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TOURIST EXPERIENCES AND ATTRACTIONS

Joar Vittersø
University of Tromsø, Norway
Marit Vorkinn
Odd Inge Vistad
Jorid Vaagland
Eastern Norway Research Institute, Norway

Abstract: It is argued that general assessments of satisfaction are insensitive to a variety of differences in subjective experiences. The flow-simplex is introduced as an alternative method to provide differentiated information about the tourist experience. Data from on-site experiences were gathered by questionnaires at six Norwegian attractions. With regard to overall satisfaction, only minor differences were found among the six attractions. The flow-simplex, on the other hand, revealed a meaningful and differentiated pattern of affective responses to these attractions. The results show interesting differences among tourists from different countries, and lend support to fundamental assumptions made by cognitive theory concerning the relationship between cognition and affect. **Keywords:** experiences, attractions, satisfaction, flow, simplex, schema. © 2000 Elsevier Science Ltd. All rights reserved.

Résumé: Expériences et attractions touristiques. On soutient que les évaluations générales de satisfaction ne tiennent pas compte des nombreuses différences dans les expériences subjectives. On présente le "flux-simplex" comme méthode alternative pour fournir des renseignements différenciés au sujet de l'expérience touristique. On a réuni des données par moyen de questionnaires sur les expériences sur place à six attractions Norvégiennes. En ce qui concerne la satisfaction globale, on n'a trouvé que de petites différences parmi les six attractions. Le flux-simplex, par contre, a révélé des tendances différenciées et significatives des réactions affectives à ces attractions. Les résultats montrent des différences intéressantes entre les touristes de différents pays, et appuient des suppositions fondamentales de la théorie cognitive au sujet de la relation entre connaissance et effet. **Mots-clés:** expériences, attractions, satisfaction, flux, simplex, schéma. © 2000 Elsevier Science Ltd. All rights reserved.

INTRODUCTION

Tourist experience and satisfaction with it have been key research issues in recent years. Among such experiences, research focusing on satisfaction has been based on an "instrumental" perspective. The International Organization for Standardization sums up this

Joar Vittersø, Associate Professor at the University of Tromsø, Department of Psychology (N-9037 Tromsø, Norway. Email ⟨joarv@psyk.uit.no⟩), is particularly interested in theory and measurement of positive experiences. The other authors are all at Eastern Norway Research Institute (PO Box 1066, 2605 Lillehammer, Norway. **Marit Vorkinn** does research on naturebased tourism and outdoor recreation, **Odd Inge Vistad** has a special interest in landscape experiences and resource management, and **Jorid Vaagland** is concerned with both production and consumption of culture.

perspective in their definition of quality as "the totality of features or characteristics of a product or service that bears on its ability to satisfy stated or implied needs" (Swarbrooke 1995). In this perspective the product is considered to be an objective entity, consisting of separate attributes that can be identified and quantified (Knopf and Barnes 1980; Pizam, Neumann, and Reichel 1978), and satisfaction with the product is expected to be related to contentment with these different attributes. The other aspect of this perspective is based on expectancy-value theory (Eagly and Chaiken 1993), which claims that people engage in particular behaviors to satisfy given needs or to achieve certain goals. Satisfaction is seen as the result of a comparative process, between expectations and actual performance (Hughes 1991; van Raaij 1986). It will occur when expectations are fulfilled or even exceeded, while disconfirmed expectations create dissatisfaction. A review of expectation-based tourism research is given in Crompton and Love (1995).

This approach has been questioned for several reasons. First, the symbolic and emotional values of a tourism product are not considered (Colton 1987). Such values are related to the subjective meaning that tourists ascribe to attractions. In this "transactional" perspective, the human individual is considered not as a passive receiver of environmental stimuli, but as actively interpreting the environment by constructing meaning (Wang 1999). Second, humans may experience their environment as a whole entity rather than the sum of a discrete set of attributes. These questions are debated not only in tourism research, but in a wide range of disciplines and research areas like environmental psychology, sociology, and recreation research (Charon 1995; Gifford 1987; Williams, Patterson, Roggenbuck and Watson 1992).

A third concern about the measurement of satisfaction is related to what is actually being measured (the validity of the construct). Satisfaction has been regarded as a cognitive process leading to an emotional state which, however, may as well result from the product itself as from experiencing it (Crompton and Love 1995; Williams 1989). Negative emotions may, for example, occur due to other tourists' undesirable behavior, and influence the evaluation of an attraction (Graefe and Vaske 1987). Another problem with satisfaction measures is that humans may use different cognitive dissonance strategies to reduce negative inconsistency between expectations and outcome. Festinger's (1972) theory of cognitive dissonance claims that two inconsistent cognitions will produce discomfort, and motivate the individual to bring the cognitions into harmony. Having used a considerable amount of time and money to visit an attraction, it might for example be difficult for some persons to admit that the visit was a failure. If one accepts that satisfaction results from a comparative process, in spite of the possible "intervening variables" mentioned, the question of what is the baseline for comparison still remains. This includes whether the tourist evaluates the attraction on the basis of an ideal standard (for instance how a museum *could* be), an equitable standard (how it

should be), a minimum standard (how it *must* be), or on expectations (how it *will* be) (Williams 1989).

