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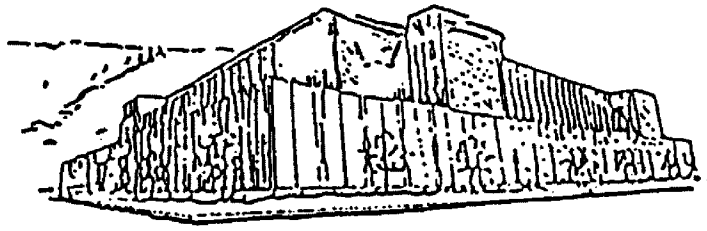
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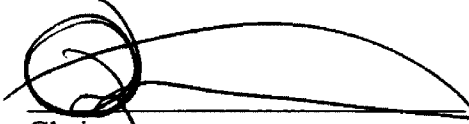
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**THE UTILIZATION OF A SOCIAL JUDGMENT
FRAMEWORK IN WILDERNESS MANAGEMENT**

**Professional Paper
Submitted in partial fulfillment
of the requirements for
Master of Science
University of Montana
School of Forestry
1995**

**by
Christopher P. Dumas**

Approved by:


Chairman


Dean, Graduate School

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What *is* wilderness? Though the word has been used in social, scientific, and legal arenas it is a word inherently difficult to define. Attempts have been made, of course, to describe such areas. Scientists have used measurable descriptors such as plant and animal diversity, geographic remoteness and size. Philosophers have heralded wilderness as the savior of mankind and a spiritual link between man and nature (Muir 1938). Many descriptors of wilderness tend to be measurable, objective facts. Yet other descriptions are sometimes qualitative, subjective, and based on complex, internal judgment systems (Peterson 1974; Roggenbuck et al. 1993).

Statement of Problem

When wilderness became legally defined in the passages of the 1964 Wilderness Act and in similar state legislation (APA 1987), a reliance was placed on both quantitative and qualitative descriptions to define what these areas were in a physical sense and the recreational opportunities they created (Shelby and Harris 1986). Many of the recreational aspects of this legislation are subjective in nature and require interpretation on the part of the agencies which manage these lands (Roggenbuck et al. 1993). These *qualitative* descriptions of Wilderness present a complex problem for land managers. That is, which definitions of Wilderness are to be used when creating management goals and objectives? For instance, the Federal Wilderness Act states that "...the imprint of man's work is substantially unnoticeable" and that ".....(Wilderness) has outstanding opportunities for solitude or a primitive and unconfined type of recreation" (Public Law

88-577 1964). What does the word "substantially" or the phrase "outstanding opportunities for solitude" really mean? Are there homogeneous public and agency interpretations of these terms managers can use to create goals and objectives? How are these terms quantified? How is this information grounded in real-world situations? These are social judgment questions, inherently requiring subjective decisions among a range of possible management alternatives.

Past research from as early as the 1970's has attempted to answer the aforementioned questions by measuring visitor preferences for Wilderness management (Hendee and Harris 1970; Stankey 1973). New approaches to this research have been developed since, identifying visitor attitudes within a Social Judgment framework and using established analysis methods from the social-psychological field (Sherif 1967; Watson 1989; Watson et al. 1992).

Social Judgment Theory may prove to be the most efficient framework yet for identifying visitor attitudes and preferences about Wilderness management and organizing them into useful, and reliable, management guidelines. A thoughtful and more complete approach to Social Judgment Theory use and analysis has been lacking in Wilderness research, at least until the initial attempts of Watson et al. (1992). More research is needed to develop the parameters for this theory's use and associated analysis.

This paper presents a review of the potential application of Social Judgment Theory in Wilderness management. A detailed description of this theory is given and the related topics of attitude structure and change are defined. Current uses of Social

Judgment Theory in resource studies are explored with an emphasis on the theoretical background of measurement scale construction and the predictive nature of the theory using various visitor attributes as independent variables. Using past research as a construct, implications for the general use of Social Judgment Theory, scale construction and independent variable selection in Wilderness research are offered.

This paper reviews past and current wilderness research and is limited in analysis by the parameters of each specific study. Conformity in questionnaire design and scale construction is not always present, further restricting analysis. For these reasons, this paper focuses on the broader issues of the use of Social Judgment Theory in Wilderness management and will not attempt to become site-specific to any geographic region or natural area. This paper is primarily based on research associated with the National Wilderness Preservation System, hence, references to "Wilderness" are made quite often, but non-Wilderness studies are also referenced if applicable.

The next section of this paper defines Social Judgment Theory and explain how this theory can play an important role in Wilderness research. Social Normative Theory is also described and a correlation drawn between this theory and the effective use of Social Judgment Theory. Following this section, past and current uses of Social Judgment Theory in Wilderness research are studied and data collection and analysis procedures reviewed. Interpretations are then offered focusing on the effective use of Social Judgment Theory.

Social Judgment Theory

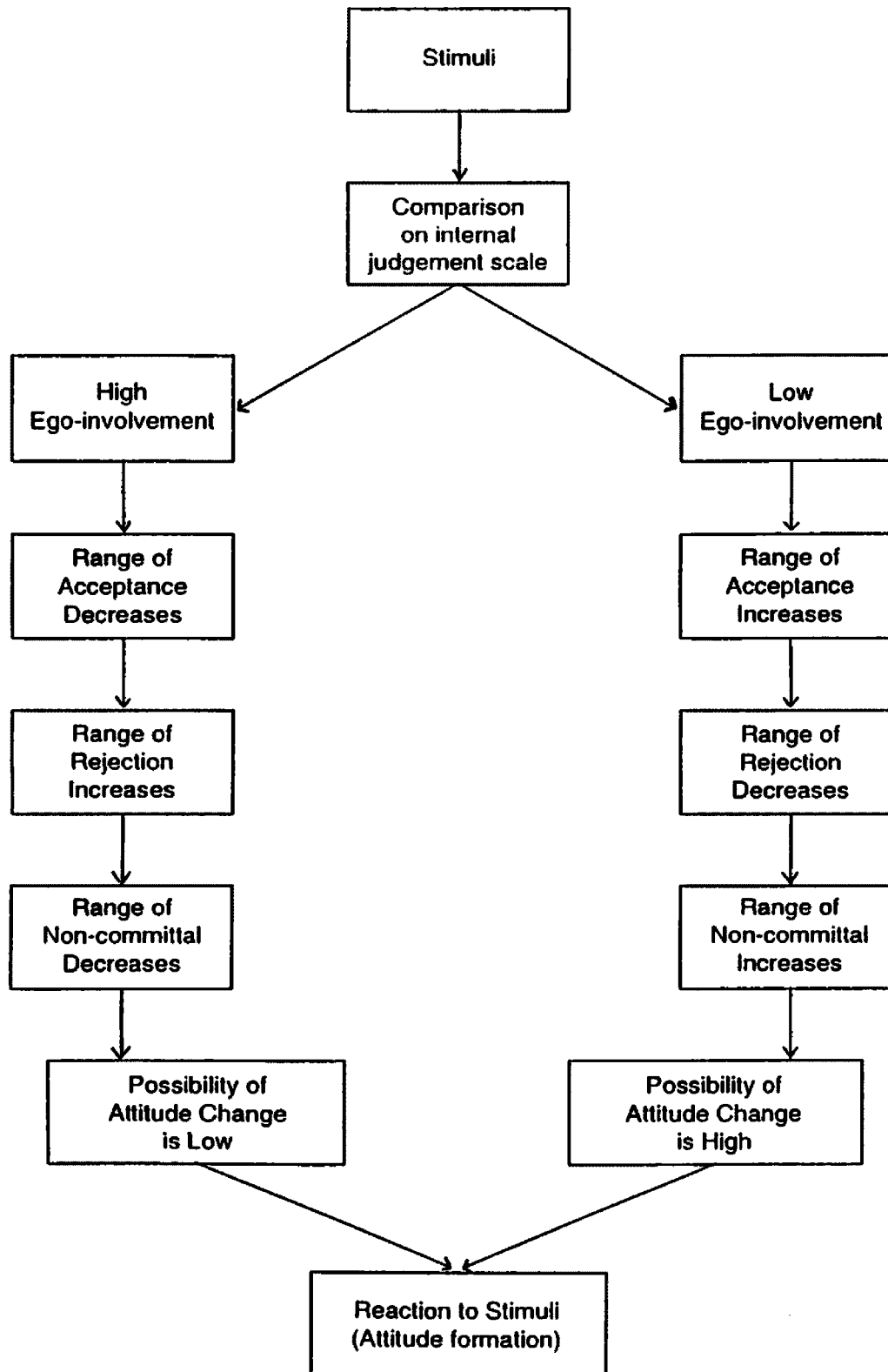
Social Judgment theory is a cognitive description of the formation of attitudes and the dynamics of attitude change. The word judgment in the title is derived from attitudinal comparisons which will be described shortly. It is important to note that judgments and attitudes are indisputably bonded within this theory.

