

Customer Satisfaction as an Indicator of Social Carrying Capacity – Case Heritage Centre Ukko in Koli National Park, Finland

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Abstract: The systematic and spontaneous customer feedback from nature tourism customers is studied in the context of social capital created by social welfare services within the national park, especially the visitor centre services. The feedback is considered as an indicator of social carrying capacity. A model has been developed for assessing the impact of different options for developing services in the visitor centre or giving priority to them. The reliability of the model is studied in relation to different customer profiles. As a special case we study on site the customer's reactions and attitudes about a key responsibility issue in nature tourism development– responsibility of resources. A "Partnership in Management" experiment was created in Koli National Park, in Finland, where a local supporting association (NGO) produced 18 months visitor services in visitor centre in co-operation with the official park management organisation. According to the customer feedback the majority of visitors considered this arrangement as a very positive idea. They were also willing to pay the marginal costs, which they have caused, when using the services of the association.

INTRODUCTION

Customer feedback survey is a method for monitoring the experiences, objectives and preferences of customers (Feigenbaum 1983, Juran 1988). The feedback helps the manager of the park to develop the services and environment in a direction, which the customers appreciate. If the objectives of customers conflict with the conservation of the park, the feedback helps the manager to inform and guide the customer in the correct ways.

There are good reasons to call the visitor of the national park a customer (Powers 1988). Altogether this means that a national park is today more a centre of different services than a geographic territory:

- Parks provide today many man-made services, public and private, to visitors.
- Visitors can order these services before they visit.
- Services produce environmental impacts.
- Services compete with other similar services outside the park.
- Services are produced with labour and infrastructure.

We are now developing new concepts, theories, models and applications for monitoring the economical, ecological and social development in the context of sustainable park management (Shipp & Kreisel 2001). The question is not only the carrying capacity of the nature or in the local economy, but also the carrying capacity of social welfare of customers and local people.



Figure 1. Study area: Koli National Park in Eastern Finland.

We try to develop and test such indicators and scales for sustainable social development of nature and culture tourism, which support the management of the park and are comparable also on similar cases in other parks. The aim is to produce a pilot model for a customer feedback system and analyse the data gathered with it as a case study. As a special case we study the impact of change and the impact of a new concept in providing services. Special attention is paid on a new approach of partnership in management and customers responsibility of resources, which is tested in the profile of a new visitor centre.

Koli National Park in Eastern Finland, with an area of 30km² including a modern visitor centre, is a site for developing methods and models for customer satisfaction monitoring. With 120 000

customers annually, it is one of the most intensively used nature tourism areas in Finland (Lovén 2000).

MAIN CONCEPTS

Customer satisfaction in the national park reflects social values created by park nature and services. These values can be seen as a part of so-called *social capital* or the collective welfare of society. Social capital is an important form of capital, which produces and indicates benefits for private persons (Burt 1992), groups of people (Coleman 1961, Coleman 1990) as well as the whole society (Putnam 1993). The maintenance and sustainable development of this capital is an important part of the strategy of a national park.

The description of a concept for the social capital produced by a national park and modelling the process is very necessary for successful planning and management for sustainable development. The feedback from customers reflects this process. Customers are in a way a group of partners within a park in the network of park management. The confidence of customers on the motives and methods of park management is an important indicator of the balance in social capital (Anttiroiko 1996, Fukuyama 1995).

The indicators used in the feedback collection can produce information at least from the following items:

- Customer satisfaction about some services produced in the park.
- Customers confidence on the values controlling the management.
- Customers willingness to act as a responsible partner in park management.
- Conflicting interests among subgroups of customers.
- Conflicting interests among visitors and locals.

The key role in developing sustainable tourism lies on the customer; how he recognises his *responsibility* as a member of society to maintain the attractions of park (Lucas 1993, Harrison & Husbands 1996, Ireland 1997). The ecological carrying capacity is higher if the customer makes efforts to save the soil on trails when hiking over eroding landscape. The responsibility or the lag of it can be seen in actions and attitudes of customers. A special case under the budget constraints, which parks are today facing all over the world, is the possible actions and feelings, which the customers have about resources. Do they consider parks as all free public goods or do they accept the idea of users responsibility of resources?

