

## COMPARING CUSTOMER-SATISFACTION EVALUATION METHODS, IN THE CONTEXT OF INDUSTRIAL HERITAGE SITES

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*There is a rich variety of customer satisfaction evaluation techniques, nevertheless rarely other approaches than the attribute-orientated ones are used. Therefore the article gives a short overview on existing alternatives and their specifics in the first part. The second part focuses on an evaluation of those methods in a practical way, by applying a bunch of methods in the context of leisure research. Based on an industrial heritage site, attribute-orientated-, incident-orientated approaches as well as silent hooping techniques are applied, in order to research their specifics and to evaluate the data provide by each methodological approach. Specific opportunities and threats are elaborated for each method in the context of leisure research.*

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**Keywords:** *heritage; tourism; evaluation; customer-satisfaction; methodology*

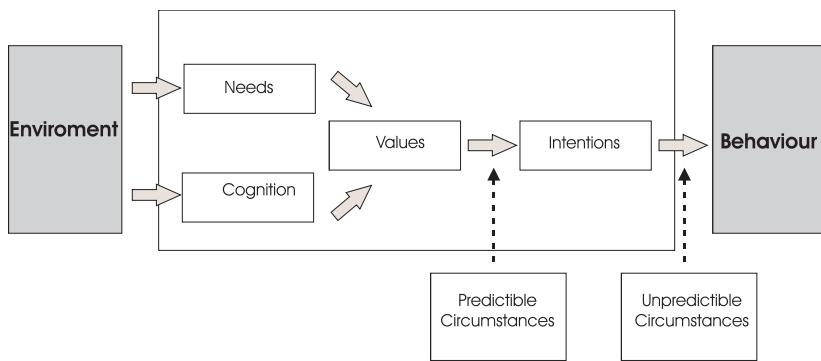
JEL Classification: L83, M1, O1

### APPROACHES TO MEASURE CUSTOMER SATISFACTION

Due to the increasing competition in the tourism industry and continuously changing consumer behaviour and needs, the private tourism sector started in 1990 to focus on customer satisfaction. Taking a demand

perspective, one could argue this increasing awareness on consumer perception and satisfaction might be the foundation in social psychological attitude models. The focus on consumer perception has its theoretical inheritance from US American social psychologists such as Rosenberg, Fishbein and Ajzen, which is applied in various contexts for example, retail and transportation or leisure and tourism research. The attitude models suggest that objective conditions fail to be relevant for consumer behaviour. Thus, more nuanced extensions accommodate such phenomena by suggesting that the subjective perception (adequacy) and performance (importance) are used by consumers to rate the importance of the attributes and the adequacy of the brand. One of the most frequently used multiattributive attitude model is the Customer Satisfaction Index (cf. Töpfer, 1999, p.315). However, the multidimensional construct is widely used, in particular the tricomponent attitude model (illustrated in figure 1), which includes an affective, a cognitive and conative component (see Kroeber-Riel, 1984).

**Figure 1**

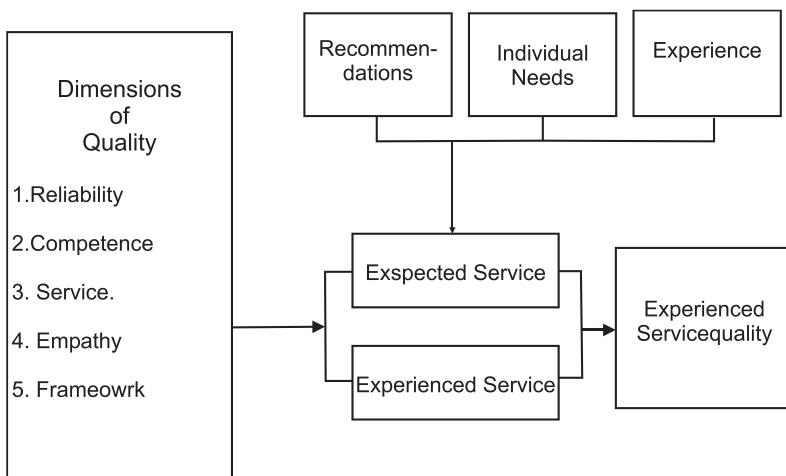


The attitude models were used to explain and partly predict customers' decision-making process. However, it has failed to incorporate variables, which has led to extensions and complementation of the model (see the extended figure 1 including anticipated variables). The main principle of all attribute-based approaches to analyse customer and visitor satisfaction is that the attitude to an offer is based on the sum of the brand's attributive values. In particular, market research analyses customer satisfaction with concrete products including clearly distinguishable attributes. On the other hand, service product offers

encompass various contacts and components, which are analysed with this approach to gather (averaged) attributive values. Thus, several mean values for each component, e.g. friendliness of employees or physical evidence (atmosphere) are collected and the single values will be included in the evaluation; however, the single contribution cannot be identified retrospectively.

Although such methodological issues are prevalent, the attitude models constitute the basis for the prevailing pursued research to analyse customer and visitor satisfaction. One of the main and constitutive approaches is the process-orientated perspective of the expectation-disconfirmation model (cf. Matzler, 1997, Oliver, 1980). This model explains satisfaction as a result of the cognitive comparison process between expected and perceived performance quality. However, the actual comparison process is carried out in the last of the three phases of the model as illustrated in figure 2.