To understand the judgmental aspects of this theory one must first define attitudes. Shaw and Wright (1967) define attitudes as "...a characteristic which implies a type of relationship between the person and the specific aspects of his environment." The authors go on to say that attitudes are "...directionality of behavior, but not behavior itself." Most definitions of attitudes are similar in nature and date to the early 1900's in the fields of Psychology and Sociology (Bogardus 1925; Thurstone and Chave 1929; Likert 1932).

Social Judgment Theory states that people form attitudes and make judgments about stimuli based on complex, *Internal Reference Scales*. These scales are formed by the categorization of past interactions and experiences with similar stimuli and the positive or negative evaluations made in each case. The scales comprise the entire range of all possible conditions for the universe of stimuli. As one receives new stimuli it is judged based on the person's reference scale and appropriately categorized. The person's attitude would then be based on attitudes toward similar experiences which can be summarized by the components of one's reference scale (Sherif and Hovland 1961; Sherif 1967; Shaw and Wright 1967).

According to Sherif and Hovland (1961) Internal Reference Scales contain four basic components. These components are the *Range of acceptance*, the *Range of Rejection*, the *Range of Non-committal*, and the *Most Preferred Condition*. The predictive components of Social Judgment Theory state that as an issue becomes more important, or salient, to a person and the more committed a person is to the stimuli (ego-involvement) the *Range of Acceptance* and *Non-committal* for possible conditions should decrease in size while the *Range of Rejection* increases (Figure 1). Also, the position of one's anchor point, or *Most Preferred Condition*, will affect the possibility of attitude change. If a stimuli is within the Range of Acceptance it will be assimilated *toward* the anchor point, that is, a person will hold a more favorable view of the stimuli than the actual position on a measurement scale would infer. To the same extent, a stimuli falling in the Range of Rejection would be viewed as farther away from the one's Anchor Point than it actually is. These are known as *Contrast and Assimilation* affects. Hence, attitude change (towards a stronger acceptance of a stimuli) is possible only when a stimuli falls within the Range of Acceptance and increases in probability as the stimuli approaches one's Anchor Point. The exception to this situation is a stimuli that actually changes the beliefs of a person. In this case, the entire Internal Reference Scale would be re-evaluated (Sherif 1966; Sherif 1967).

Figure 1: Social Judgement Theory



Social Judgment in Wilderness Management

As mentioned earlier, Wilderness legislation on the federal and state level contains a combination of qualitative and quantitative descriptors which define Wilderness attributes. These descriptions are intended to establish general management guidelines for these lands. The social descriptions tend to be qualitative, while historical and/or scientific characterizations tend to denote objective attributes. Both qualitative and quantitative descriptions establish management guidelines in Wilderness legislation. There is no emphasis on either over the other. Theoretically, qualitative aspects of Wilderness are just as important as quantitative attributes in a legal sense (Roggenbuck et al. 1993).

Portraying the importance of the social aspects of Wilderness, New York State's Adirondack Park State Land Master Plan states that:

"...another significant determinant of land classification involves certain intangible considerations that have inevitable impact on the character of the land. Some of these are social or psychological -- such as the sense of remoteness and the degree of Wilderness available to users of a particular area, the type and density of its forest cover, the ruggedness of the terrain or merely the views over other areas of the park obtainable from some vantage point. Without these elements an area should not be classified Wilderness, even though the physical and biological factors would dictate that the limitations of Wilderness management are essential (Adirondack Park Agency 1987)."

In practice, quantitative guidelines, such as minimum acreage and regulations concerning permanent structures, are easily definable and measurable and can be directly translated into management actions (Shelby and Harris 1986). Qualitative guidelines, on the other hand, are much more difficult to define and transpose into field-based operations

(Stankey and Lucas 1978). The main reason for this difficulty is the requisite for judgmental decisions.

A review of the Federal Wilderness Act demonstrates this judgmental problem. Subjective words, such as "significant", "generally", "substantially", and "outstanding" perforate this document when describing the social aspects of what Wilderness *is* (Public Law 888-577 1964). The quandary with these subjective words lies in their definitions, demarcations that can easily vary from agency to agency and individual to individual (Young 1990; Williams et al. 1992). Hence the dilemma, agencies required to manage the social aspects of Wilderness must make highly judgmental decisions due to the subjective wording of associated legislation.

The question then arises as to whose interpretations of subjective management guidelines will be used to create operational goals and objectives? Traditionally, these judgments have been made within managing agencies, utilizing some combination of scientific and political knowledge. Shelby and Harris (1986) in a paper concerning user standards for ecological impacts in campsites state that traditionally, natural resource management decisions have been based on managerial judgment and do not always coincide with perceptions or preferences of users in their area. Why is this statement important? Why should user perceptions of Wilderness attributes be of consequence? The answers to these questions can be expressed in two different ways, these being the effectiveness of management actions and the politics of decision making (Vaske et al. 1986).

It is obvious that one of the goals of Wilderness management is to function within the legal confines of associated legislation (Hammitt and Madden 1989). Judgmental decisions must be made to achieve this goal. It can also be assumed that administrative agencies desire their actions to be effective, that is, they fulfill visitor wants and needs as much as possible while staying within legal management parameters. For example, the Federal Wilderness Act describes areas that afford "...outstanding opportunities for solitude." What is *solitude*? Will a definition of this word created by managers resemble that of the Wilderness visitor?

With these questions, the relationship between the management of Wilderness and Social Judgment Theory becomes apparent. Social Judgment Theory provides a theoretical framework for the measurement of qualitative Wilderness attributes (Young 1990). Applying the Theory's Range of Acceptance, Rejection, and Non-committal aspects can also assist agencies in predicting whether a particular management action will be accepted or rejected by the public and if public attitudes and perceptions can realistically be changed.