METHODS

Customer Feedback Monitoring System (CFMS) produces systematic information for monitoring the development of social capital. In

Koli National Park the CFMS includes the following parts:

- Spontaneous stratified and open feedback on a questionnaire in visitor centre.
- Systematic stratified and open feedback on a questionnaire in visitor centre.
- Spontaneous open feedback received orally in visitor centre or via email through internet pages.

The frame of reference consists of a dynamic situation, where a nature tourist visits a park and uses and evaluates environments, services and information. These interactions reflect themselves in the global welfare of the customer. This state of welfare is a part of visitor's personal social capital and it is applied by using the approach of measuring customer satisfaction. The social capital produced by the park is the cumulative level of all customer satisfactions. The global level of customer satisfaction is formed through partial satisfactions, which explain or predict the global satisfaction.

The subjective features of customers, his/her activities, details of the situation and many environmental factors naturally make their impact in the final level of personal customer satisfaction. However it would be practical if the indicators of satisfaction were not too sensitive for these highly varying factors. The function for the global customer satisfaction is as follows in model 1:

$$(1) GS = f(S_{1-n}, P_{1-n}, A_{1-n}, E_{1-n}) + e, \text{ where}$$

GS = global customer satisfaction,
S = partial customer satisfaction,
P = subjective features of a customer,
A = activities on site,
E = environment,
e = random error.

The global satisfaction of customers for the park services is a combination of different partial satisfactions to be gained through the different services, which the customer has used during their visit. All customers do not use the same combination of services. In Koli National Park these services are as follows:

- Guidance and information
- Programs
- Education
- Congress
- Accommodation
- Restaurant
- Nature-shop
- Outdoor equipment rental
- Downhill and cross-country skiing
- Transport
- Harbour
- Roads and trails
- Telecommunication

The partial satisfaction of customers can be analysed and then to be combined of smaller details. Like the service called "guidance and information" we can find following subgroups:

- Signals and guideposts
- Oral information
- Exhibitions, (permanent)
- Exhibitions, (temporary)
- Digital databanks
- Library
- Interpretative slide programs

The indicators to be used are so called school-evaluation scores with 7 classes between 4 (minimum) and 10 (maximum). The scale is well known to visitors, who in this survey are all Finns. In psychological studies (Cliff 1966) the scale is considered as an interval scale, which supports calculations of means, variances, correlation and regressions under normal statistical prerequisites (Draper & Smith 1966).

Experiment of partnership and customer responsibility

The manager of a national park (Koli NP) makes a temporary contract for 1,5 years with an association (NGO) supporting the conservation and management of the park. The government provides funds for the technical maintenance of the visitor centre as an environment for guidance and information services. The NGO produces mainly the human services for customers. According to the contract the NGO has the right for funding the services via resources, which it may gain by collecting voluntary contributions from customers (Ukko's Pass – passport to the Heritage Centre Ukko) or selling some services and goods (exhibition guidance, slide shows and nature-shop products) to customers. The needed resources are altogether about 200 000 €, where government takes the responsibility for 33 % and the NGO 67 %. The NGO activates voluntary work for the services, but to be able to fulfil the contract and do its part of the services, it has to pay salaries or

commissions to the guides, who are local enterprises and their workers (altogether 6 people).

Information about the Ukko's Pass focuses on the customer's personal responsibility to support the NGO's services as a private partner of the project. The owner of the Pass has special rights like free entrance to the centre as a partner of the network for one day up to one year. By buying the Pass the customer shows his/her moral contribution for the guidance service, which they see valuable as a partner of the process.

SOME SELECTED RESULTS

Altogether 367 spontaneous classified feedback questionnaires were received in the opening year 2000 being 1,3 % of the number of all customers (28 854), who visited the Heritage Centre Ukko, when it was running services from 15.7.2000-31.12.2000. The customers did not evaluate all the services in one time, mostly because they did not use them all during their visit. The most actively given feedback focused on the tidiness of the centre evaluated by 76 % of visitors. The library, which was under continuous development during the whole season, was evaluated by only 26 % of visitors.