**Figure 2**



In the first phase, the emerging of attitudes, attitudes are considered as a phase of expectations, which emerge from implicit and explicit comparisons of different options including word-of-mouth and therefore creates the corporate image. In the second phase, perception, the consumer or visitor encounters directly the product or service. In the third phase, the emerging comparison process, the consumer evaluates the result considering the expected versus the actual performance and

differentiates between the individual expectation and the perceived reality – the actual product or service performance.

Parasuraman, Zeithaml and Berry (1985, p.44) developed a GAP model. The model is considered as service-quality model and indicates five gaps (figure 3), which explains that the consumer evaluate the service performance according to the differences (gap) between expected and perceived service. The model identifies five gaps, which cause unsuccessful service delivery. These gaps are the consequence of differences in service delivery and the expected service quality (cf. Müller, 2000, p.32):

Gap 1: Gap between consumer expectation and management perception

Gap 2: Gap between management perception and service quality specification

Gap 3: Gap between service quality specification and service delivery

Gap 4: Gap between service delivery and external communications

Gap 5: Gap between perceived service and delivered service.

Although gap 5 is the focus when analysing customer satisfaction, the preceding four gaps are considered as foundation where the fifth gap is complementary to ensure an overall customer satisfaction analysis.

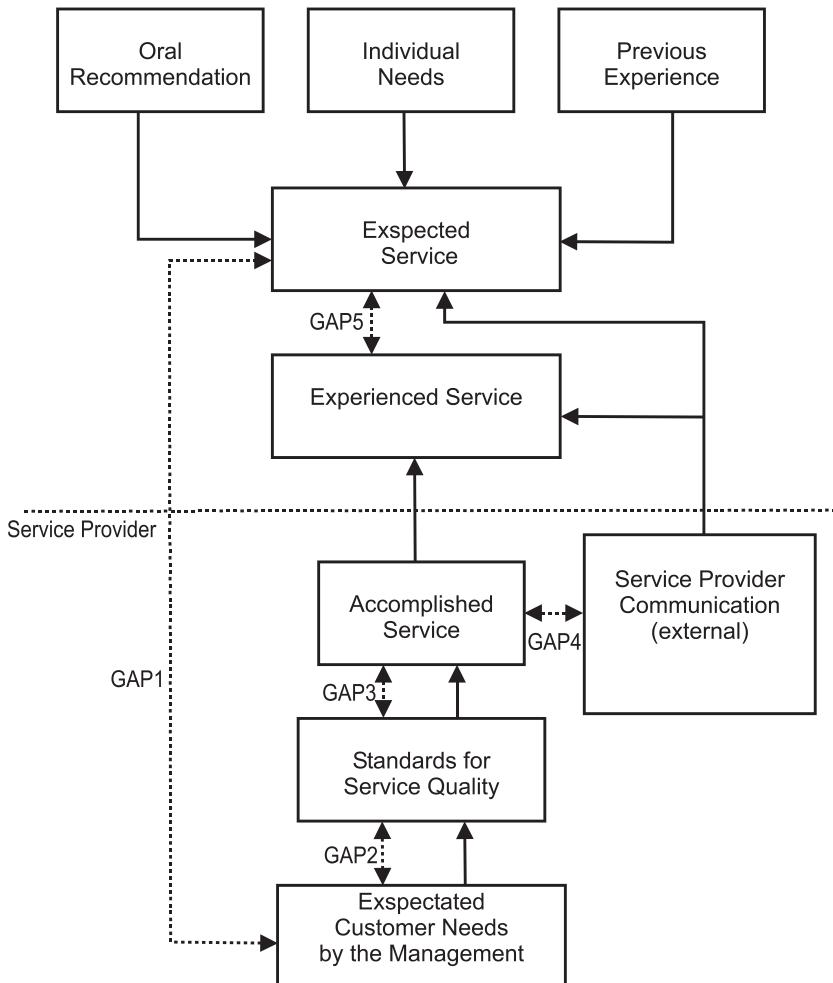
Taking the 5-gap model further, Parasuramann et al (1988) developed the SERVQUAL approach, incorporating attitude and satisfaction components to assess and measure service quality. This assessment is conceptualised with an attitude and satisfaction component. The focus is not an absolute value rather than the difference between expected and perceived service performance. The assessment is based on five service quality dimensions, namely reliability, competence, responsiveness, empathy, tangibles. Structured interviews were carried out to operationalise customers' expectation and perception through five point scale structure with a 22-item instrument.

