing salient beliefs, or by using free associations methods. The time taken to respond and the number of responses would indicate accessibility and would be variables tested as mediators of the attitude-behavior relationship.

Another approach might be to alter experimentally, or control statistically, the level of accessibility in the study design. Statistical control might be established by obtaining measures of past experience or discussion about a topic. Experimental control might be accomplished by providing subjects with information about the object of questioning prior to surveying them about the object. Or control might involve conducting small group discussions on the topic of interest before conducting attitudinal assessments.

Alternatively, researchers might focus on providing experience as part of the experimentation; paid subjects would actually experience an area or program and afterwards, their attitudes could be assessed. From a theoretical perspective, these types of studies would help clarify the role of attitude accessibility in recreation. These experimental approaches might also be useful in guiding advertising. Results would indicate people's attitudes and intentions in situations where they have high amounts of information. Programs toward which subjects are found to have positive attitudes should be programs for which advertising is most likely to be effective.

Beyond the latter example, attitude accessibility may have more general implications for attempts to persuade recreationists. Accessibility specifically points to differences in attempts to persuade inexperienced or first-time visitors, as compared to more experienced visitors.

Attitude accessibility suggests that first-time visitors are unlikely to have enduring predispositions that guide their onsite behavior, but would be influenced by situational factors instead. For example, first-time visitors to an area might not be influenced by their attitudes about performing a specific behavior (e.g., the illegal act of feeding birds in National Parks). Rather, they might be influenced by what they see others doing, what evidence they can observe of what others have done, or what is appropriate in a similar situation at a different location (e.g., it's fun to feed the ducks at City Park). Furthermore, while the inexperienced person might read management-provided information about what behavior is appropriate, that information will be ineffective unless the attitude formed at the time of reading is then accessed in situations where the attitude is desirable. For example, information about feeding obtained prior to visitation or upon entering an area might not be retrieved when at an overlook with hovering birds.

For first-time users, a useful strategy for recreation managers might be to encourage thought or discussion about an issue, in order to allow repeated opportunities to pair attitudes with objects. Repeated attempts to communicate (signs, brochures, in-person talks) from multiple message sources (rangers, townspeople, conservation groups) might be useful for increasing awareness.

Research findings suggest that more experienced users, while more predictable in their behavior, are more difficult to influence (Petty & Cacioppo, 1981, 1986). Their attitudes are more accessible and more extreme, and they may be prone to selective processing of information i.e., attend only to information that reinforces their current attitude (Vincent & Fazio, in press). In fact, past studies evaluating attempts to persuade recreationists, reveal that more experienced or knowledgeable visitors are less likely to be influenced than those who are inexperienced or unknowledgeable (Krumpe & Brown, 1982; Manfredo & Bright, 1991; Roggenbuck & Berrier, 1982). A useful task for future research would be to identify persuasion strategies that are effective with more experienced recreationists.

In conclusion, we suggest that the notion of attitude accessibility merits further attention from researchers involved in recreation research. Attitude accessibility may help improve our application of the attitude concept and expand our explanations of recreation behavior.

References

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall. 278 pp.

Bem, D. (1970). *Beliefs, attitudes and human affairs.* Belmont, CA: Brooks Cole.

Cable, T., Knudson, D. M., Udd, E., & Stewart, D. J. (1987). Attitude changes as a result of exposure to interpretive messages. *Journal of Park and Recreation Administration, 5,* 47-60.

Chaiken, S., & Stangor, C. (1987). Attitudes and attitude change. *Annual Review of Psychology, 38,* 575-630.

Cialdini, R. B., Petty, R. E., & Cacioppo, J. T. (1981). Attitude and attitude change. *Annual Review of Psychology, 32,* 357-404.

Cooper, J., & Croyle, R. T. (1984). Attitudes and attitude change. *Annual Review of Psychology, 35,* 395-426.

Crawford, D. W., & Godbey, G. (1987). Reconceptualizing barriers to family leisure. *Leisure Sciences, 9*(2), 119-127.

Draper, N. R., & Smith, H. (1981). *Applied regression analyses.* New York: John Wiley and Sons.

Fazio, R. H. (1987). Self-perception theory: A current perspective. In M. P. Zanna, Olson, J. M. & Herman, C. P. (Eds.), *Social influence: The Ontario Symposium.* (Vol. 5., pp. 129-150). Hillsdale, NJ: Erlbaum.

Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino & E. T. Higgins (Eds.), *The handbook of motivation and cognition: Foundations of social behavior.* pp. 204-243. New York: Guilford Press.

Fazio, R. H., & Williams, C. J. (1986). Attitude accessibility as a moderator of the attitude-perception and attitude-behavior relations: An investigation of the 1984 presidential election. *Journal of Personality and Social Psychology, 51,* 505-514.

Fazio, R. H., Herr P. M. & Olney, T. J. (1984). Attitude accessibility following a self perception process. *Journal of Personality and Social Psychology, 47,* 277-286.

Fazio, R. H., Powell, M. C., & Herr, P. M. (1983). Toward a process model of the attitude-behavior relation: accessing one's attitude upon mere observation of the attitude object. *Journal of Personality and Social Psychology, 44,* 723-735.