The slideshow was evaluated by 62 % of feedback, but only 37 % of the customers actually watched the slide show. This means that active customers also responded actively and spontaneously.

Partial benefits

According to the feedback it is clear that customers are highly satisfied with the tidiness of the centre and the slideshow (Table 1). The library clearly satisfies less of the customers. The amount of deviation and rate of strong criticism (grades 4-5) gives us more information about the variation of customer satisfaction and the potential seriousness of conflicts to be handled in park management.

Service	Mean	Std. Dev.	Median	Grades	n
Tidiness	9,3	1,1	10	1,8	281
Slideshow	9,0	1,4	9,5	4,4	229
Oral guidance	8,7	1,4	9	5,2	230
Exhibitions	8,6	1,3	9	3,5	259
Internal signs	8,5	1,3	9	2,9	205
Nature Shop	8,3	1,4	9	5,2	232
Congress services	7,9	1,9	8	13,7	73
Library	7,2	1,7	7	17,2	93
Total evaluation of services	8,8	0,9	9	1,3	230

Table 1. Evaluation of services in Heritage Centre Ukko in 2000, school score (4-10).

SERVICE	COEFFICIENT	Std. error of coefficient	P	BETA
CONSTANT	2,853	,353	,000	
EXHIBITION	,296	,041	,000	,412
INTERNAL SIGNS	,249	,045	,000	,342
ORAL GUIDANCE	,144	,038	,000	,223
R ² = 0,647 F= 94,57, P=0,000				

Table 2. Model forecasting the total customer satisfaction for the services in the centre; stepwise regression model (n=105).

Total benefits

The total evaluation of all services is a function of partial services (benefits) and some other factors (see model 1). For better understanding of the partial benefits a stepwise regression model was calculated (table 2). Some of the services (like tidiness and the slide show) were evaluated to be of such a high quality that they did not provide any more potential for higher total satisfaction from the services. The most important partial benefits can be reached by developing the exhibition, guiding signals and oral guidance in the centre. With limited resources the investment into the quality of exhibition is the most promising potential for increasing the total satisfaction for the services in the centre. According to the beta-coefficient a small positive change in the customer satisfaction due to the exhibition produces 1,8 times stronger impact in the total satisfaction than a similar change in the satisfaction for the guiding signs.

Trends

The customer satisfaction upon some partial services developed positively from the summer to the end of the year. In midsummer several thunderstorms were attacking the area and electrical problems were disturbing the slide shows and exhibitions. These problems did not occurred in the late autumn and in the early winter. The library was under development during the whole season. These positive customer satisfaction trends were statistically significant (1-way variance analyse, F-test, $p=0,013-0,035$).

Customer qualities and satisfaction

The female customers evaluate the guiding services systematically higher than the men do. This can be recognised in the mean level of satisfaction and also as a smaller variance on evaluations. All the other tested customer qualities (educational background, quality of dwelling environment, earlier knowledge of the park) did not have any correlation with the evaluations.

Customer responsibility of resources; response in satisfaction

Customer feedback about the Ukko's Pass is an expression of the suitability of the concept, but also it reflects his/hers opinion of the exchange ratio;

does he/she get the right quantity and quality of benefit when supporting the guiding by the NGO association in the Heritage Centre. The question of the Pass was clearly considered an interesting issue to the customers; 86% of the customers who gave the feedback answered to this question, which is more than to any other feedback question.

The feedback about the Pass was predominately clear and positive (Figure 2). The Mean of evaluation rose to 8,3 in school grades and std. deviation was 1,78 (n=316). Median evaluation was 9. However 11 % of customers were not satisfied with the model (grades 4-5) although 58 % evaluated it as very good (grades 9-10).