Social Judgment Theory is not the only theoretical framework available to measure attitudes and preferences, but the *range* components of the theory lend themselves to the general and fluid nature of Wilderness management. Appropriate use of this theory can feasibly identify the social boundaries in which a management action will attain the desired outcome. For example, if a social judgment questionnaire is given to users of a particular Wilderness and it is found that the size of their Ranges of Acceptance for, say,

backcountry encounter levels, is small, this would tell the manager that the issue is salient, or important, to the users. This assumption is made based on Social Judgment Theory's predictive component related to the size of acceptable ranges (as compared with the other two range components) (Sherif 1967). Management goals and objectives could then be focused to fall within common ranges of acceptability. This correlation between attribute saliency and judgment research in a Wilderness setting has been used in current research (Watson et al. 1992).

Social Judgment Theory though, is not, in itself, an efficient tool for measuring visitor judgments on a broad scale. The theory is focused on *individual* responses to the universe of possible reactions to a stimuli. For researchers and managers to make use of social judgment data, it has been common practice to link Social Judgment Theory with Social Normative Theory (Sherif 1966; Young et al. 1990; Watson et al. 1992). The marriage between these two theories is appropriate as Social Judgment Theory provides the framework for measuring individual judgment responses and Social Normative Theory provides a way to combine these responses in a meaningful manner. In order to further explore the connection between these two theories one must first define Social Normative Theory.

Social Normative Theory

As stated earlier, public judgments, attitudes and preferences can be invaluable to agencies when making subjective management decisions (Vaske et al. 1986). Different

processes of collecting and analyzing public input have been extensively studied in past research with most of the work centering around the identification of *Norms* (Manning 1985). As described in this section, the identification of norms presents a method for grouping individual judgment responses in a highly meaningful and confident manner.

There have been several definitions of norms in the social-psychology literature, but most are similar in nature. Blake and Davis (1964) define norms as "...to designate any standard or rule that states what human beings should or should not think, say, or do under given circumstances. Homan (1950) states that "...norms are not behavior itself, but rather what people think behavior ought to be".

Though definitions may vary slightly, general agreement exists that there are two basic types of norms, these being *personal* and *social* (Blake and Davis 1964; Sherif 1966; Sherif 1967; Manning 1985). Personal Norms represent the internal views of a person, whether those views are complimentary to anyone else's or not. They can mirror or deviate from social norms. Social Norms represent views that are shared by social populations (Shelby 1981). "Social population" is a vague term generally signifying a group with something in common, whether it is economic background, education level, trip expectations, etc. (Sherif 1967; Shelby 1981). An example of a social norm could be the desire of the users of a Wilderness to experience some level of backcountry solitude. A personal norm could be the same as the social norm or could specify greater or lesser solitude.

The guidance of management actions using the social norms of a user population can help alleviate many of the decision-making hardships inherent with socially-oriented issues (Patterson and Hammitt 1990; Shelby et al. 1988; Vaske et al. 1986; Manning 1985; Shelby and Heberlein 1984). When a social norm is apparent (in the case of Social Judgment Theory when the *ranges* of respondents are similar in size and location) a manager can tailor his or her action to fall within the boundaries of that norm. In a sense, this decision would then be partially based on public input and could give managers higher confidence that their actions would be publicly accepted.

The link between Normative Theory and Social Judgment Theory is apparent. The latter theory provides the theoretical framework for understanding how people make judgments and how attitudes are formed and changed while Normative Theory provides a framework to quantify, on a broad-based scale, this qualitative information through norm identification. This link is initiated through the use of a measurement device, or scale, which accurately describes the judgment components needed to utilize each theory (Jackson 1965; Young et al. 1990). Judgment scales have existed for over a century and have evolved to become much more complex over the years. When reviewing current uses of judgment scales, it is important for one to understand the historical foundations of judgment measurement.

Judgment Scale Development

As Sherif (1967) has stated, people form attitudes by categorizing stimuli with similar information from their past. This categorization involves a judgmental process and is progressively linear in nature. This ordinal feature of judgments and attitudes is demonstrated on one's Internal Reference Scale (Sherif and Hovland 1961). Attempts to measure the range components of these internal scales can be dated back to the mid-1800's in the psychological field of judgment research (Sherif 1967). It is significant to note that most judgement research at this time was conducted under laboratory conditions and often did not concern attitudes per se, but judgments on objective material, such as weights and colors (Thurnstone 1929; Sherif and Hovland 1961).

Basically, there are two types of Social Judgment Scales used in Wilderness research today. The first type, or *classical* type, is partially based on the work of Thurnstone (1929), Likert (1932), and Sherif (1967). These scales involve written statements about a subject that are ordered along a continuum. These statements are limited in number with each one reflecting a category along the continuum. The second type, which seems to have come into use only recently, is numerical in nature and does not employ categories along a continuum (Watson et al. 1992).

Most judgment research, until recently, involved test subjects categorizing written statements that were supposedly linear in nature. For example, a scale measuring attitudes toward African-Americans would consist of statements that were positively, neutrally, or negatively associated with Blacks. These statements would then be categorized in a

fashion dependent on the test subject's attitudes toward the stimuli (Sherif and Hovland 1961). Thurnstone (1929), conducted objective tests with similar scales in the late 1800's and early 1900's. These tests usually consisted of judging color harshness, weights of objects, etc.

Thurnstone (1929) perceived that bias may exist in many of these measurement scales, especially scales requiring subjective responses. The basis for this perception centers on the assumption that there is a high probability that homogeneous interpretations of subjective, written statements do not exist. That is, a statement which seems simple and straightforward to someone may hold an entirely different meaning to someone else (Thurnstone 1929). Hence, data skewing could occur, not because of one's attitudes, but because of misinterpretation of test statements.

To battle this alleged problem, Thurnstone developed the Method for Equal-Appearing Intervals (Thurnstone 1929). The method basically involves developing a large number of statements about a test subject. These statements would then be categorized by judges. Each category would represent an interval on the scale. Researchers would then pick one item from each category for the scale. For a statement to be used in the scale, it must have been placed in the same category by all of the judges, assumingly showing homogeneous interpretation. Statements not having uniform interpretations were thrown out (Sherif and Hovland 1967).

Sherif (1967) states that there are assumptions with Thurnstone's methods that may not be realistic. Specifically, Sherif states that "... the intervals between various

positions on an attitude scale are independent of the position of the individual who is making the judgment." The same assumption has been questioned by others (Henerson and Morris 1978). These researchers infer that equal-appearing intervals may not be assumed merely because they were judged to be equal. Edwards (1957) makes the case that the meaning of written statements, no matter how factual they seem, can be interpreted differently by different people. In general, Edwards states, the more text that is needed to create a response category, the more probable that the statement will not have homogenous interpretations. Edwards also points out another drawback to the *classical* type scale when he stated that paired comparison statements on one extreme tended to centralize on equal-appearing scales (Edwards 1957). He seems to infer that data skewing may occur due to the visual nature of the measurement device and can only happen in one direction for statements on the end of the scales, tending to push responses toward the center. Edward's statements seem to conclude that many people will not respond accurately to extreme statements (whether they agree with them or not) simply because they are extreme on the measurement device. In short, variability for extreme statements is only possible in one direction (Edwards 1957; Sherif and Hovland 1961).

The second type of scale, or *numeric* judgment scale, has existed in an objective format since the mid 1800's. During this time, judgment studies were run under laboratory conditions for control and usually consisted of people making judgment about weights, sizes, or other characteristics of objects. These studies were objective in the sense that a person's attitude about the stimuli was not really involved (Sherif 1967).