Finally, the validity of measurements of satisfaction should be considered. Among the many issues involved in assessing and understanding the concept about it, a very important one concerns whether true satisfaction can be measured by means of self-avowals at all. For example, mean scores of satisfaction in Western societies are remarkably stable around 75% of the scale maximum score (Cummins 1995). Yet, some variability among subjects does exist, and correlational studies often report both discriminant and convergent validity (Veenhoven 1996). For instance, in a prospective and ten-year long study in Norway, people who reported higher levels of life satisfaction at the initial point of measurement, tended to live longer and to show better health conditions at subsequent measurements (Moum 1996). However, the stability found in this measurement around the world indicates that some rather invariable factors influence its level. One could suspect that the level of self-reported satisfaction is partly based upon regular strategies of judgment and decision making. In such cases, individuals may draw upon a wide variety of information, including what is temporarily accessible (based on the immediate context within which the question is asked), or what is usually accessible and reflecting important aspects of their personality and life in general. In experimental settings, the influence of their strategies on the satisfaction measures can be demonstrated (Beach 1990; Schwarzand Strack 1999; Tesser and Martin 1996).

However, the conceptual and methodological difficulties related to measuring tourists' experience with products do not reduce the need for such measurements, but call for alternative approaches. Pearce (1988) and Ryan (1995) review factors to be considered in satisfaction research, as well as possible theoretical and methodological approaches. The different options can be related to different stages of the experience—pre-travel processes, on-site experiences, and post-travel processes. This article presents an alternative approach to measure the on-site experience, focusing on a range of affective experiences as caused by the process of cognitive information processing. The goal was to demonstrate an overall limitation in the general satisfaction measurement. Due to the generic meaning inherent in the term satisfaction, one would not expect its measurements to be particularly sensitive to actual discrepancies among different attractions. As an alternative to the general measurement of satisfaction, the flow-simplex was assumed to be sensitive to a variety of affective responses elicited by different attractions. The term affect is used as a generic term for a whole range of subjective experiences, like evaluations, preferences, moods, and emotions (Fiske and Taylor 1991). Based on these assumptions, it was hypothesized that the flow-simplex reveals a more differentiated and useful description of tourists' judgments of an attraction as compared with the self-expressed notions of satisfaction.

MEASURING TOURIST EXPERIENCE

Theoretically, the measurement model of subjective experience utilized in this study draws heavily on the work of Eckblad (1980, 1981a, 1981b). According to her scheme theory, affective experience is the result of a process of assimilating the world into a structure of cognitive "maps" or schemas. In its broadest sense, a cognitive schema probes the interrelations between the world and the mechanisms of perception, action, and memory, and relates to intelligence, language, and culture. The observed "reality" is assimilated into existing schemas to the extent that any departure of outcome from prediction remains within tolerable bounds. In this sense, all mental organization is schematic in nature. "While awake, the person is engaged in a continuing action/perception cycle. At any time a particular assemblage of certain schemas constitutes the individual's representation of current situations and goals" (Arbib and Hesse 1986:13).

Whenever one's world perception accords with existing schemas, the process of assimilation proceeds without resistance. Actually, due to the generalized nature of cognitive schemas, assimilation will never be completely pure and without any resistance at all (see Piaget 1952). The amount of assimilation resistance will, in other words, always be a matter of degree. Assimilation resistance (AR) increases as the differences between an actual situation and one's cognitive schemas of it expand, and according to the scheme theory, the quality of an affective experience is partly determined by the amount of AR produced in the situation. With extremely small amounts of assimilation resistance, the feeling of boredom would typically accompany the situation. As the resistance increases, experiences advance from boredom toward easy and relaxed. As AR becomes somewhat larger, these experiences fade away and are replaced by affects like pleasantness and satisfaction. At somewhat

