

USE OF EXPERIENCE SAMPLING METHOD TO UNDERSTAND THE WILDERNESS EXPERIENCE

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Abstract: There is a growing body of research documenting the benefits of outdoor adventure and wilderness-based programs with a variety of special populations. Criticisms of this body of research are that it is not grounded in theory and it is outcome-based, with no investigation into the processes causing the behavior change in individuals. This study attempted to investigate the processes that occurred during wilderness outdoor adventure experiences in relation to social integration between people with and without disabilities. The contact hypothesis, from intergroup relations and social categorization theory, was used as a framework for understanding the social integration process. The role of wilderness in that process was illuminated through the use of experience sampling method with participants with and without disabilities on a series of wilderness canoe trips. This paper focuses on how the experience sampling method was implemented across several wilderness-based canoe trips and the resultant data. Subjects were participants with an outdoor adventure company that provides trips that include people with and without disabilities. During each of the seven trips studied, 2-3 participants were randomly chosen to participate in the experience sampling study. Participants were randomly beeped 4 times per day, when they would complete an experience sampling form. The dependent variables were inclusion and interpersonal attraction. Results showed that the most salient variable related to change in the dependent variables was awareness of the wilderness environment. Social identity theory, as operationalized by the contact hypothesis, was supported as a theoretical explanation of the process of inclusion and interpersonal liking that developed during the wilderness trips. The experience sampling method was helpful in "illuminating" the inside of the "black box" of the wilderness experience.

Introduction

There is a growing body of research documenting the benefits of outdoor adventure and wilderness-based programs with a variety of special populations (Anderson, Schleien, McAvoy, Lais, & Seligman, 1997; Hattie, Marsh, Neill, & Richards, 1997). Criticisms of this body of research are that it is not grounded in theory and it is outcome-based, with no investigation into the processes causing the behavior change in individuals (Hattie, Marsh, Neill, & Richards, 1997). Ewert (1982) stated, "In essence, we have discovered an educational black box; we know something works, but we don't know how or why" (p. 126). This study attempted to investigate the processes that occurred during wilderness outdoor adventure experiences in relation to social integration between people with and without disabilities.

The contact hypothesis, from social identity and social categorization theory, was used as a framework for understanding the social integration process (Desforges et al., 1991; Fiske & Taylor, 1991; Messick & Mackie, 1989; Turner & Oakes, 1986). Social identity theory states that people perceive themselves to be members of certain groups within a hierarchical structure of categories. Groups that contain the self are more positively regarded. The most basic level of categorization is that of humans from non-humans (Fiske & Taylor, 1991). The contact hypothesis is embedded in social identity theory, and states that structured contact allows outgroup members (e.g., people with disabilities) to be regarded more positively and as more like the social perceiver (Desforges et al., 1991). The contact hypothesis outlines five conditions for change to occur: 1) mutual goals and cooperation; 2) high acquaintance potential; 3) egalitarian or supportive norms; 4) equal status; and, 5) disconfirming evidence of the stereotype (Allport, 1954). The wilderness experience can potentially provide all those conditions, as well as change perceptions and attitudes in ways not identified. In this study, the role of wilderness in that change process was illuminated through the use of Experience Sampling Method (ESM), as well as journal writing, conversational interviews, and follow-up structured interviews with participants with and without disabilities on a series of wilderness canoe trips. This paper focuses on how the experience sampling method was implemented across several wilderness-based canoe trips and the resultant data.

Overview of the Experience Sampling Method

The general purpose of the Experience Sampling Method (ESM) is to study the subjective experiences of persons interacting in natural environments. According to Csikszentmihalyi and Csikszentmihalyi (1988), the ESM allows investigators to get a "high resolution description of their (subjects') mental states right as they are happening" (p. 253). Conceptually, ESM exposes the regularities in the stream of consciousness of an individual, and attempts to relate these regularities to the characteristics of the person, of the situation, or of the interaction between person and the situation (Csikszentmihalyi & Larson, 1987). According to Csikszentmihalyi and Larson (1987), "The purpose of using this method is to be as 'objective' about subjective phenomena as possible without compromising the essential personal meaning of the experience" (p. 527).