Recent use of numeric scales in a *subjective* format has been attempted to better understand social judgment ranges in terms of location and correlation with each other (Watson 1989; Watson et al. 1992). Such scales appear to neutralize interpretive effects of text-oriented response categories.

Though subjective scales of this nature have only been used in Wilderness research rather recently, there have been some general concerns expressed with their use. The concerns revolve around the concepts of unidirectional variance and scale attribute biases. There have also been some general concerns expressed with the use of Social Judgment Theory itself.

Research Concerns with Social Judgment Theory

Though widely used in various types of research, Social Judgment Theory has properties that leave it open to criticism or reservations. This section describes some of these deficiencies and suggests how these properties could affect research outcomes.

As developed in part by Thurnstone (1929) and later refined by and Sherif and Hovland (1961) and Sherif (1967), Social Judgment Theory remains conceptually general in nature. The theory assumes a direct relationship between judgmental responses and ego-involvement, but does not attempt to address other variables which may affect judgment outcomes. Because of this, the theory has been described as oversimplistic by some (Henerson and Morris 1978). Applied to backcountry situations, the theory may not

produce desired data given the tremendous complexity of a visitor's "whole" experience (Stankey et al. 1984). There are other attributes which may affect judgment outcomes including education, age, recreational activity, expectations, environmental factors, and attachment to place (Manning 1985; Watson 1991; Moore and Graefe 1994).

Another dilemma with the use of Social Judgment Theory is based on the viability of measurement techniques. In order for this theory to be useful to researchers and managers, it must be able to be tested and implemented in real-world situations. It is an assumption of this approach to measurement that people are capable of stating their judgments, attitudes and preferences accurately on some type of measurement scale (Edwards 1957). It has been argued that responses to judgment questions may not reflect how the respondent would feel or react to real-world situations (Edwards 1957, Shaw and Wright 1967). This reservation about Social Judgment Theory is supported by the findings of a crowding study implemented by Manning and Hammitt (1990). In this study it was found that, although 83% of respondents on a judgment scale encountered more people than they preferred to see in the backcountry, only 34% reported that the encounters detracted from their experience. The results of this study suggest that judgment scales may not always elicit valid responses (based on an assumption that crowding should have negatively affected the experiences of 83% of the users if their stated attitudes reflected their true or "real-life" attitudes). Henerson and Morris (1978) go on to add that "...behaviors, beliefs, and feelings will not always match....can there be

more than one perspective on acceptable conditions?" Liska (1975) echoes these thoughts by stating:

"...various social scientists have recently begun to reexamine the validity of attitude, behavior, and attitude-behavior consistency measures (Liska 1975)."

Liska (1975) supports these thoughts with numerous studies showing that written attitude responses did not correlate with real-world actions when actually confronted with the stimuli.

Though these concerns with the use of Social Judgment Theory indicate important issues, there may be ways to limit adverse effects by adjustments in measurement and analysis procedures.

Using Social Judgment Theory in Wilderness Management

Most studies associated with attitudes in Wilderness management have attempted, in some fashion, to measure judgments or preferences of visitors. As stated earlier, the importance of accurate judgment and preference measurement cannot be understated as it serves to help identify management guidelines (Watson et al. 1992). These studies have generally focused on the social issues of crowding, backcountry fire policy, campsite impacts, general concepts of solitude and satisfaction, and Wilderness *indicator* and *standard* selection for specific use in the *Limits of Acceptable Change* planning process

(Stankey 1973; Stankey and McCool 1974; Manning 1985; Young 1990; Watson et al. 1992).

These studies have looked at a variety of independent variables that may affect a person's judgments and preferences such as Wilderness experience, trip expectations, education, ego-involvement, primary recreational activity, and place attachment (Shelby 1980; West 1982; Manning 1985; Watson and Niccolucci 1991; Young 1990). There are differences among these studies in the types of measurement scales and data analysis used.

It is important to note that many of the following studies use only portions of Social Judgment Theory, such as identifying acceptable, unacceptable, and neutral conditions. Most of this research though, does not fully utilize range components of the theory or attempt to make predictions of attitude change. Instead, the theory is utilized through the identification of preferred conditions and crude, segmented ranges using Likert-type scales. It seems clear that, with the exception of Watson et al. (1992), researchers have not begun to realize Social Judgment Theory's full potential in Wilderness research.

Studies in Backcountry Crowding

The studies listed in this section have attempted, with varying methods, to measure judgments and preferences of backcountry users toward crowding, hence a measurement of attitude. Each study has used Social Judgment Theory (in whole or in part). Though

this theory is utilized in each study, it is important to note that many do not specifically mention the theory. For example, a study may outline and utilize Social Normative Theory, but aspects of judgment are usually inherent and require an understanding of the judgment process.

Gramann (1982) in a review of crowding research in outdoor settings stated that although crowding was popularly viewed as a physical construct in past research, such as early carrying capacity studies, there is a social-psychological component that cannot be overlooked. Gramann stated that more important than physical density is how a crowding situation is evaluated by the recreationist. He investigated a concept titled *Social Interface Theory*. According to this theory:

"human behavior is often goal directed, and crowding attributions occur when the number, behavior, or proximity of other persons in a setting is incompatible with an important goal and thus interferes with its attainment" (Gramann 1982).

Shelby (1980) supports Gramann's statements by saying that "...what is defined as excessive (crowding density) will vary with individual preference and situational definition." Manning (1985) in a review of normative crowding studies concludes that perceived crowding is influenced by visitor characteristics, characteristics of those encountered, and other situational variables. He also stated that density is only perceived as crowding when it interferes with one's recreational goals and objectives. Manning reviewed various studies which suggest a strong correlation between visitor attributes, such as motives, expectations and preferences and perceived crowding of recreationists.

From Gramann, Shelby, and Manning's statements the important link between crowding studies and Social Judgment Theory becomes apparent. If indeed, a social-psychological component exists within the concept of crowding and is associated with expectations, goals, and preferences, that component should be capable of measurement on a Social Judgment scale. And though normative concepts are the focus of many of these studies, a connection is usually made, knowingly or unknowingly, with Social Judgment Theory. These perceptions of crowding are shared by many other researchers and will be used in this section as a guide to crowding structure.

To understand some of the following studies, Jackson's Return Potential Model (1965) is useful. The model was used to define the structural characteristics of norms and provide a method for quantifying attitudes, hence, making social judgment information useful to researchers and managers. Jackson lists three components of norms that can be identified and measured using this model. These components are *Norm Intensity*, *Norm Crystallization*, and the *Range of Acceptance*.