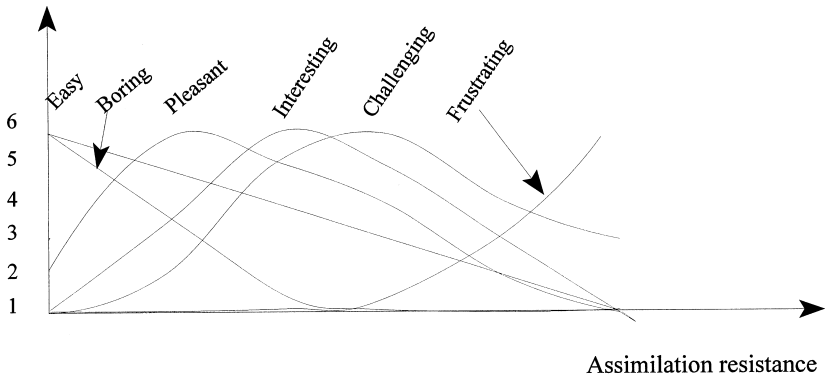


Figure 1. Affective Responses as a Function of Assimilation Resistance. Note: These are Hypothetical Data. The Y-Axis Refers to How Intense Each Affect is Experienced

higher levels of assimilation resistance, a feeling of interest is the typical reaction, while affects like feeling challenged follow from even higher levels of AR. If the latter becomes really large, affects like irritation and frustration will be the dominant experience.

The relation between AR and affect is such that boring < easy < pleasant < interesting < challenging < frustration in terms of assimilation resistance. The curvilinear relation between assimilation resistance and affect is presented in Figure 1. One obvious benefit of such an approach is that cognitive and affective processes are integrated in one overall and generalized model. Clearly, to come to grips with the process of subjective experiences, both cognitive and emotional concepts need to be involved. Gray, for example, states that: "... from the perspective of current research and theory on animal behavior and brain function, *it is by no means clear that the distinction between emotion and cognition is one that can or ever should be made*" (1990:269; emphasis added). Related views are discussed by Epstein (1990), Mischel and Shoda (1995), Oatley (1992), and Piaget (1950). Clearly, and in a systematic fashion, the scheme theoretical approach and its statements about assimilation resistance anchors the present work in a broad and general psychological framework. Such a view makes possible a more differentiated understanding of the subjective responses produced when encountering attractions.

The Flow-Simplex

By means of a model of unfolding data (Coombs 1964; Coombs and Kao 1960), the propositions stated in the scheme theory about boring < easy < pleasant < interesting < challenging < frustration in terms of assimilation resistance can be tested empirically. The theory of unfolding data has recently experienced a sudden change of fortune and a rejuvenation among scholars (Michell 1990; Roberts and Laughlin 1996; van Schuur and Kiers 1994). Briefly, this theory deals with variables that are curvilinearly related to their common source of causation, just the way different affects are hypothesized to be related to degrees of assimilation resistance. The important point of unfolding theory is that if the data are analyzed with an ordinary factor analysis, a two-factor solution with a characteristic fan-shaped distribution of the variables will appear. For affects, the fan-shape can be revealed as a C-shape or a half-circle by means of the flow-simplex (Vittersø 1998). Actually, the recommended factor analysis is not based on the notion of common factors. Rather the technique of a principal component analysis (PCA) should be utilized (Sjöberg, Svensson and Persson 1979). Moreover, as shown by Davison (1977:523–524), a set of variables will conform to the unfolding theory when three conditions are present. One, the stimulus × stimulus correlation matrix will display a simplex-like structure. Two, if the stimulus k is intermediate to stimuli j and l in the ordering and if the product of stimulus correlations $r_{jk}r_{kl}$ is negative, then the partial correlation $r_{jl \cdot k}$ must be negative. If stimulus k is

not intermediate to j and l and if $r_{jk}r_{kl}$ is positive, then $r_{jl \cdot k}$ must be positive. Three, the principal component analysis of the stimulus × stimulus correlation matrix will yield a semicircular, two-factor structure. Along the semicircle, variables will be ordered by their positions on the stimulus dimension. Davison's propositions are used in the present work to confirm the notion of one underlying dimension as the single cause of the different affective experiences under discussion.

To illustrate this explanation, the variables (or affects) from Figure 1 were analyzed by means of a PCA, and the relationship among the variables is visualized in a two-dimensional space. In the plot, the component loadings from the PCA serve as coordinates. Figure 2 shows that the affect variables follow each other along the circumference of a C-shaped half-circle, in accordance with their maximal sensitivity to the underlying dimension of assimilation resistance. Recall that the second component (or the Y-axis) is not to be interpreted as an independent factor, but as a mathematical artefact occurring when unfolding data are analyzed by linear statistical procedures. The correct interpretation of the configuration presented in Figure 2 is to consider the half-circle as an expression of one underlying dimension (namely, assimilation resistance).