However, a central problem of all approaches based on the adequacy-importance-perspective is that it implies:

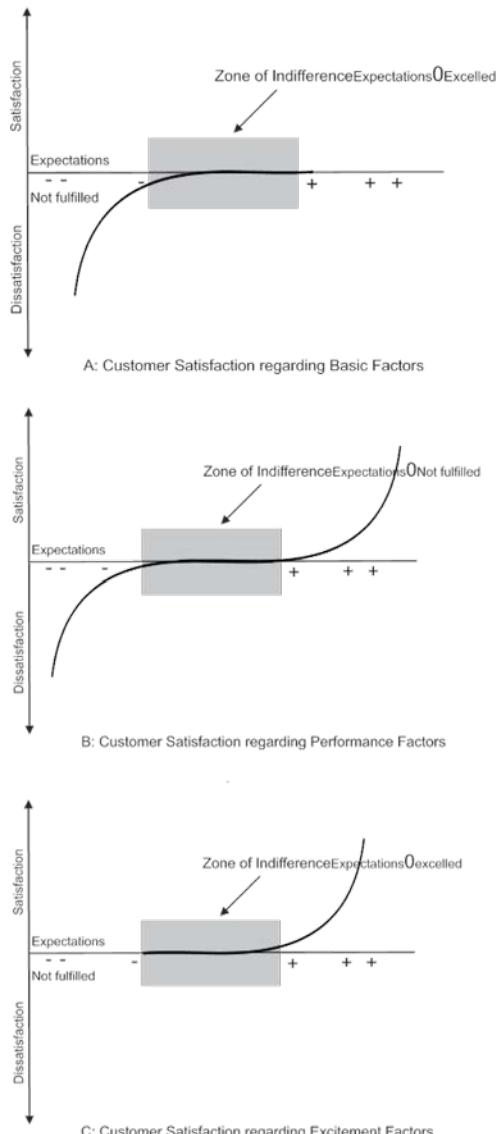
- The expectation might be considered as the ideal condition and
- The model is linear compensatory in nature (the approach fails to reflect negative aspects when performance exceeds expectation, thus unsatisfactory items are compensated through satisfactory items) (Buttle, 1996; Robinson, 1999).

**Figure 3**

Customer



**Figure 4**



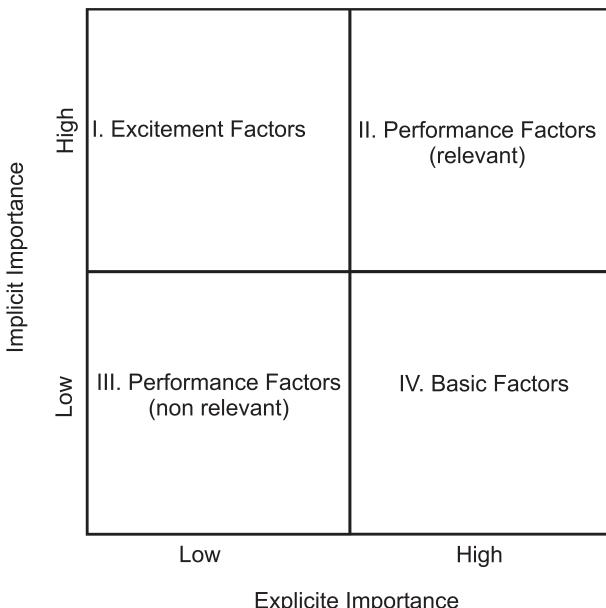
Moreover, a possible expectational inflation is not met (more detail see e.g. Dreyer/Dehner, 1998, p. 102-106; Töpfer, 1999, p. 314-324). By taking a multi-factor approach to operationalise customer satisfaction in marketing, the ‘Three-factor-structure’ appears more reliable to compare between expected and actual performance and is nowadays widely acknowledged (Matzler, Pechlaner and Siller, 2001).

The Three-factor-structure differentiates among following components (as illustrated in figure 4):

Basic factors build a market entry “threshold”, as these are the customers’ minimum requirements a service or product need to perform. Otherwise if not fulfilled it causes customers’ dissatisfaction.

Performance factors constitute competition barriers in the market. In this case the consumer is satisfied if expectations are exceeded – and dissatisfaction if expectations are not fulfilled.

**Figure 5**



Excitement factors include opportunities for the service provider to increase significantly perceived customers’ benefits (in comparison to competitors), provided that basic and performance factors are fulfilled.

These factors are not expected by the customer. However, these factors are able to increase customer satisfaction if available but do not decrease customer satisfaction if not available. Excitement factors cannot offset the lack of basic and performance factors (cf. Matzler and Sauerwein, 2002, p.318; Füller and Matzler, 2008).

The three-factor model exemplifies a hierarchical structure. Customer satisfaction therefore emerges “if the basic factors are not disconfirmed negatively, performance factors evaluated positively, and excitement factors perceived” (Matzler et al, 2001, p. 448). Moreover, the customer satisfaction construct is in this context characterised by individual expectancy benefits and temporal dynamics. Of further importance, social change processes, particularly the increase of experience and therefore changing expectations of individuals play an important role in this model. Thus, excitement factors may become performance factors and later develop to basic factors.

Concerning the identification of the factors, there are several approaches; however, the effort for data collection and analysis is relatively high. The new instrument, the two-dimensional “Importance Grid” developed by Vavra (1997) can diminish the effort; however, little empirical research has been done yet (cf. Vavra, 1997; Homburg and Werner, 1998). Vavra (1997) suggests that the three satisfaction factors can be derived from the combination of two types of attribute importance, termed explicit (customer's self-stated importance) and implicit (statistically derived) importance (see figure 5). On the one hand, a questionnaire is used to obtain directly relevant data about customer's self-stated attribute importance; on the other hand, the implicit importance is determined indirectly by calculating a multiple regression of attribute satisfaction in correlation to external criteria, e.g. overall satisfaction (cf. Smith and Deppa, 2009).