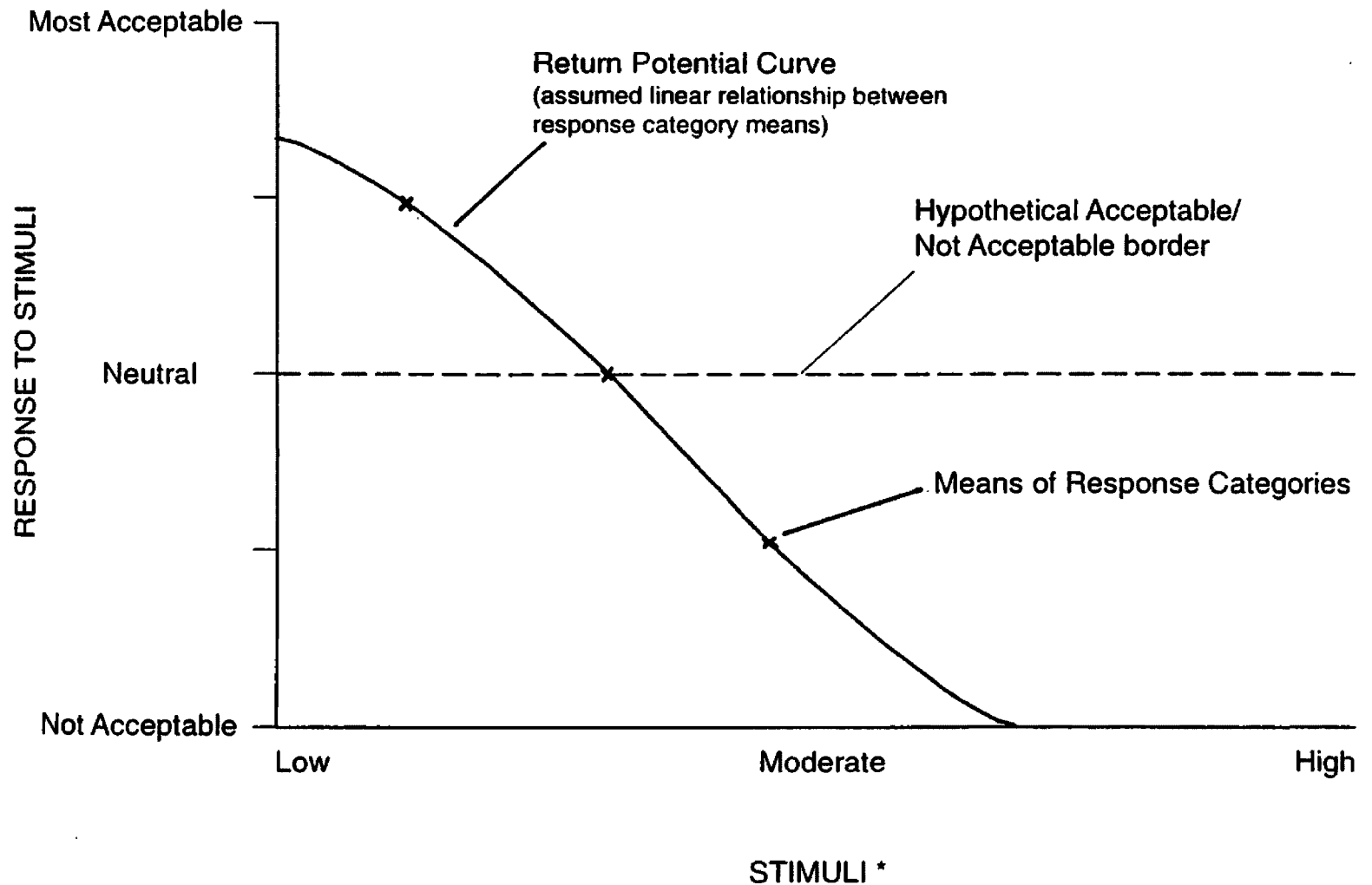
The output of Jackson's model is a graphic representation of the aforementioned normative characteristics called a *Return Potential Curve* (Figure 2). The vertical axis of the graph represents attitudes toward a subject ranging from favorable to unfavorable and encompassing all attitudes in-between. The horizontal axis represents a stimuli, usually encounter numbers (for Wilderness studies) or some other quantifiable item that is progressively linear in nature. The *Range of Acceptance* is defined as the height of the "curve" above the neutral attitude position. *Norm Crystallization* is defined as the amount

of agreement about a stimuli, which can be visualized by the "length" of the curve in areas of similar attitude, that is, a uniform area of curve height. *Norm Intensity* can be seen as the "spread" of the curve along the horizontal axis. The Return Potential Curve is created by assuming a linear relationship between mean scores for responses at different stimuli levels (Jackson 1965).

Theoretically, in a Wilderness situation, a manager could determine how many people would accept a management decision by looking at an appropriate Return Potential Curve. Also, the higher the Norm Intensity, the stronger the acceptance would be for that decision. Numerous crowding studies have used Jackson's framework with varied amounts of success (Vaske et al. 1977; Shelby 1981; Shelby and Heberlein 1986; Patterson and Hammitt 1990).

Vaske, et.al. (1986), in a study of Brule River recreationists, attempted to test a conceptual framework for identifying the structure of norms as related to perceptions of crowding. This study built on previous work (Manning 1985, Heberlein 1977) and was directly related to Jackson's Return Potential Model (Jackson 1965). Jackson's theory, and hence this study, is related to Social Judgment Theory by the similar use of attitude measurement in range format. Also, norm intensity is related to the most preferred condition position on a social judgment scale.

Figure 2: Jackson's Return Potential Curve



* Horizontal Axis usually represents a quantifiable figure such as number of backcountry encounters

** Vertical axis usually represents a Likert-type limited-response category, text-oriented scale

In the Brule River study, canoers were asked how they felt about seeing other canoers, tubers and fishermen. The canoers were asked to respond to hypothetical contacts of 1,2,3,5,7,9,15,20, and 25 of each aforementioned group. The study participants could respond by choosing one of five categories which would describe their feelings. These were (1) very pleasant, (2) pleasant, (3) neutral, (4) unpleasant, and (5) very unpleasant. For each scenario a Return Potential Curve was produced. Each curve was then tested for significance.

There are a few reservations with the use of the Return Potential Model in this research and other similar studies. First, there is an assumption of linear connection between the response categories (that is how the Return Potential "Curve" is drawn). In fact, the linear relationship between "pleasant" and "unpleasant" responses may not exist at all. Concepts of "floors" and "ceilings" within acceptable and unacceptable ranges are an issue. There also have been concerns expressed about properly accounting for behavioral problems associated with crowding.

There are several studies which have attempted to correlate visitor characteristics with judgments of crowding. In particular, visitor motives and expectations for encounters with others frequently have been studied (Ditton, Fedler and Graefe, 1983; Absher and Lee, 1981; Shelby, 1980; Shelby, Heberlein, Vaske and Alfano, 1983; Stankey, 1973).

Ditton, Fedler and Graefe (1983) studied crowding perceptions of users on the Buffalo River, Arkansas. Motives for recreation were found to be highly correlated with

perceived crowding. As might be expected, users wishing for more solitude perceived the most crowding and those driven by non-solitude motives perceived less. In this work, motivational inquiries were made using a nine-point, text-oriented scale.

In a similar study, Absher and Lee (1981) found that hikers in Yosemite National Park who were motivated by "quietude" perceived more backcountry crowding than those in other motivational categories. Both of these studies provide evidence to support aspects of Social Judgment Theory, specifically, the placement of situations on one's internal reference scale in accordance with the level of their ego-involvement on the subject.

Visitor experience has proven to be a common independent variable in judgment measurements toward crowding. Vaske, Donnelly and Heberlein (1980) conducted a study of boaters in the Apostle Islands National Lakeshore and found that, indeed, prior experience in the area was highly correlated with perceived crowding during the study period.

Heberlein, Alfano and Ervin (1986) also conducted a study in the Apostle Islands for purposes of identifying a carrying capacity for marina boat slips. This study was conducted using the concept of a four-part *Carrying Capacity* (Butler and Knudson, 1977). This investigation focused on the *Social* aspects of *Carrying Capacity* since the others (physical, ecological, and facilities) were roughly defined in previous studies.

Boaters were asked to respond to hypothetical use levels at popular mooring locations in the area. Each respondent was asked to evaluate one possible encounter

number (out of a possible nine) by giving it a value on a five-point scale ranging from "very pleasant" to "very unpleasant". Preference curves were then created using Jackson's Return Potential Model as a framework.