The usual procedure used in ESM involves having the subject carry an electronic pager that emits random signals several times a day for several days. When the participants are signaled, they immediately respond to a series of questions, usually in a booklet of questionnaires they carry with them. The questionnaires are concise (usually two minutes or less to complete), so daily activity is interrupted as minimally as possible (Voelkl & Brown, 1989).

Questionnaires are designed by the researchers to meet the goals of the study (Csikszentmihalyi & Larson, 1987). Typical questions that have been included on questionnaires include open questions about thought contents, location, social context, primary and secondary activity, time, respondents' perceived situation and

emotional state, and specialized questions related to the dependent variable(s) under investigation. Questions have been asked about affect, cognitive efficiency, motivation, self-image, self-awareness, intervening daily events, alcohol and drug consumption, and perceived control, to name a few (Csikszentmihalyi & Larson, 1987; Kubey & Csikszentmihalyi, 1990; Voelkl & Brown, 1989).

ESM has advantages over direct observation and time diaries, two other methods of gathering data about day-to-day experiences and natural aspects of behavior. According to Voelkl and Brown (1989), when compared to live observation, ESM is not as intrusive, decreasing reactive behavior. It is also much more time efficient for the researcher. Compared to time diaries, ESM elicits data that is immediately recalled and is thus higher in quality than data that must be recalled about an entire 24-hour period, where distortions and rationalizations become contaminants (Csikszentmihalyi & Larson, 1987; Voelkl & Brown, 1989). Time diaries also do not provide the direct link between the person's thoughts and the context, as ESM does. The greatest strength of the ESM is that participants report their subjective states in addition to their objective environments or circumstances, providing richer insight than observation or time diaries (Voelkl & Brown, 1989). In addition, the signal devices can be set simultaneously to provide special opportunities for the analysis of the interdependence of experiences in groups, which would be difficult to achieve by any other method (Csikszentmihalyi & Larson, 1987).

Methodologically, limitations with the ESM are related to validity, reliability, and data analysis. Validity of the ESM have been explored by Csikszentmihalyi and Larson (1987) and by Mittelstaedt (1995). Constructs measured by ESM showed a convergent validity with conceptually related self-reports, such as self-esteem scales, or physiological measures, such as heart rate monitors. The results of ESM have also been found to be significantly different for groups of people, based on level of psychopathology, showing discriminant validity. Reliability of the ESM has been investigated by comparing ESM data with time diary data, showing the two methods to produce almost identical values of time allocation for different activities (Csikszentmihalyi & Larson, 1987). Also, the first half of a week's ESM data on activity involvement did not differ from the second half, confirming internal stability (Voelkl & Brown, 1989).

A major concern with the ESM is that subjects will become stereotyped in their responses and fail to differentiate between situations over time. Analysis of data comparing the variance in the data in the first half to the second half of the week's data showed that, with time, individual responses become more predictable, but activity effects remain stable (Csikszentmihalyi & Larson, 1987). These researchers deduce that there is not so much a lessened sensitivity to environmental effects, but a more precise self-anchoring on the response scales. Hurlburt and Melancon (1987), in an ESM study with a patient with schizophrenia, concluded that the method, which focuses attention on the subject's actual perceptions, seems to facilitate growth and have therapeutic benefits. Mittelstaedt (1995) found that the method provided accurate and honest responses, while

increasing self-examination, when she interviewed several subjects after a week of participating in the ESM.

Another concern with the ESM is its intrusiveness. Participant evaluations of ESM conducted by numerous researchers have found the method to be acceptable and not disruptive for 68-95% of the participants involved and found that it represented their experiences well (Csikszentmihalyi & Larson, 1987; Mittelstaedt, 1995; Voelkl & Brown, 1989).

Because data collected using the ESM is clustered, i.e., several questionnaires are completed by one subject, standard statistical procedures that assume a sample of random, independent measurements must be used with care (Samdahl, 1989). Samdahl (1989) has outlined clearly how the data must be analyzed, depending on the unit of analysis used in the study, whether it be the person or the experience. In particular, she warns that the unit of analysis be made clear and that the clustered nature of the sampling be taken into consideration. If these issues are addressed, the data analysis can provide meaningful insights into the nature of the experience and the individuals being studied.