Following the attribute-oriented approaches, the customer value construct or the perceived customer value has recently been used to contribute further to satisfaction research. Based on economic research the customer value construct incorporates satisfaction/perceived benefits, and perceived costs. This construct determines “the gap perceived by the customer between the perceived (multidimensional) benefit and the perceived (multidimensional) costs/prices compared to its competitors” (Matzler, 2000, p.290).

These approaches explained above have in common that they investigate individual attributes of evaluated products and belong therefore to attribute-orientated methods. Much research in economics uses these approaches because the focus is on clearly defined products

with clearly defined attributes. However, in the field of human geography such as retail, transportation, or leisure and tourism the investigated products are intangible and complex incorporating various components such services and tourism experiences made by customers, passengers, or visitors. Thus, it can be argued that the product-attribute approaches, typically used in economics, are less appropriate for attribute research in human geography than a consumer-oriented approach.

Even if multi-attributive concepts of service quality are traditional models to analyse customer satisfaction, there are a great number of approaches to be found in market research. The reason behind the extensive circulation of these approaches, which have nowadays almost a monopoly, can be explained by the clear and precise results it produces, and can be further used for benchmarking. Another central reason for its usage is that the commercial-oriented market research works with multi-attributive measures because with relatively little effort feasible results can be generated. Considering other approaches, however, these are

- in part more time-consuming and more complex, or
- generate mainly qualitative data, which
- are more difficult to compare and analyse.

In addition, operational Marketing has criticised the capacity of traditional multi-attributive approaches. Stauss and Hentschel (1992) claim that “the traditional, standardised and attribute-based quality and satisfaction surveys seem to be unable to reflect the quality perception of service customers completely and the results are not sufficiently differentiated with respect to the information needs of the quality management” (p.116). The variety of methods used to capture customer satisfaction is illustrated in figure 6. Generally, customer satisfaction can be classified in “subjective procedures” and “objective procedures”.

On the one hand, the objective methods, does not involve the visitor directly, but as a person who takes an (objective) expert’s position and tests the product or the reaction of the customer:

Using the approach “Silent Shopper” or “Mystery Guest”, trained people imitate a mystery shopper who simulates visitors- or customers’ experiences.

A systematic observation of visitors and their direct reaction upon an offer is used to estimate service quality

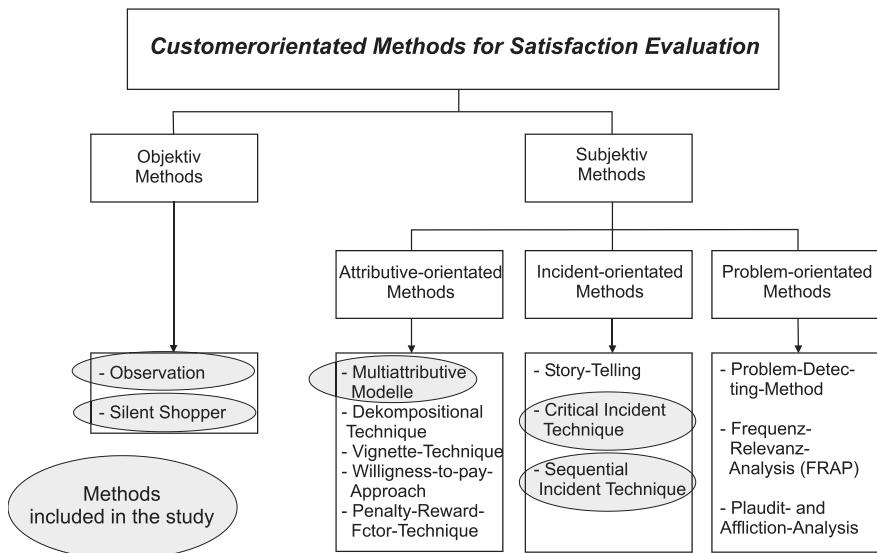
Although these approaches are explained for the most part of textbooks for market research, they are hardly used in practice with only a slow increase of the Mystery Guest-approach in recent years.

On the other hand, subjective customer-oriented measuring methods include attributive-oriented, but also incident-oriented approaches. In particular, in the hospitality sector with relatively co-ordinated service processes based on complex activities (reservation, arrival, check-in, stay, restaurant, departure), customer satisfaction is occasionally analysed using incident-oriented approaches. This approach is used to reproduce individual encounters between service provider and customer to analyse customer satisfaction (cf. Dreyer and Dehner, 1998, p.78).