In Figure 2, the flow area is indicated by the hatched area. At the current state of the model, little is known about the exact demar-

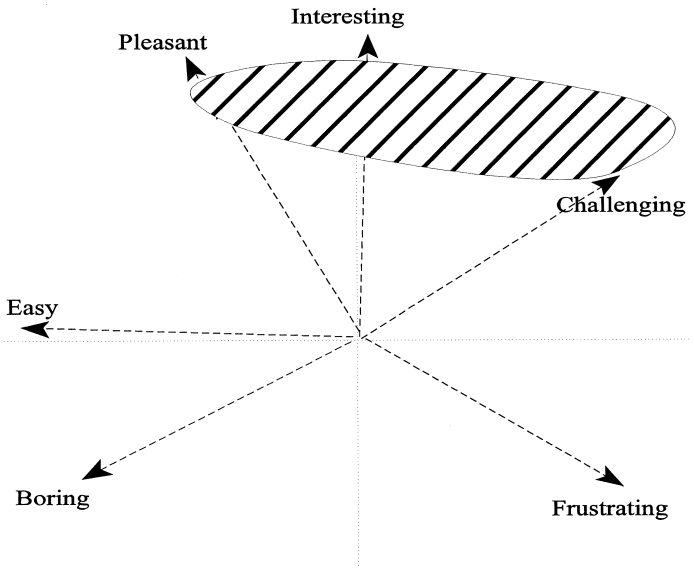


Figure 2. Plot of the Hypothetical Flow-Simplex. Note: Principal Component Solution Based on the Relationship Between Affects and Cognitive Discrepancy as Illustrated in Figure 1. Hatched Area Indicates the Location of Flow Experiences

cations of flow versus not-flow. Probably, these borders are fuzzy, and until more empirical data have been gathered, only approximate locations of flow experiences can be provided. However, since intensity is recognized in the configuration as the length of the vectors, flow experiences will always be located at some distance from the origin. Moreover, flow is also restricted to (approximately) the area between pleasant and challenge.

Traditionally, flow has been measured as a ratio of challenges and skills (Csikszentmihalyi 1975), but several scholars have pointed to serious limitations to this approach. For example, less than 5% of the variance of the indicators of flow (like affect, arousal, intrinsic motivation, and perceived freedom) was found to be explained by the challenge–skill ratio (Voelkl 1990). Moreover, experiences labeled "boring" according to the challenge-skill model (because they are little challenging, but skill demanding) quite often turn out to be reported as highly positive and enjoyable by the respondents (Ellis, Voelkl and Morris 1994). According to these authors, the low percentage of variance explained by the challenge–skill ratio, and the measured results in the boredom channel, may point to a need for further theoretical development, and one such alternative is provided by scheme theory and the flow-simplex. In contrast to a mere measurement of the challenge–skill ratio, the flow-simplex provides an alternative in which the area between pleasant and challenging, at some distance from the origin, indicates flow-like experiences.

A direct comparison of the fruitfulness of these two approaches remains to be empirically tested, but this article shows that in contrast to a common finding within the tradition of calculating a challenge–skill ratio, boring experiences are adequately located in the flow-simplex (cf the location of the Håkon Hall in Figures 3 and 4).