This study is typical of past judgment/attitude research in that the measurement devices work on the concept of categorization. A five-point, Likert-type scale was used to measure attitudes and a non-linear, limited numeric scale measured preferences (non-linear because only one random category of this nine-point scale was tested on each individual). There were no evaluations or measurements in this study of "acceptable ranges" on an individual basis, but ranges were established by using the mean evaluation scores for each of the nine scale segments and then applying Jackson's model.

Social Judgment Theory would suggest that a high recreational use level in the Apostle Island area would coincide with a smaller Range of Acceptance (in relation to encounter levels) on one's internal reference scale. This would explain the more negative associations with perceived crowding in this study from those with greater experience. Remember, according to Social Judgment Theory, encounters falling outside the range of acceptance would be judged more negatively than their actual position on a measurement scale would infer, in other words, they are subject to contrast effects (Sherif and Hovland 1961).

There have been no apparent attempts to fully utilize Social Judgment Theory's components in past crowding studies though Watson et al. (1992) make more of an effort.

Specifically missing are predictions (and verifications) of attitude changes based on range identification.

Measurements of Attitudes Toward Fire Management Policies

Stankey (1971), in a study of public attitudes toward fire management policy in the Northern Rockies, described attitudes as being composed of two different dimensions. The first, or *Affect* component, describes how people "feel" about a stimuli, and usually involves responses on some type of "like-dislike" scale. He pointed out that this dimension of attitude is the one most commonly measured in attitudinal research. The second component, or *Cognitive* dimension, describes the beliefs the respondent holds about a certain stimuli. According to Stankey, these two components are highly correlated (Stankey 1971).

The theoretical framework for Stankey's study is directly correlated to Social Judgment Theory since beliefs are associated with the formation of internal reference scales and the categorizations of stimuli along those scales (Sherif 1966; Sherif 1967).

In Stankey's study both dimensions of attitude were measured. The *Cognitive* dimension was measured using an 11 question true/false test concerning the role of fire in the Northern Rockies. The *Affective* component was measured using a 9-point, text-oriented scale which covered the range of possible attitudes toward fire management. This scale was developed in classic Judgment Research style, that is, using a limited

number of textual statements for people to respond to and seemed to infer equal-appearing intervals (Thurnstone 1929; Likert 1932; Sherif 1967). Visitor attributes were used to test for significance with the affective responses in this study. These attributes were age of respondent, first-time versus repeat visits, education level, and knowledge of fire's role in the Northern Rockies (response to the 11 item test).

The first three attributes did not account for significant differences between respondents in this study. The fourth attribute though (knowledge of fire's role) did account for much of the variability among responses (Stankey 1971). This study was repeated by McCool and Stankey (1986) and the results showed that knowledge, again, was highly correlated with attitude and that experience in the study area was highly correlated with knowledge.

These two studies show that the independent variable of subject knowledge is highly correlated to responses on a preference scale pertaining to fire policy in the Northern Rockies. Knowledge of a subject may hold promise as a predictor variable for judgment ranges in other areas of resource management. It is apparent from the study though, that knowledge can probably be broken into other component variables such as on-site experience and ego involvement (McCool and Stankey 1986).

The scales used in these studies were classic in nature, that is, their roots can be traced to text-oriented response scales used in judgment research as early as the late 1800's (Sherif 1967). These types of text-oriented scales, as mentioned earlier, have come under criticism for failing to produce non-biased responses on a consistent basis though

this limitation is not apparent in this study since there was a high correlation between responses in both studies (Sherif and Hovland 1965; Henerson and Morris 1978).

Indicator and Standard Identification

As stated earlier, the Wilderness Act indicates general conditions that are to exist in Wilderness. Specifically, the Act states that wilderness will be managed "as to provide for the protection of these areas, the preservation of their wilderness character...." (Public Law 88-577). The Act also uses qualitative descriptors such as "solitude" and "untrammled". To quantify many of these general concepts of what Wilderness *should be* the range management concept of *Carrying Capacity* was adapted to Wilderness management (Stankey et al. 1984; Stankey et al., 1985; Roggenbuck et al. 1993).

The *Carrying Capacity* management procedure involves setting a density-related number where the resource starts to become unacceptably impacted. Generally, with the identification of this number, a use limit would be set, hence stopping undesired resource degradation. For example, in wildlife management a maximum size of elk populations could be derived based on, among other factors, the physical amount of their wintering food supply. In this case, the variables used to obtain a *Carrying Capacity* are easily quantifiable and specific steps can be taken to manage the size of the elk herds.

In backcountry recreation, it was found that *Carrying Capacity* was oversimplistic and that recreational experiences were far too complex to be represented by a single

maximum density figure (Stankey et al. 1985). Along this line of thinking, Schreyer and Roggenbuck (1978) stated that "...a large part of the difficulty in setting sound carrying capacity levels is the failure to conceptualize adequately the behavioral aspects of recreation...".

According to Stankey, McCool and Stokes (1984) the question "how much is too much?", which *Carrying Capacity* attempted to answer, was operatively replaced with "what kinds of conditions are desired in wilderness?" In order to answer this question, ways to measure the components of the recreation experience and the attitudes and preferences of backcountry users needed to be further developed.

A Wilderness planning process titled the "Limits of Acceptable Change" (LAC) was created and intended to offer an alternative to using carrying capacity as a recreation management tool (Stankey et al. 1985)(Figure 3). The LAC process takes into consideration the complexity of recreational experiences and physical wilderness attributes, or recreational opportunities, that are seldom uniform in any given Wilderness. Rather than setting use limits, LAC focuses on defining indicators of physical and experiential quality and setting measurable standards for those indicators.

In the process of indicator and standard definition, the link with Social Judgment Theory is made. Inherently, defining indicators will first entail identifying the *importance* of various recreation opportunities to the public. Indicators are then selected that reflect those opportunities (Stankey et al. 1985). The development of standards for these indicators involves the establishment of acceptable and unacceptable conditions, a direct

Figure 3: The Limits of Acceptable Change (LAC) planning system. (Taken from Stankey et al. 1985)



correlation to Social Judgment Theory's ranges of acceptance, rejection and non-committance.

There have been a limited number of studies which have attempted to correlate social judgment responses with LAC indicator and standard formation. Many of these studies have searched for statistical significance between these responses and visitor attributes such as age, income, wilderness experience, attachment to place, and attachment to wilderness in general (Watson et al. 1992; Young 1990; Williams et al. 1992). The following is a description of many of the aforementioned studies with emphasis on new twists to measurement techniques and independent variable selection. It should be mentioned that it seems there is only one wilderness database in existence that makes use of numeric, linear scales. This database was a product of a U.S. Forest Service study of southern Wildernesses conducted in 1989. Many of the studies below are rooted in that database, though they attempted to test different hypotheses.

Young (1990) in a study of visitors to the Cohutta Wilderness in Georgia attempted to combine the use of Social Judgment Theory and Social Normative Theory. This study, among other things, attempted to find LAC-oriented indicator standards for a variety of resource attributes. Significant correlations between standards and visitor sub-groups were identified.

The respondents in this study were asked to complete questionnaires which detailed information such as general demographics, attachment to wilderness in general, attachment to the Cohutta Wilderness, importance of specific resource attributes,

wilderness experience, and preferences/attitudes concerning attribute acceptability levels (USFS, 1989).