One of the incident-oriented approaches, called sequential incident technique (cf. Bruhn, 1997; Strauss and Weinlich, 1997) provides a more detailed differentiation and analysis of the customer/visitors experience than the attribute-oriented methods. The aim of the method is to capture all customer experiences according to the sequential transactions of the consumption process and to develop a customer/visitor path following all phases. Generally, the analysis of incident-oriented approaches is relatively time-consuming requiring following four stages:

1. Defining the customer path
2. Collecting the incidents on the basis of the customer path
3. Capture all relevant incidents
4. Define the contact point, episode and transaction quality

**Figure 6**



Another measurement is the Critical Incident Technique (CIT), which pursues a different approach. It records single events or critical incidents that are either particularly satisfactory or particularly unsatisfactory, but does not capture the holistic consumption path (which often is highly distinctive and complex) (Bitner et al, 1985). CIT is used to identify extreme strength and weaknesses within the customer path. Similarly, problem-solving methods such as the analysis of complaints and compliments (cf. Cadotte and Turgeon, 1988, Johnston, 1995), measure primarily the extreme weaknesses (strength to a lesser extent) and as such the top of the iceberg of customer (dis-)satisfaction whereas the mean value between weaknesses and strength is disregarded.

Concerning the incident-oriented approaches, it is to be noted that these are not to be mistaken as a substitute of attribute-oriented approaches. Straus and Hentschel (1992) highlight that attribute-aided procedures and incident-oriented methods cover different aspects of service quality. Therefore, it appears appropriate not to consider these approaches as substitutes but rather as complementary methods (p.121). However, both methods have not been investigated systematically for synergies when combining both approaches.

The aim of this project was to compare empirically these distinctive methods. To do so, traditional subjective, attribute-oriented methods to measure multi-attributive attitudes of visitors and other measurements are compared and evaluated. Therefore, following methods – marked in figure 6 – are applied to an industrial heritage context to test its capacity:

- Objective measurements
  - Observation
  - Silent Shopping / Mystery Guest
- Subjective, incident-oriented methods
  - Sequential Incident Technique
  - Critical Incident Technique

Specifically, the incident-oriented approaches were taken into account. Strauss and Hentschel (1992) have used these methods in the context of services to analyse customer satisfaction within the German car industry. Both hypotheses were confirmed:

1. The incident-oriented quality measurement yield more detailed information than the attribute-oriented method (p.117) and
2. The incident-oriented quality measurement yield additional and therefore more complete information than the attribute-oriented method (p.118).

Additionally, Dyer and Dehner (1998) argue that the measure is appropriate in order to generate relatively complete and solid information

about the quality perception of the customer in different stages of the service processes.

## **CHOOSING THE INDUSTRIAL HERITAGE SITE ZECHE ZOLLERN**

Long time industry and culture were used as antagonistic terms. Their combination was unbeknown as were industry, heritage and tourism. In particular Sweden and Great Britain were cutting-edge nations in the field of industrial heritage and its touristic development. (see Soyez 1986, p.107f.)

It was only in the 1970th when the perception changed. Also Germany came to a “stronger awareness, that technical monuments form part of a society’s cultural heritage” (Hüchering 1999, p.289).

But the interest in industrial heritage and relating museums developed slowly. It was only in the middle of 1990th that industrial heritage sites achieved the status of potential destinations for leisure and vacation for a bigger part of the population. The only low augmentation of demand can be explained by the fact, that industrial landscapes had a negative image for a long time and simply did not correspond with the classical picture of attractive leisure and tourism choice (see Soyez 1993, p.42f.).

An attitude shift was introduced especially by the IBA Emscher Park in the 1990th. Since that time the Ruhrgebiet is trying to build its touristic and leisure profile on industrial heritage.

One of the most important elements of this strategy is the implementation of “Route der Industriekultur” (route of industrial heritage). Within this touristic route, central anchor points of industrial heritage have been packaged (see KVR 1999).

On the same page it has to be pointed out, that industrial heritage sites and museums are normally not self explaining. This means that a didactic preparation of the sites has to be undertaken. Therefore different approaches on information and knowledge transfer are used. This ranges from

- museum-like attractions with traditional knowledge transfer by showcases and explanation boards,
- destinations that add new media content to underline their infotainment character,
- stronger visitor participation (e.g. themed guided tours),
- orchestration of the sites with light and sound effects to produce a genuine impression.

By now it is the classical forms of interpretation that dominate; modern presentation and a direct activation of visitors are rare or only offered at certain times throughout the year.

**Figure 7**

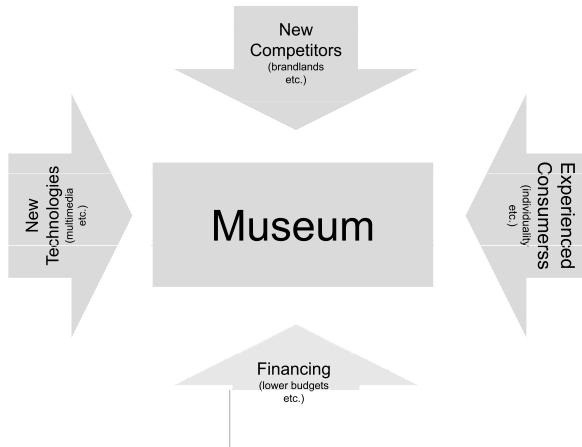


Foto 1



**Foto 2**

Huecherig already stated in 1997 (Huecherig 1997, p.72f.), that industrial heritage sites have to be prepared experience-driven, if the wider population is to be addressed and visitors should be attracted. As a reason he mentions the fact that expected standards of potential consumers have significantly risen over the recent years (more detail see Agricola 200, Hennings 2000, Steinecke 2000). On the same page, the range of consumer orientated leisure attractions that meet these expectations on entertainment and involvement, rose significantly in the 1990<sup>th</sup>. On the other hand the financial flexibility of the mainly public founded museums is much more difficult nowadays than it was in the 1980<sup>th</sup>, regarding the financial obstacles many local authorities are facing. This limits the possibilities of realizing staged concepts.