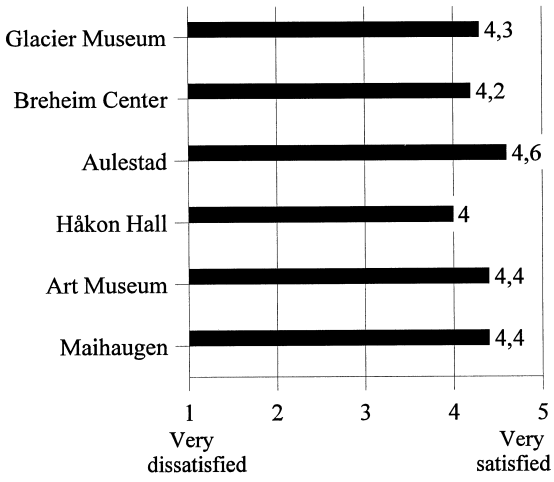


Figure 3. Satisfaction with the Visit at the Tourism Attractions

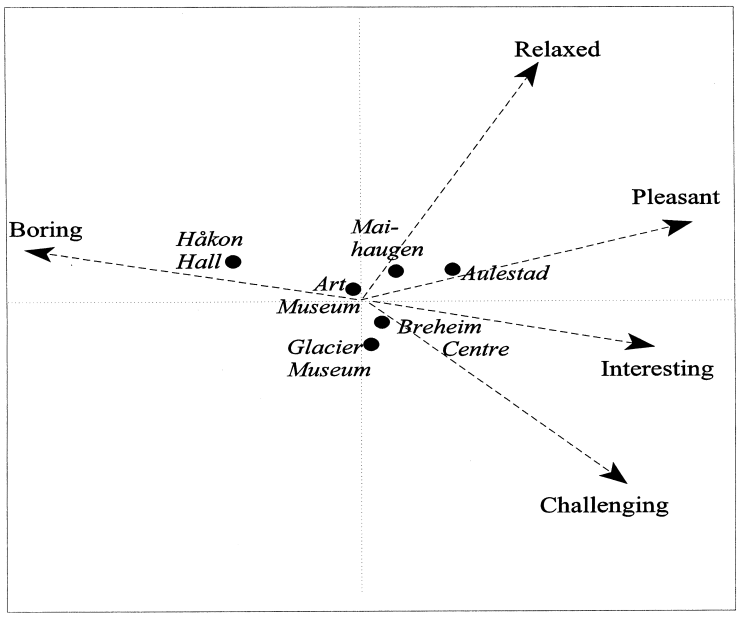


Figure 4. Graphical Location in the Flow-Simplex for the Six Attractions

Moreover, the statistical ambiguity of within-subject standardization, needed in the challenge–skill method, is avoided in the flow-simplex (Ellis, Voelkl and Morris 1994; Michela 1990; Samdahl 1989). The flow-simplex also represents an alternative to the more commonly used mood-circumplex (Fabrigar, Visser and Browne 1997; Larsen and Diener 1992; Plutchik 1980; Reisenzein 1994; Russell 1980), whose idea is to represent the relationship among affects in the form of a circle. Those located close to each other along the circumference are highly correlated, and the relation among the affects weakens as the distance between them increases. In this regard, the mood circumplex resembles the flow-simplex. However, while the former attributes the causes of affective experience to the two underlying dimensions of Valence (ranging from pleasant to unpleasant) and Arousal (running from calm and sleepy to excited and tense), the flow-simplex locates such causes in the single dimension of assimilation resistance. Recently, it has been argued that arousal cannot be considered a unidimensional phenomenon (Gray 1994; Levenson 1994). Hence, the reference made to a single concept of arousal as the partial explanation of affective differences may to be too simplistic, and it is avoided altogether in the flow-simplex.

Furthermore, compared with a single-item measurement of satisfaction, the flow-simplex accommodates a more varied and heterogeneous standard of self-reported measurement. Instead of just measuring how satisfied tourists are after visiting an attraction, the flow-simplex provides data with regard to how much information

they have paid attention to during the stay. According to the scheme theory, this is reflected in the quality of the experience as measured by means of the flow-simplex. In general, such facts are valuable in evaluating attractions and, particularly, in planning their development in the future.

Study Contexts and Methods

The study covers six different attractions, four "cultural attractions" situated in the town of Lillehammer in the eastern side of Norway, and two "nature information centres" in the western part. Maihaugen, the most visited attraction in Lillehammer and one of the most visited in Norway, is mainly an open air museum with traditonal buildings. In its main building are permanent or long-lasting exhibits (old handcrafts, the history of Norway from the glacial period to the present) as well as different temporal exhibitions. Maihaugen represents mainly local/regional traditional (nonglobal and nonmodern) culture. The next attraction, Aulestad, is situated in one of Lillehammer's neighboring municipalities, Gausdal. The museum is the authentic home of Bjørnstjerne Bjørnson (1834–1910), a famous Norwegian author, nation builder, and international cultural personality. Lillehammer Art Museum contains one of Norway's biggest collections of Norwegian art from the 19th century until today and includes temporary exhibitions on both national and international contemporary art, representing a vast range of expressions of the global language of the arts. The Håkon Hall is a huge ice-hockey rink made for the Olympics in 1994, and is thus one of the most modern elements of Lillehammer's cultural life, used both for sports and commercial events, and open for the public.

Both of the nature information centers are located close to the largest glacier in mainland Europe, Jostedalsbreen, and both mainly focus on the glacier, in the traditional form of nature information centers, emphasizing information through exhibitions, especially the Breheim Center. The expositions in the Norwegian Glacier Museum in Fjærland are a mixture of traditional illustration charts and activities and experiments carried out by the tourists. This

Table 1. Annual Numbers of Tourists to the Six Attractions in 1996

Site	Numbers of tourists
Lillehammer Art Museum	20,816
Maihaugen	194,000
Håkon Hall	40,020
Aulestad	12,823
Norwegian Glacier Museum[a]	67,000
The Breheim Centre	15,000

[a] 1997 figures.

study was conducted during the summer months of 1996 in five of the institutions, and in 1997 in the Norwegian Glacier Museum. Table 1 shows the total numbers of tourists to the six attractions during the respective years. Local visitors make up a considerable part of the total numbers, especially at Maihaugen and Lillehammer Art Museum. The numbers of organized tours vary considerably, from slight proportions in Lillehammer Art Museum to 30% in the Norwegian Glacier Museum.