Fazio, R. H., Chen, J., McDonel, E. C., & Sherman, S. J. (1982). Attitude accessibility, attitude-behavior consistency, and the strength of the object-evaluation association. *Journal of Experimental Social Psychology, 18,* 339-357.

Fazio, R. H., & Zanna, M. P. (1981). Direct experience and attitude-behavior consistency. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology.* (Vol. 14, pp. 161-202). New York: Academic Press.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research.* Reading, Mass.: Addison-Wesley.

Fishbein, M., & Manfredo, M. J. (In press). A theory of behavior change. *Influencing behavior theory and applications in recreation and tourism.* Manfredo, M. J. (ed.), Sagamore Press, Champaign, Ill.

Heberlein, T. A. (1973). Social psychological assumptions of user surveys: the case of the wildernism scale. *Journal of Leisure Research, 5,* 18-33.

Krumpe, E., & P. J. Brown. (1982). Redistributing backcountry use through information related to recreation experiences. *Journal of Forestry*, June, 360-362, 364.
Manfredo, M. J., & Bright, A. (1991). A model for assessing the effects of communication on recreationists. *Journal of Leisure Research, 23*, 1-20.
Manfredo, M. J., Fishbein, M., Watson, A. & Haas, G. (1990). A National survey of public attitudes toward prescribed fire policy. *Journal of Forestry*, July, 19-23.
Mendenhall, W., Ott, L., & Scheaffer, R. L. (1971). *Elementary survey sampling*. Duxbury Press, Belmont, CA.
New York Times, (1988a). Fire spreads smoke over much of the west. September 12, p. A1, A14.
New York Times, (1988b). Administration rethinks policy on forest fires. September 14, p. A22.
Petty, R. E., & Cacioppo, J. T. (1981). *Attitudes and persuasion: Classic and contemporary approaches*. Dubuque, IA: Wm. C. Brown.
Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In Berkowitz, L. (Ed.), *Advances in Experimental Social Psychology, 19*, 123-205. New York: Academic Press.
Powell, M. C., & Fazio, R. H. (1984). Attitude accessibility as a function of repeated attitudinal expression. *Personality and Social Psychology Bulletin, 10*, 139-148.
Roggenbuck, J. W., & Berrier, D. L. (1982). A comparison of the effectiveness of two communication strategies in dispersing wilderness campers. *Journal of Leisure Research, 14*, 77-89.
Romsa, G., & Hoffman, W. (1980). An application of non-participation data in recreation research: testing opportunity theory. *Journal of Leisure Research, 12*, 321-328.
Sheppard, B. H., Hartwick, J., & Warshaw, J. P. (1988). A theory of reasoned action: a meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research, 15*, 325-343.
Tesser, A., & Schaffer, D. R. (1990). Attitudes and attitude change. *Annual Review of Psychology, 41*, 479-523.
Vincent, M. A., & Fazio, R. H. (in press). Attitude accessibility and its consequences for judgment and behavior. Manfredo, M. (ed.) *Influencing behavior: Theory and applications in recreation and tourism*. Sagamore Press, Champaign, Il.
Waksberg, J. (1978). Sampling methods for random digit dialing. *Journal of the American Statistical Association, 73*, 40-46.
Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues, 25*, 41-78.
Wicker, A. W. (1971). An examination of the "other-variables" explanation of attitude-behavior inconsistency. *Journal of Personality and Social Psychology, 19*, 18-30.
Young, R. A., & Kent, A. (1985). Using the Theory of Reasoned Action to improve the understanding of recreation behavior. *Journal of Leisure Research, 17*, 90-106.

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Evaluating Recreation Trip Attributes and Tra Time Via Conjoint Analysis

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This paper develops a conjoint measure approach to evaluate unpric tributes of recreational hunting trips. Respondents' ratings of alter hunting trip descriptions are used to impute values for various trip cl teristics, including recreational travel time. The derived valuation of time significantly exceeds the hourly wage equivalent, and apparently r the implicit cost of displaced time on site more than the opportunity c displaced labor.

KEYWORDS: *conjoint analysis; hunting; travel time; travel cost.*

Introduction

This paper analyzes demand for various non-market attribute terfowl hunting trips, modeled as a composite recreation good. Connell (1979) pointed out for the analogous case of recreational hunting success is likely to be endogenous to equipment expendit site selection, which implies that hunting trips are not homogeneou This contradicts a key assumption of the conventional travel cost

Bockstael and McConnell (1981) have demonstrated that th cost model is theoretically equivalent to a single-commodity househ duction model. Various household production models (Barnett, 19 lack & Wachter, 1975) have been developed to handle the heter of recreation trips. McConnell (1979) modeled demand for fishi and fishing success as jointly-produced commodities in a househ duction framework. Mackenzie (1988) treated hunting trips and eq expenditures as purchased inputs to the production of hunting s

An alternative approach is to view hunting success and other trip attributes as arguments in an implicit price function for hunti Brown and Mendelsohn have analyzed recreational travel costs as prices, decomposing these to impute willingness-to-pay for trip a such as site congestion and hunting success (Brown, 1988; Bro Mendelsohn, 1984).

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