These challenges, that Heinze (1999, see fig. 7) formulates also apply to industrial heritage sites whose purpose is to inform the public.

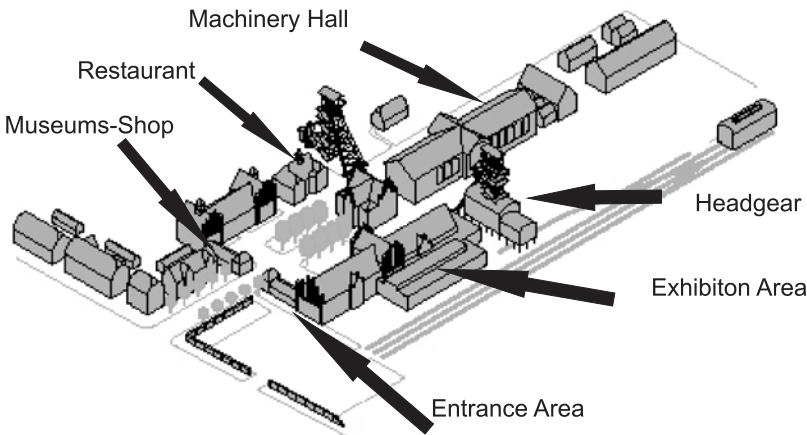
Zeche Zollern in Dortmund, one of the anchor points of the rout of industrial heritage, was chosen as the example site. Besides directly showing industrial heritage (pit frame, machine hall, see pic. 1), the

building that used to serve as pithead bath, is now accommodating a comprehensive documentation of mining and its history as well as culture of daily life in the Ruhrgebiet (see pic. 2). It intensively uses media and involves and activates visitors with various exhibits. The buildings on the grounds of Zeche Zollern are built in the style of brick gothic. That is why it represents one of the most important examples for the staging of the meaning of mining at its development (see pic. 3).

Foto 3



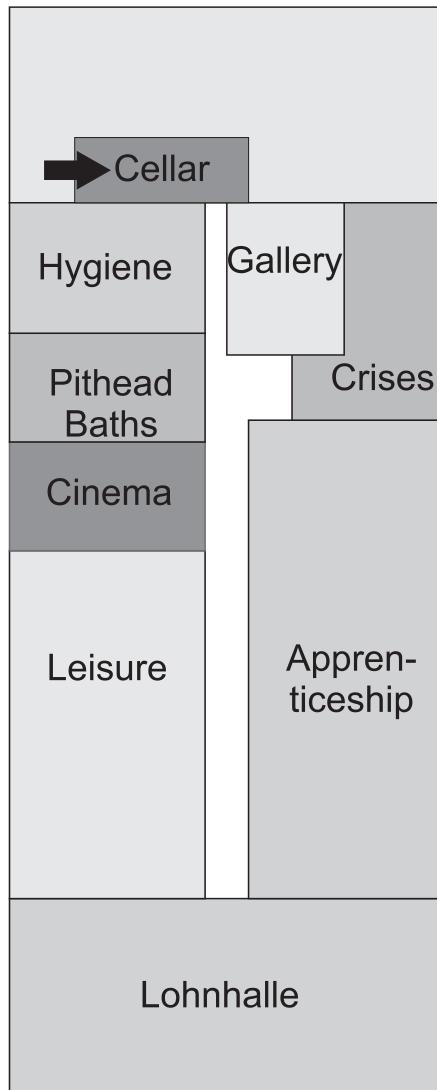
**Figure 8**



The area also shows the advantage of being clearly structured. This avoids complex structures when setting up the blueprint for the visitor path (see fig. 8). From the entrance and till area, the visitor reaches the exhibition via the Lohnhalle (where workers used to receive their pay). After exiting the exhibition, the pit frame and the former machine hall are the main points of interest. The way to the exit passes the restaurant and leads into the museums shop where you leave the area.

Also the exhibition itself is clearly structured and well arranged, so that it is possible to follow visitors without coming too close (see fig. 9). Via the Lohnhalle visitors reach the exhibition itself. It starts with covering “Education in Mining” and “Leisure in the Ruhrgebiet”. In the small theatre short historical films on the Ruhrgebiet are shown. This area is followed by a reconstructed part of the pithead bath that leads into the topic “Hygiene and Health”. Via a small themed tunnel the visitor reaches the part that covers the crisis of the mining industry. The hall can be exited via the former lamp room, but it is also possible to visit the basement, where security is covered and a special kids area is built in.