The target population of the survey consisted of individuals age 15 and above. Since the tourist experience was the focus of the study, local residents were omitted (inhabitants of the municipalities where the attractions are situated). All of them are most visited in summer. To get a representative sample, interviewing was distributed throughout weekdays and weekends and peak and off season throughout the summer. At two of the attractions, Aulestad and Lillehammer Art Museum, there were few non-local tourists through the survey-period. To increase the number of respondents, questionnaires were handed out in the reception rooms of these attractions during an additional two-week period and were returned by mail. The time period of the survey, number of respondents, and response rates for each of the six attractions are stated in Table 2.

Except for Maihaugen, the response rate is high for the on-site interviews. At Maihaugen, a large number of tourists may have made it easier to refuse to participate in the survey, compared to the other attractions with smaller numbers and fewer opportunities to "hide" in the mass. Another explanation of the low response rate is that many tourists were tired after walking at Maihaugen for several hours. The interviewers observed that it was easier to get them to participate in the survey on days with bad weather compared to sunny days, because they spent less time at the open-air museum in bad weather. It is not possible to tell to what extent the relatively low response rate has led to an under-representation of some groups.

The experiences of the different attractions were measured on-site, just after they had finished the visit. An interviewer positioned outside the entrance of the attraction handed out a questionnaire to one person in each visiting party. The respondents were asked to

Table 2. Number of Respondents and Response Rate at Attractions[a]

Response	Maihaugen	Lillehammer Art Museum	Håkon Hall	Aulestad	The Breheim Center	Norwegian Glacier Museum
Response rate, on-site survey	52%	78%	80%	84%	90%	76%
Response rate, additional survey		65%		65%		
Number of respondents	348	196	252	226	366	530

[a] All interviews were conducted in 1996, except at the Norwegian Glacier Museum in 1997.

fill in the survey on-site. The instruments were available in Norwegian, English, German, and French (the two glacier centers did not have a French version).

Satisfaction with the attraction was measured by means of a single item. The exact wording of it was: "All in all, how satisfied are you with your visit to ... (name of the attraction in question)." The 5 point response format ranged from "very satisfied" to "very dissatisfied".

As to the flow-simplex, five 7-point bipolar semantic differential scales were used as base items. The scales were: boring–fun, relaxed–tense, pleasant–unpleasant, interesting–uninteresting, and challenging–tame. The bipolar format was chosen to keep the model in line with Eckblad's initial work, although unipolar scales have proven to conform to the notion of a flow-simplex as well (Vittersø 1997). However, due to recent developments in the research of affect responses, bipolarity among such adjective scales ought no longer to be taken for granted, and the antonym anchor of the scales is not interpreted in this study. In other words, only the first adjective in each pair of semantic differentials will be interpreted.

Study Results

Initially, the variables were inspected by descriptive statistics, and as shown in Table 3, the pleasant and the interesting items were slightly and negatively skewed. For this reason a nonlinear monotonic transformation was conducted to normalize these items (Hartwig and Dearing 1979). The transformed variables are named plea-r and int-r, respectively, and their distributional diagnostics are reported in Table 3.

According to Cohen and Cohen (1983), it is not worthwhile to investigate missing data if the missingness represents less than 10% of the total rows in the data matrix. As can be seen in Table 3, most variables have missing values below this limit. However, since the strategy of listwise deletion is utilized in the principal component analysis, the missing values among the flow-simplex vari-

Table 3. Descriptive Statistic for the Flow-Simplex Variables

Item	N	Mean	Standard deviation	Skewness	Kurtosis
Boring	1,742	2.7	1.2	.51	−.1
Relaxed	1,759	5.7	1.2	−.82	.56
Pleasant	1,763	5.9	1.1	−1.10	1.60
Interesting	1,844	6.2	1.1	−1.70	3.10
Challenging	1,725	4.5	1.6	−.43	−.41
Satisfaction	1,857	4.3	.6	−.63	1.50
Pleasant-R[a]	1,763	35.5	11.6	−.59	−.45
Interesting-R[a]	1,844	39.4	11.6	−1.10	.36

[a] Revised items (i.e., a convex transformation).

ables together reached 14%, and a further look into a potential structure among the missing observations was undertaken. First, a correlation between the dichotomized missing versus non-missing data revealed high correlations between the items (with a mean correlation of 0.71). This finding indicates that missing data among the flow-simplex items occur jointly. Moreover, subjects who answered the satisfaction question but not one or more of the flow-simplex items, showed a slightly, but significantly higher value on the satisfaction variable. The mean difference as compared to those without missing data on the flow-simplex was 1.2 ($P < 0.01$). However, no differences in the missing pattern were detected between subjects from different nations, or between tourists at the six different attractions described in this study. Nevertheless, the flow-simplex data are not missing at random, a fact that would have some implications for the conclusions to be drawn from the investigation.