Given the ability of the ESM to capture subjective experiences and objective data about the context of those experiences, it is an ideal method to study how people experience wilderness and others in their trip group. The purpose of this study, then, was to examine the mediating variables that could be related to the positive outcomes that result from involvement in outdoor adventure/wilderness experiences. For purposes of this study, social integration between people with and without disabilities and attitude change were the outcome variables examined in relation to the process variables of the wilderness experience.

Methods

Subjects were participants with Wilderness Inquiry, an outdoor adventure company based in Minneapolis, Minnesota, that provides trips that include people with and without disabilities. Trips ranged in length from three to seven days. During each of the seven trips studied, two to three participants were randomly chosen to participate in the experience sampling study from trip groups of 8-12 people. Subjects included people with and without disabilities. Participants were randomly beeped four times per day, when they would complete an experience sampling form (ESF). Beeper devices used in this study were *Casio* waterproof wristwatches with five independent alarms, which the researcher set each morning according a predetermined schedule developed with a random numbers table. The booklet of ESF's, which were the size of a passport, were carried with participants throughout the day in waterproofed plastic bags. Participants were asked to complete the ESF within 20 minutes of being beeped. The ESF asked for a "think aloud," (Taylor & Fiske, 1981), and then several Likert-scaled and semantic differential questions related to the context of the trip, level of awareness of certain variables related to the contact hypothesis, perceived state, and additional open-ended responses (see Figure 1 for the ESF). Data were analyzed using the sampled experiences as the unit of analysis.

PROTOCOL FOR THE EXPERIENCE SAMPLING METHOD*
INTEGRATION THROUGH ADVENTURE
WILDERNESS INQUIRY

Thank you for agreeing to participate in this research project. Your participation will make a valuable contribution toward understanding more about wilderness-based outdoor recreation and social integration.

In this study, you will use the Experience Sampling Method, which allows the researchers to understand everyday experiences. During this trip, you will wear an alarm wrist watch and carry a booklet of questionnaires. When you are "beeped" by the alarm on the watch, please give honest and candid responses to all questions. The success of this study depends on your willingness to give your candid responses to the questions being asked. Your responses will be kept anonymous.

Please follow this procedure:

- Each day, the alarm on the watch will go off at random times throughout the day (4-5 times per day), between 8:30 a.m. and 9:30 p.m. The alarm will quit by itself after 20 seconds, but you may press the lower right-hand button to turn it off immediately, if you wish.
- If the alarm does not go off for more than 5 hours, please let the researcher or trip leader know!!
- When you are 'beeped' by the alarm, you need to:
 - Fill out one of the Experience Sampling Forms (ESFs) AS SOON AS POSSIBLE after the beeper signals you.
 - If more than 20 minutes passes between the "beep" and your filling out the ESF, just put down the time of the 'beep', where you were, what you were doing, and why you could not complete the form. Do not try to fill out how you were feeling.
 - The first couple of times you fill out the ESF, it will take 4 to 5 minutes, but by the next day, it should take only 2 minutes, because you will become familiar with the ESF.

- Be as COMPLETE as possible and yet as BRIEF as possible. Give us enough information to know where you were, what you were doing and thinking, and how you felt just before the beeper went off.
 - Fill out as much of the ESF as you can each time you are beeped. Circle the number that best describes how you think or feel on the questions with a number scale below them. If a question does not apply to the particular situation you are in at that time, mark the 'N/A' box (not applicable). Write any comments or thoughts you have by the questions themselves or in the comment section at the end of the questionnaire.
 - Each situation you are in when you are 'beeped' may be slightly different from those before it, so give as immediate and fresh a response as possible. Don't look back to previous sheets to see how you responded, even if the situation is similar to the one before it.
- Wear your alarm watch and carry your ESF Booklet with you at all times (as much as possible) during the trip. The watches are waterproof and can be worn swimming or in the rain. Turn both the watch and the booklet in to the researcher or trip leader at the end of each day. We will give you a new booklet of ESFs and reset the alarms.
 - Be sure all the questionnaire booklets and your alarm watch are turned in to the researcher or trip leader at the end of the trip.