This study makes use of a relatively new concept in measurement of attitudes/preferences using Social Judgment Theory as a construct. Instead of the standard, limited grouped-response scale to judgmental situations, a progressively-linear, numerical scale was used. This scale directly measured the four components of one's *Internal Reference Scale* as defined by Social Judgment Theory. These are the *Ranges of Acceptance, Rejection, Non-committance, and the Most Preferred Condition*. As shown below, respondents were asked to draw a line on top of the scale over all acceptable conditions, draw a line under all unacceptable conditions, and place an "x" directly over their most preferred condition. Any space existing between acceptable and non-acceptable conditions was deemed the range of non-committance. This study attempted to measure the importance of numerous indicators of preferred Wilderness experiences and the extent of which norms for these indicators could be identified.

It was found that users tended to place high levels of importance on most of the indicators studied. These indicators centered around noise intrusion and encounter levels with other groups or individuals in the campsite and on the trail. Sub-groups delineated by place attachment, length of stay and Wilderness involvement showed significant differences in attribute importance evaluations (Young 1990).

Watson et al. (1992) in a study of southern Wildernesses, have made one of the most intricate attempts yet to incorporate Social Judgment Theory into Wilderness research.

This is the baseline USFS (Watson 1989) study using the linear-numeric format designed to identify the three range components of Social Judgment Theory. Though this study was designed to provide baseline information on southern Wildernesses for much more than visitor judgments on resource attributes, the preference segment of this research has helped define the most complex use of Social Judgment Theory to date. Other information gathered from this research included length of stay, group size, activities participated in, backcountry encounter levels for hikers and horsepackers, availability of substitute sites, place of residence, previous Wilderness experience, attachment to Wilderness, and visitor preferences for Wilderness conditions. Any of these items could feasibly be used as independent variables in norm identification of social judgment ranges. Results of this study have suggested differences among visitors to the three Wildernesses studied and some western U.S. Wildernesses. The three southern Wildernesses differed in visitors, visit characteristics and visitor preferences. It is stated in this report that selection of Wilderness quality indicators for LAC applications may be helped by the preference/judgment information incorporated into this study. This study included a ranking of experience quality indicators. These were measured on a five-point, Likert-type scale. These indicators included number of damaged trees around campsites, amount of litter seen, amount of human related noise originating outside the Wilderness, and contact levels with hikers and horsepackers on the trail and at campsite locations. Items in this study measured using the numeric-linear scales were the same as the Wilderness quality indicators so that comparisons could be made between the two. This study found

that indeed, there is a correlation between saliency of Wilderness attributes and the relative size and location of social judgment ranges. According to Watson et al. (1992) a relatively small pool of potential quality indicators could be developed by eliminating items that the users did not rate at least moderately influential. This study indicates the potential for identifying management guidelines by first developing a group of salient indicators with a Likert-type scale and finding the standards for those indicators through identifying norms in the social judgment ranges of the users.

There are a number of important issues which arise in these two studies. One of these is the thought that indicators do not need to be salient to users, but must represent salient experience opportunities. If this is the case, then the selection of Wilderness Quality indicators by public judgment may not be the most efficient method in terms of establishing management guidelines. Another important aspect of these studies is that numeric-linear scales seem to measure social judgment ranges within the parameters of the theory. In a sense, the ranges behaved as predicted by the theory when correlated with attribute saliency responses.

Young (1990) reports in his findings that norms seemed to be unstable over time. This brings up the question of *when* responses to judgment questions should be gathered, that is, before, during, or after a stimuli? Both of these studies do use a number of independent variables in conjunction with judgment scales that deserve further research to test their significance (integrity in different Wildernesses at different times). These independent variables include wilderness involvement, time of visit, experience use history,

place attachment and length of stay. The use of Social Judgment Theory in this research seemed appropriate and should stimulate similar uses of this theory.

Discussion

The Wilderness Act requires managers to utilize information on the personal and societal aspects of backcountry recreation (Shelby 1980; Roggenbuck 1983). Mandated by law to follow, at best, general guidelines as to what Wilderness is (or should be) managers and researchers have determined that this information is best derived from public input in addition to managerial judgments.

How to effectively gather and analyze public input is not entirely clear in all situations, though the subject has been heavily researched in the last two decades (Jackson 1965; Stankey 1973; Hammitt 1982; Patterson and Hammitt 1986; Vaske et al. 1986). The use of Social Judgment and Normative theories has proven a strong foundation for much of this research. And though it seems, at times, that more questions are created than answered, strides have been made in understanding the components of visitor attitudes and perceptions and the complexity of recreation experiences.

Social Judgment Theory does have its critics, but careful implementation and follow-up analysis should, and has, reduced the severity of many of the theory's limitations. Researchers have "expanded" the theory to cover more independent variables that affect internal reference scales. Parallel studies of visitor motives, expectations,

satisfaction, and relationship to the resource, among others, have helped to explain variations in judgment responses within a social judgment framework (Manning 1985; Watson and Niccolucci 1991; Moore and Graefe 1994).

The rest of this section is dedicated to reviewing some of the deficiencies with Social Judgment Theory in greater detail and how researchers have attempted to deal with them. On the other side of the issue, the positive aspects of the theory are reviewed and an overview of the theory's general performance is given. Of great importance is how the theory correlates with new and expanding areas of research.

As mentioned earlier, Social Judgment Theory is conceptually general in nature. The theory, derived in most part by the work of Sherif and Hovland (1961), and Sherif (1967), attempts to explain variations in one's internal reference scale with the independent variable of *ego-involvement*. With some of the original judgment studies in this field this correlation may have seemed to hold true. Most studies were implemented under laboratory conditions and did not reflect the complexities of true social interactions (Sherif and Hovland 1961). In a Wilderness recreation sense, ego-involvement may explain some variation in judgments about, for example, backcountry crowding, but other influences including behavior, expectations, and environmental factors also have an effect (Stankey 1973; Stankey et al. 1984; Manning 1985).

Using past research as a guide, it is apparent that social judgment research should be correlated with independent variables applicable to research goals. Such variables may

include experience in wilderness, trip expectations and motives, education, and attachment to place.

Recreation studies during the past two decades have begun the process of "weeding out" effective independent variables as has been shown by, among others, Stankey (1973), Shelby (1981), Manning (1985), McCool and Stankey (1986), Shelby and Harris (1986), Young (1990), Watson et. al. (1992), and Williams et. al. (1992). In the identification of significant independent variables lies the effective use of Social Judgment Theory. Working in concert with these independent variables must be the judgment responses themselves.

As a chain is only as strong as its weakest link, Social Judgment Theory is only as useful as its measurement device. Most difficulties with past attempts in attitude and preference measurement can be related, not to the theory itself, but to the scales used to measure responses. Scale construction was already viewed as a problem in the late 1800's when Thurstone (1929) developed his model for Equal-Appearing Intervals. Even in more recent times, criticism has been directed at scale construction (Henerson and Morris 1978; Edwards 1957). Historically, scales were developed in a textual format. Contemporary studies have depended on similar scales, offering a limited number of written statements used in conjunction with limited response categories.

One major fault with this approach has been the practice to assume a linear relationship between segmented categories and base one's analysis on this assumption. Nowhere is this more present than in the uses of Jackson's Return Potential Model (1965),

where the Return Potential Curve is an assumed linear relationship between response category mean scores (Manning 1985).