**Figure 9**



## Approach

The initial idea was that it would be possible to apply different methods of measuring customer satisfaction to normal visitors of an attraction. Hence an experimental approach was chosen. This method has successfully been applied in psychological research, but almost completely ignored in social science. The participants face the setting “industrial heritage” in a way that the different research approaches of visitor analysis can be used. The probands themselves are not aware of the methods and their sequence. The experiment of comparing different methods was conducted with a project group of students at the University of Paderborn.

After defining the 12 steps of a possible visitor path through the premises and the preparation of the different instruments, the visit at Zeche Zollern took place, declared as explorative field trip.

**Figure 10**

Apprentic eship  5	text	<input type="checkbox"/> Not seen <input checked="" type="checkbox"/> Not readed	<input type="checkbox"/> Start reading <input type="checkbox"/> Read through	Plays with the terminal  schließt sich Gruppe an   No sound „Fuck“	
	exhibit	<input type="checkbox"/> Not seen <input checked="" type="checkbox"/> Not checked out <input type="checkbox"/> cursory checked <input type="checkbox"/> Intensivly checked			
	Interaction (terminal)	<input type="checkbox"/> Not seen <input type="checkbox"/> seen, no interaction <input type="checkbox"/> starting interaction <input checked="" type="checkbox"/> interaction			
	interaction (chute)	<input type="checkbox"/> Not seen <input type="checkbox"/> seen, no interaction <input checked="" type="checkbox"/> Starting interaction <input type="checkbox"/> interaction			
	Overall-impression	Quite bored			
	time	<input type="checkbox"/> <1 min <input type="checkbox"/> 2-4 min	<input type="checkbox"/> 1-2 min <input checked="" type="checkbox"/> >4 min		

One part of the group was not aware of the purpose of the visit and served as test persons. The other part had been instructed and was lead

through the process during a previous visit in order to take over the role as observers and interviewers.

Before the actual visit a written survey was carried out in which recreational behavior and previous experiences with industrial heritage sites were identified, as well as expectations related to the product. By that the ex-ante weights for those parameters have been determined. These were to be asked again after the visit.

For the observation or contact point analysis it was differentiated (if applicable) between:

- reading explanation boards (cognitive stimulus)
- looking at exhibits or exposure to architecture or machinery using interactive elements

Additionally the time spent in the different areas has been recorded.

It was important to choose the categories in a way that they show a clear and accurate differentiation, which still could be observed from a certain distance. The practicability of the dimensions and categories has been pretested. As a result a four stage scale could be found for all dimensions. It was coded 1 to 4 for the evaluation.

In fig. 10 an extract of the observation form is shown. The form also shows qualitative elements and the order in which the different parts of the attraction have been visited.

At the beginning of the visit the students were given 1,5 hours to explore the area individually. Despite initial concerns none of the observed students realized the fact they were part of an experiment, even if there was always the observing person nearby.

The fact that the students mainly went round the area in small groups helped the approach. The observers also had been advised to let an observed person go in case it went into a remote part of the area. Following the visit (that ended with a cup of coffee for the major part of the group) interviews between observers and observed were conducted in a meeting room of Zeche Zollern. The fact they had been observed was not yet mentioned. Only the initially researched results of the observed students formed part of the evaluation at that point. The first survey covered especially characteristic aspects and their importance. The form was a standard exit survey as it is used in many attractions.

For the evaluation of the different items a five step scale ranging from very negative to very positive was used. For the importance the five step scale ranged from very unimportant to very important. To determine the implicit importance the overall score for the attraction was also identified.

This first interview part was followed by an unprompted listing of aspects that have been memorized in particular (see fig. 11), according to the critical incident technique. Additionally the test persons have been asked for a five scale rating of the aspects they named. For the evaluation only those mentions have been incorporated that do not refer to the attraction in general, but concrete situations.

**Figure 11**

1.1	a) What stayed in your mind?	Interactive exhibits	b) Why it stayed in your mind?	Lot of things not working		
	c) How would you rate ... ?	Very negative <input type="checkbox"/>	negative <input checked="" type="checkbox"/>	undecided <input type="checkbox"/>	positive <input type="checkbox"/>	very positive <input type="checkbox"/>

1.2	a) What stayed in your mind?	henhouse	b) Why it stayed in your mind?	funny, not expected		
	c) How would you rate ... ?	Very negative <input type="checkbox"/>	negative <input type="checkbox"/>	undecided <input type="checkbox"/>	positive <input checked="" type="checkbox"/>	very positive <input type="checkbox"/>

In a third step the sequentielle contact method has been used. All parts of the attraction were mentioned in the order they had been visited by the test persons. These were asked to rate the different parts on a five step scale (see fig. 12). After a preparation following the experiment, an evaluation scheme for the silent shopping was produced with the students. As a last step, expert ratings were conducted on a last field trip. Other elements, that will not be referred to in more detail, were a content analysis of the marketing communication and interviews with the management of Zeche Zollern.

Given the very small sample size of only 12 probands respectively 21 expert ratings for the silent shopping, the results themselves are not to be considered representative. The major aim of the experiment was to fathom the adequacy to identify strengths and weaknesses.

Despite the small sample size, a couple of interesting results could be found. A few of them will be presented in the following chapter.