THANK YOU!

*Adapted from Kubey, R., & Csikszentmihalyi, M. (1990). *Tele-vision viewing and the quality of life: How viewing shapes every day experience*. Hillsdale, NJ: Lawrence Erlbaum Assoc., Publ.

Time the beeper went off: _____ Time this form was filled out: _____ JUST BEFORE THE BEEPER WENT OFF: What were you thinking about? _____ What was the MAIN thing you were doing? _____ Who were you with? _____ Where were you? _____ What was your immediate goal, as you were beeped? What were you trying to accomplish? _____ To what extent were you <u>dependent</u> on the group member(s) you were with to accomplish your goal? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> Was the other group member(s) you were with <u>actively helping</u> you reach your goal? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> Did you and the group member(s) you were with <u>share the same goal</u>? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How <u>equal</u> did you feel to the group member(s) you were with in this situation? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> Was the person you were with behaving or acting like you <u>expected</u> them to act? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How well have you gotten to know the group member(s) you were with? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very well</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How much do you like the group member(s) you were with? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table>	6	5	4	3	2	1	N/A	Very much			Not at all				6	5	4	3	2	1	N/A	Very much			Not at all				6	5	4	3	2	1	N/A	Very much			Not at all				6	5	4	3	2	1	N/A	Very much			Not at all				6	5	4	3	2	1	N/A	Very much			Not at all				6	5	4	3	2	1	N/A	Very well			Not at all				6	5	4	3	2	1	N/A	Very much			Not at all				Is the group member(s) you were with typical, or what you expected them to be? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> Did you feel like an equal peer with the group member(s) you were with? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How much do you feel the staff are supporting equality and fairness? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How aware of the wilderness environment were you just prior to being beeped? <table border="1" style="width: 100%; text-align: center;"> <tr> <td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>N/A</td> </tr> <tr> <td colspan="3">Very much</td> <td colspan="3">Not at all</td> <td></td> </tr> </table> How much does the wilderness environment matter to how you are feeling or what you are experiencing? 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Figure 1. The Experience Sampling Form (ESF) Used in This Study

Descriptive data were computed, then raw scores were converted to z-scores and analyzed using stepwise multiple regression. The dependent variables were inclusion and interpersonal attraction.

Results

In all, ESF's from 20 participants were analyzed, with a total of 309 useable questionnaires or "experiences," giving a response rate of 87%. The "topography" of the trip experience was captured through the descriptive results of activity patterns. In summary, the group members, when randomly beeped, were most often with others (86.1% of beeps), involved in a cooperative group activity of some sort (75.1% of beeps), and were around the campsite or out canoeing (78.6% of beeps). They typically perceived a group goal (44.3% of beeps) and their thoughts were usually focused on the current activity in which they were involved (40.8% of beeps).

Descriptive results for the Likert-scaled items on the ESF had average scores of '4' or '5,' meaning that participants were rating the variables being measured on the questionnaire as 'somewhat to much present' in their awareness when they were beeped. The variable, supportive norms, had the highest mean (5.46) with the smallest standard deviation (.88). This variable was consistently rated as being "very much" present in their awareness when participants were beeped. Interpersonal liking was also high (mean=5.12, SD=.99), meaning most members were feeling positive toward each other during the trip. On the semantic differential scaled items, the four

items comprising the 'inclusion rating' had means all above '5,' indicating that on average, participants felt some to quite included. For the feeling items, the mean was again above '5' for all items, except the 'excited-bored' item. In general, participants were perceiving positive feelings when beeped throughout the trip experiences.