As outlined above, the prediction of an unfolding model can be made from a principal component analysis (PCA) according to the three propositions made by Davison (1977). For the present data, all three criteria for a simplex-like correlation structure were fulfilled. The first criterion was fulfilled because the correlations taper off from the highest values along the diagonal to the lowest values in the lower left corner in the correlation-matrix. Furthermore, the column totals in the matrix are curvilinearly with the lowest values at the extremes of the tables and the maximum at the middle of the table (column totals were −0.85, 1.54, 1.81, 1.70, and 1.4 for boring, relaxed, pleasant, interesting, and challenging, respectively). These are both basic characteristics of a simplex structure (Guttman 1954).

With regard to the second criterion, the product of the stimulus correlations $r_{jk}r_{kl}$ was negative, and the partial correlation $r_{jl\cdot k}$ was negative for all intermediate variables (the $r_{jl\cdot k}$ were −0.03/−0.46, −0.18/−0.36, and −0.24/−0.30 when k represents relaxing, pleasant, and interesting, respectively). Moreover, j represents boring and l refers to challenging in all equations. The semicircular two-factor structure, in which the variables are ordered by their positions on the assimilation resistance dimension, is shown in Figure 4. The PCA also showed that a two-component solution explains a large part of the variance (72%), and for all variables the communalities exceeded 0.70. Thus, according to this analysis, it seems that the current flow-simplex reflects an underlying unfolding data structure and that one single dimension is able to explain the relationship among the variables in the two-dimensional component configuration.

When measuring the satisfaction experienced on a general level, only marginal differences among the attractions are disclosed, although both Aulestad and Håkon Hall differ significantly from each other and from all the other sites. Among the four remaining sites (Maihaugen, Lillehammer Art Museum, the Breheim Center and the Norwegian Glacier Museum), only the Breheim Center differs from the others, and these differences are rather small (1 and

0.2 compared with the Norwegian Glacier Center and Maihaugen/ Lillehammer Art Museum, respectively). The differences among the satisfaction levels expressed of the sites are in fact rather small for all the tourism sites. As Figure 3 shows, all these measures fall between 4.0 (Håkon Hall) and 4.6 (Aulestad).

Contrary to the similarity revealed in the satisfaction analysis, a rather differentiated picture emerges when the same attractions are analyzed by means of the flow-simplex. Figure 4 illustrates that Håkon Hall is considered to be more boring than the other sites, and that the Breheim Center and the Norwegian Glacier Museum are more challenging, while Maihaugen and Aulestad in particular, seem to be very pleasant attractions. Lillehammer Art Museum is located very close to the origin in the configuration, probably because the flow-simplex items are not really appropriate for a total evaluation of the experiences in an art gallery. Nevertheless, most attractions differ significantly from each other on either one or both of the component scores. However, there are some exceptions, as Maihaugen does not differ from Lillehammer Art Museum, and the Norwegian Glacier Museum and the Breheim Center do not differ from each other. The comparisons are undertaken by one-way analysis of variance (ANOVAs) from the group-means of the component scores with a Bonferroni test for *post hoc* inference.

So far in the analyses, examples of the flow-simplex are provided from relative comparisons between different attractions only.

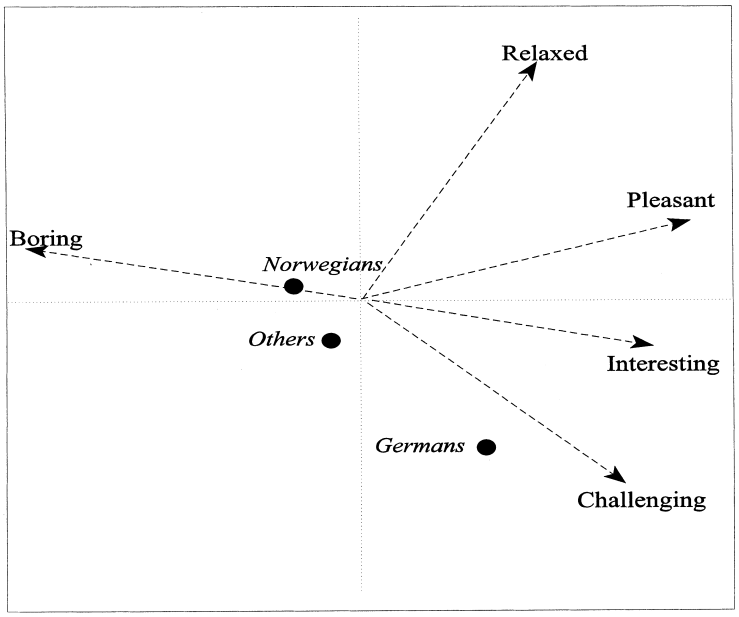


Figure 5. Graphical Location in the Flow-Simplex for Groups of Tourists. Note: All Experiences are from the Norwegian Glacier Museum

However, the method is equally useful for analyses within one single attraction. For instance, different experiences among tourist segments visiting the same attraction could be compared against each other. Thus, the final analysis was a comparison among nationalities at one of the sites. In the interest of parsimony, the study was restricted to just one site, the Norwegian Glacier Museum, because that site had the highest numbers of respondents. An analysis similar to the one just described was undertaken, although this time the attractions were replaced by nationality, categorized as Norwegians, Germans, and others. German tourists were selected as a category due to their high number in the data. Figure 5 suggests that they are more challenged at the attraction than people from other nations. Norwegians in particular seem to be more bored as compared with subjects from Germany and other countries.