In addition to assumed linear relationships, another issue has been debated which finds its roots deeper in the psyche of respondents. This issue focuses on how well a person can accurately relay his or her attitude about a stimuli in a hypothetical situation (Liska 1932; Henerson and Morris 1978). For example, can a person truly relay a level of backcountry encounters they would perceive as causing crowding on a hypothetical river trip without actually experiencing the stimuli (Vaske 1977). It has been argued that the formation of attitudes is so complex that measurement prior to a stimuli may not be as accurate as observation of behavior during the stimuli or measurement of attitudes after the stimuli (Henerson et al. 1987). Liska (1975) states that there are many differences between attitudes and behaviors and goes on to say that attitude-based predictions can be misguided. A possible topic for future study could be the identification of correlations between prior, during, and after-stimuli measurements. These types of studies could assist in defining the most effective time to implement judgment measurements to achieve the highest possible accuracy in responses. Studies of this kind would also assist in defining the longevity of attitudes and preferences. For example, do attitudes change during an activity and then return to prior status afterwards, or are attitudes consistent through time? All of these questions play an important role in making full utilization of judgment data.

Progress was made in attitude measurement with the use of linear-numeric response scales as used by Watson and others (1992) in a study of southern Wildernesses. This scale seems to negate non-linear effects of textual, limited response scales, but is not without its limitations, mostly centering around the concept of *Unidirectional Variance* and *Floor and Ceiling Effects*. The concept of Unidirectional Variance was proposed by Hevner (1930) and Edwards (1957). Hevner was one of the first researchers to identify that paired-comparison attitude responses tended to centralize on equal-appearing scales. Edwards also makes a similar hypothesis, stating that variability is possible in only one direction for extreme statements. Though these two authors were not talking directly about linear response scales, the concept remains and could have an effect on current scale usage. In Wilderness research, linear-numeric response scales have usually been constructed to measure perceptions of crowding based around the activities of hiking, horsepacking and camping (Watson et. al. 1992). Linear-numeric scales used in the US Forest Service study of southern Wildernesses (Watson et al. 1989) required lines drawn above and below a numeric scale to define ranges of acceptance, rejection and non-committance. Also, an "X" was to be placed on the scale to define a person's most preferred condition for the attribute in question.

With scales such as these, it is common to have the "most preferred condition" on, or near the extreme end of the scale. For example, in a backcountry crowding study this extreme end of the scale may represent "zero" encounters. Variances in responses, no matter what the cause, can only take place in one direction if the Most Preferred

Condition is at the extreme end of the scale. Sherif and Hovland (1961) noted this affect on limited response scales, stating that they believed the "most preferred condition" in many of their studies was higher than they expected it would be, or believed to be true. In the use of numeric, linear response scales there is also an assumption of linear relationships, similar to the assumption earlier mentioned with limited response measurement devices. Can it be assumed that everything below a "most preferred condition" is acceptable to the respondent? Can there exist "floors" and "ceilings" where the progressive-linear relationship does not hold true? These questions have not been thoroughly answered with research to date, though "floors" and "ceilings" have been hypothesised in recreation research as early as the 1960's (Wagar 1967).

The existence of "floors" and "ceilings" in responses would hinder the assumption of linear attitude progression. For example, a person may indicate a range of acceptable encounters on the trail (for this example, we will say "0-10" encounters). Normally, assumptions would be made that all encounter levels below 10 would be acceptable. Suppose though, that *no encounters* is unacceptable, that the recreationist *does* want to see other people. In this example, there is a "floor" to the respondent's Range of Acceptance. The assumed linear relationship does not exist within this range. Another example could be a person going to a state campground for the weekend. He may want other people in the campground to create a fun, family atmosphere, but would not like the campground full for fear of feeling crowded. On the same note, this camper would not want to be the only one in the campground because he is looking for a socializing

experience. Hence, all possible use levels below this person's Most Preferred Condition *are not* inherently acceptable. Again, there is a *Floor* to the campers Range of Acceptance. If the campground fills to capacity there is a chance the camper will feel crowded, but there may also be more of an "event" feeling to his weekend, possibly making the large crowd an acceptable condition. If this were true, then all conditions from the lowest level of rejection and above *would not be inherently rejected*. There may exist a *Ceiling* to the camper's Range of Rejection. Of course, there can be many factors influencing *Floors* and *Ceilings* including environmental factors and the behavior of those encountered.

It is becoming apparent that recreational experiences are extremely complex and fluid in nature. In turn, there are valid concerns about the effectiveness of analyzing one aspect of a recreational experience at a time. Asking a wilderness user to state acceptable backcountry encounter levels in itself, may not provide information essential for managing recreational opportunities. What other factors affect the respondent's experience in *combination* with encounter levels? Can questions, or measurement devices, be created that reflect more wholly the user's expectations and experiences?

Conclusions

There are generic and specific conclusions that can be derived from this paper and the research on which it is based. These conclusions raise more questions than answers, which shows the need for further research on judgment in Wilderness management. The six major conclusions of this paper are listed below.

1. Social Judgment Theory can provide a foundation for understanding the formation of attitudes and describing relationships between acceptable and unacceptable resource conditions in Wilderness. The Theory has undergone pertinent alterations in the early and mid-1900's to make it more useful in Wilderness research, and it is apparent that the theory must continue to evolve along with increased understanding of recreational experiences. The theory, despite its drawbacks, has the potential to be extremely useful in the implementation and monitoring of Wilderness management plans and seems to fit well with the requirements of the Limits of Acceptable Change planning process.

2. Social Judgment Theory is directed at individual judgments and attitudes, providing methods for understanding attitude development and change. The theory provides a useful framework for data analysis on an individual basis, but relies on other theories, such as Normative Theory, to help identify trends and patterns among users. More study is

needed to determine if there are other behavioral or attitudinal theories that can effectively work in conjunction with Social Judgment Theory.

3. There are inherent problems with the use of text-oriented scales to measure judgmental qualities of recreationists. One of these problems is the assumption of linear relationships between response categories. Early studies in Psychology and Sociology have echoed this concern and attempts have been made to rectify the problem with limited success. More research is needed to determine more efficient analysis methods to limit non-linear response effects and to identify valid analysis parameters.

4. Linear-numeric response scales, as used by Watson et. al. (1992), show promise for improving the effectiveness and validity of judgment data as compared with limited response categories. The concepts of *Unidirectional Variance* and *Floor and Ceiling effects* should be studied and tested in greater depth to determine valid analysis parameters for these data. Minimization of Floor and Ceiling effects seems achievable and should be explored further.

5. More study is needed to determine the best possible chronology of judgment measurement device implementation. Are measurement devices most useful/accurate when implemented before, during, or after a stimulus? Should these devices be

implemented multiple times? Also, testing in a Wilderness setting should take place to determine the longevity/integrity of judgment responses over a period of time.

6. Methods need to be derived to account for situational complexities such as behavior of recreationists and the likelihood of multi-attribute attitude formation (that is, attributes having a different combined affect on the recreationist than they would on their own). Factor analysis has shown promise for indicating true attitudes within the experiential "web" of resource and visitor attributes, but further study in this area is required. Research should continue to identify pertinent independent variables that can be used in correlation with judgment responses.

In conclusion, the usefulness of Social Judgment Theory is apparent in Wilderness Research with the increased need for visitor attitude/preference data. The Theory also ties in well with evolving concepts in Wilderness Management, such as the Limits of Acceptable Change Planning Process. Time tested in other fields of research, and modified to meet current scientific challenges, Social Judgment Theory is a solid, and fertile, foundation for future research.

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