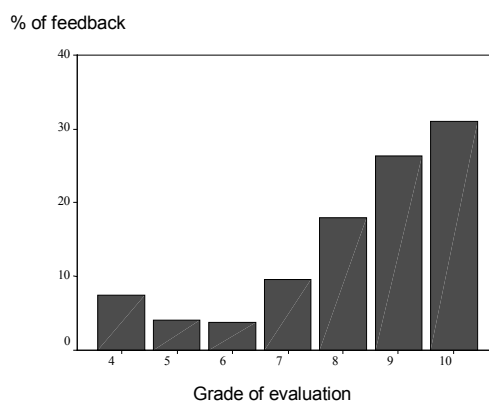


Figure 2. Feedback about Ukko's Pass in 2000.

The trend in the Pass feedback was positive during the monitored season 2000. Also the rate of customers, who actually were willing to buy the Pass increased from 28 % in August up to 50 % in October-November. Feedback from women took the Pass concept in average more positively as the men customers (analysis of 1-way variance, F-test, $p=0,015$). The females accepted the idea in the very beginning and their feedback was very positive during the whole period. Feedback given by men changed during the period from slight criticism to equal positive evaluation like women (khi2-test, Pearson $p=0,001$, $n=316$). Only a few extreme customers expressed strong criticism still at the end of the year 2000.

CONCLUSIONS

When trying to make plans for socially sustainable tourism development in national parks, we need a lot of theoretical work to find the proper

context and models describing the phenomenon. The right indicators for qualifying and quantifying the social capital are the critical tools in the approach to developing models for sustainable tourism planning. The valid frame of reference is the key for finding them. When developing our model we noticed that the global benefit/partial benefit -model (Kangas 1992), which is commonly used in welfare economics, can produce a valid approach for evaluating total customer satisfaction as a function of partial customer satisfactions.

Spontaneous feedback monitoring includes possible problems for right conclusions, especially when using averages, because some small active group can ruin the representative sample. Therefore a systematic sample is needed for controlling the validity of data. In our data the share of female customers in the year 2000 was significantly higher than in the 3 years before the development project. However in the year 2001 the share of women was equal in both the spontaneous and systematic sample. The difference in the year 2000 can be explained by the higher curiosity quality of women; the female customers came to test the new services more actively than men did. Later on the women took the family with them and the rate of men customer rose slightly but significantly. According to the systematic sample the feedback activity was equal among men and women.

The level of benefits gained in using visitor centre services is different for female and male customers. The female customers seem to gain higher social capital than the male customers. Later on we shall analyse the dynamics of this relation. It may be difficult to conserve the very high social capital; a hypothetical threat is that a small change of the quality of services may cause a large loss in customer satisfaction.

Also interesting was the observation of other studied background factors like education, environment of home, motive for visit or former familiarity with the site. These did not have any impact on the customer satisfaction. All the studied subgroups of customers evaluate the quality of services with similar mean and variance pattern.

All the distributions of evaluations however were statistically non-normal (Kolmogorov-Smirnov-Lillefors test, $p=0,000$). Some of the services were evaluated with j-curve pattern with two tops and some had almost normal distribution. The j-curve pattern informs about a possible conflict, which can cause severe losses in the social capital if not controlled carefully. According to our practical experience it seems to be possible to control the conflict if the portion of the extremely negative feedback stays below the level of 10 %. This underlines the need to also monitor carefully the extreme feedback, because there can lie the option for open and warm conflict, which ruins a lot of carefully maintained social capital.

The school-evaluation score is a practical tool for measuring the customer satisfaction. It is

familiar and illustrative, that the customer can easily find the verbal connection with numbers in his/her mind and the 7 step score is effective in short-time questionnaires. For planning of sustainable development of tourism we however to make need decisions about the acceptable level of customer satisfaction. It is not possible to produce all the services for the different groups of customers under the satisfaction grade 9. In park management we have to be able to set the target to a reasonable level. For instance, we can use a set where the total satisfaction is minimum on the grade 8 (good quality) and all the services are evaluated at least to be on grade 7 (satisfactory quality) and the group of grades 4-5 (extremely critical customers) is less than 10 %.

The case study in Koli National Park is suggesting that the visitor centre is a proper concept to create and maintain social capital. Almost all the partial services in the centre are evaluated on grade 9 or higher in median. The experiment to develop a partnership-oriented service model for the visitor centre including an approach for customer's responsibility of resources turned out to be a success.

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