CONCLUSION

The assessment of overall tourist satisfaction was not particularly sensitive to actual differences among tourists to six Norwegian attractions. The flow-simplex revealed a meaningful and differentiated pattern of affect responses to these attractions. The results support the assumption of a correspondence between the kind of information or stimuli presented at the attraction, and the self-reported affective response given by the users. Aulestad was experienced as particularly "pleasant" by the respondents, while the Norwegian Glacier Museum and the Breheim Centre were typically described as "challenging". Håkon Hall stood clearly out as the least interesting attraction in the study. According to the scheme theory (Eckblad 1981b), some assumptions can be made about the kind of information offered in the different attractions. For example, the stimuli provided at Håkon Hall do not offer much in terms of assimilation resistance. No particular discrepancy between the tourist schemas or "cognitive maps" and the product offered at this attraction was apparently encountered by them. For Maihaugen and Aulestad, on the other hand, the amount of new information was probably just sufficient for a pleasant experience. At the Norwegian Glacier Museum and the Breheim Center, the information provided was even more complex, and users of these latter attractions apparently had to carry out more cognitive work. They offered a pattern of stimulation that required a more complex cognitive procedure in terms of information processing.

A similar interpretation is relevant for the analyses of different experiences found for tourists from different nations. As shown in Figure 5, Germans seemed to experience the greatest amount of assimilation resistance. As yet, it is not known what caused this difference. It might have been due to differences in actual knowledge of the glaciers, but just as many Norwegians as foreigners had no previous experience with glaciers. If knowledge differences were the main cause for this difference, one would also have expected that other foreign nationalities, such as Dutch, would have reacted

the same way as Germans. A more detailed analysis showed this was not the case (Vorkinn and Vistad 1997).

Figures 4 and 5 demonstrate that the experiences reported at the different attractions were not particularly intense. With a notable exception for the Germans at the Norwegian Glacier Center, most experiences were located relatively close to the Origin in both flow-simplexes. Clearly, none of these experiences qualifies as flow as it was described earlier (Figure 2). However, since the result reflects mean scores for a group of tourists, it would have been strange indeed to find a flow experience to be the dominant feeling. After all, intense forms are rare, and the situations in which they occur change from individual to individual. One interpretation of the low intensity reported at these attractions could be that the items in the flow-simplex are only partly relevant for the actual experience felt in the situation. The "high" missing data pattern found for the flow-simplex items provide support for that interpretation, since it seems natural that people tend to omit questions that are regarded irrelevant to one's actual subjective experience. Furthermore, in interpreting these results it is important to note that the flow-simplex is based on component (or "factor") scores. Thus, negative numbers indicate values below the mean, which of course do not necessarily reflect true negative cases. In the flow-simplex, locations to the left of the origin, or below it, are not negative experiences as such. These positions are just below the mean in the actual sample.

The first attempt to measure the on-site experience at attractions by the flow-simplex has been promising, in the way that it gives a nuanced and differentiated understanding of the experiences. This understanding is important in relation to improvement of both the tourism product and its marketing. Håkon Hall clearly needs to improve its product, since it is experienced as rather uninteresting and nonchallenging. Aulestad, with relatively few but very satisfied users, could take advantage of its atmosphere and market itself as a "pleasant oasis outside the beaten path of mass-tourism". In light of the perspective that the core product of tourism is the experience gained (Prentice, Witt and Hamer 1998), the practical application of a refined understanding and measurement of subjective experiences should be obvious. Only when a proper range of experiences is understood may information be gathered and appropriately utilized in the management of attractions. For example, if an attraction is meant to fascinate and capture the interest of its users, the preferred experience should be in the flow-simplex area between interesting and challenging. On the other hand, if the attraction is less ambitious in terms of educating its tourists, the experience should be stationed between pleasant and easy. In both circumstances, they may be quite satisfied with the attraction.

The flow-simplex provided useful information of the on-site experience. This is not to say that it *alone* is a sufficient method to measure tourist satisfaction. Clearly, both pre- and post-travel processes should be given great consideration as well. In relation to the flow-simplex, pertinent goals for future research are to study prior

knowledge, personal involvement, and interest shown towards an attraction and their influence on the affective responses at a tourism site. ■

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