Results of the correlation and multiple regression analysis are shown in Table 1 and Table 2 respectively. For the multiple regression analysis, the dependent variables were interpersonal attraction and inclusion. The influence or predictor variables were the conditions of the contact hypothesis (interdependence, cooperation, mutual goals, equal status, acquaintance potential, and supportive norms), awareness of wilderness, and effect of wilderness on state/feelings. In Table 1, the correlations between the dependent and predictor variables are shown. Cooperation, mutual goals and awareness of the wilderness were all significantly related to feelings of inclusion. Equal status, acquaintance potential, supportive norms, and awareness of wilderness were all significantly related to interpersonal liking of group members.

As can be seen in Table 2, results of the multiple regression showed that the most powerful predictor of inclusion was awareness of the wilderness environment ($R=.40$). The second predictor, which best improves upon the prediction of the first variable, was mutual goals. No more variables added to the prediction of variance in inclusion at the .05 level of significance. Given the high correlation between mutual goals, interdependence, and cooperation, it was understandable why these variables did not add any more

Table 1. Correlations between Predictor Variables and Dependent Variables

Dependent Variables:	Inclusion	Interpersonal Liking
Predictor Variables:	r	r
Interdependence	.17	.01
Cooperation	.37***	.12
Mutual goals	.37***	.16
Equal status	.09	.21*
Acquaintance potential	.15	.61***
Supportive norms	.12	.29**
Awareness of the wilderness	.40***	.21*
Wilderness effect on feelings/state	.19	.06

* $p<.05$ ** $p<.01$ *** $p<.001$

Table 2. Results of the Stepwise Multiple Regression

Predictor Variables with Dependent Variables:	Beta	r	R	R ²	R ² increment
Inclusion Rating:					
Awareness of the wilderness	.40	.40	.40	.16	
Mutual goals	.32	.37	.51	.29	.13
Interpersonal Liking:					
Acquaintance potential	.61	.61	.61	.37	

prediction to the variance in the inclusion score and were not added into the multiple regression equation. Mutual goals accounted for 13% more variance of the variance in inclusion ($R^2=.13$) than can be explained by awareness of the wilderness environment alone. The most powerful predictor for interpersonal liking was high acquaintance potential ($R=.61$). The coefficient of determination was (R^2) was .37, meaning that high acquaintance potential could predict 37% of the variance in interpersonal liking at the .05 level of significance. There were no other variables that added to the prediction in variance in interpersonal liking.

Discussion

Social identity theory, as operationalized by the contact hypothesis, was supported as a theoretical explanation of the process of inclusion and interpersonal liking that developed during the wilderness trips, with the salience of the wilderness setting being an added variable. Awareness of the wilderness and mutual goals were the most powerful predictors for change in feelings of inclusion. High acquaintance potential was the most powerful predictor for interpersonal attraction. Being in the wilderness, sharing goals, and spending time together appear to be most related to change in social integration in a group. It is possible that wilderness acts like an "incubator" for more rapid change.

When people are no longer surrounded by a world dominated by human activity, but instead surrounded by wilderness, a change in categorization may shift to the more basic level of human versus non-human. The referenced ingroup becomes 'human,' not 'people without disabilities' or 'people with disabilities.'

The experience sampling method was helpful in "illuminating" the inside of the "black box" of the wilderness experience. The resulting data provided descriptive insight into what people are thinking, feeling, and doing during a wilderness experience. The method also provided theoretical insight, as the questions asked of subjects were framed around the theory under investigation. The resulting data gave the researcher ongoing and fine-tuned clues as to the relevance of the theory in explaining people's experiences. The richness of the ESM data is deep and this paper only presented a small portion of how it could be analyzed to provide illumination into the wilderness experience. Future research could focus on developing a "topography" of the wilderness experience, correlating feelings to activities, and to specific settings. Variables that interfere with the wilderness experience could be explored in greater depth, such as the notion of "crowding," "overuse," and contact with management activities such as backcountry rangers, signs, permit stations, etc.

The ESM does have its limitations. However, in this study, when asked in follow-up interviews, subjects did not feel the method was intrusive. They did feel like it caused them to stop and think about things more than they would have normally, prompting greater introspection. The high response rate (87%) indicated that being "beeped" was not that intrusive, or participants would not have responded so

consistently. However, by participating in the ESM, the experience was altered for participants, thus bringing into question the validity of the method in truly capturing experiences as people live them.

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