**Figure 12**

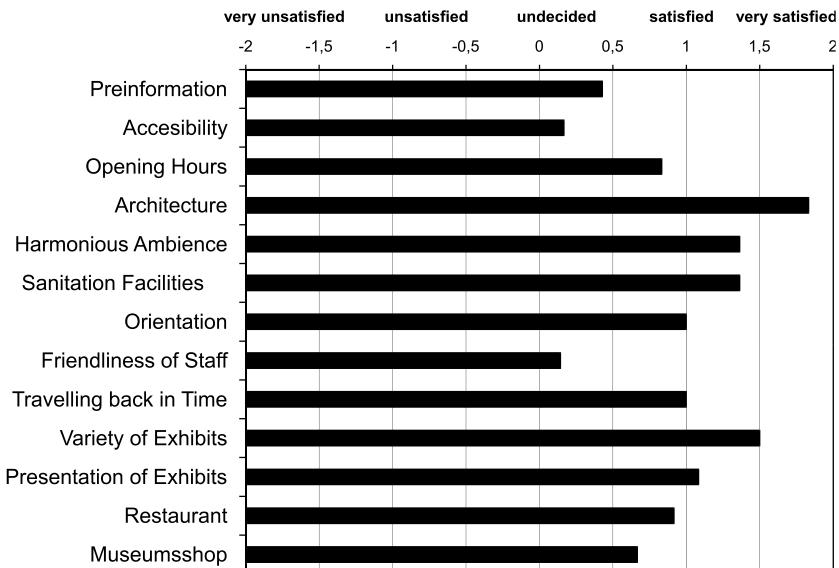
2.5	In the segment „Apprenticeship is there anything staying in your mind?	<input type="checkbox"/> no, not been there <input type="checkbox"/> no, no recognition	<input checked="" type="checkbox"/> yes, because school-certificate	b) Why it ..... stayed in your mind?	Boring exhibits
	c) How would you rate ... ?	Very negative <input type="checkbox"/>	negative <input type="checkbox"/>	undecided <input type="checkbox"/>	positive <input checked="" type="checkbox"/> very positive <input type="checkbox"/>

## RESULTS OF THE MULTI-VARIABLE SURVEY

The overall satisfaction rate of 1,5 (between satisfied and very satisfied) shows a high degree of satisfaction with the offer. This could also be noticed with the group. Also the other two standard questions on the indirect determination of the overall satisfaction, one intention to recommend, and two intention to revisit (both on a five step scale from certainly not to certainly yes) showed relatively good results. For the intention to recommend a mean of 1,25 was found, that correlates highly significant at 0,7 with overall satisfaction. For the intention to revisit an arithmetic average of 0,92, without major spreads, was found. This corresponds to the most popular answer “yes, maybe”. Whether this indicator shows a realistic picture of satisfaction or the students do (not yet) from part of the main target group of industrial heritage sites, could not be determined, even in the following discussion. Following the positive overall satisfaction, also a major part of the single results on

features of the offer were positive, even though a clear differentiation could be seen (see fig. 13).

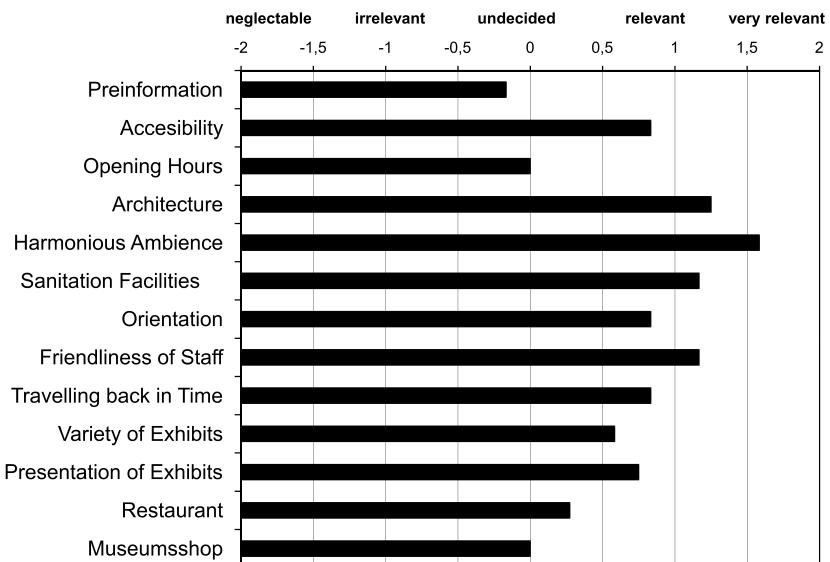
**Figure 13**



The probands confirmed a convincing architectural impression and a coherent atmosphere, meaning a high degree of authenticity. The high number of objects was well arranged, so that the test persons felt transferred into the past. On the other side, accessibility and pre-visit information only received average ratings. It must be said that, unlike a normal visitor survey, accessibility only covers public transport, as the group travelled by train. The item pre-visit information reflects the results of the tasks for the probands, to gather information on the web about the visited location. A significant drop against the other items can be seen with friendliness of staff. This item shows the lowest satisfaction rate. This indicates certain lacks in service quality.

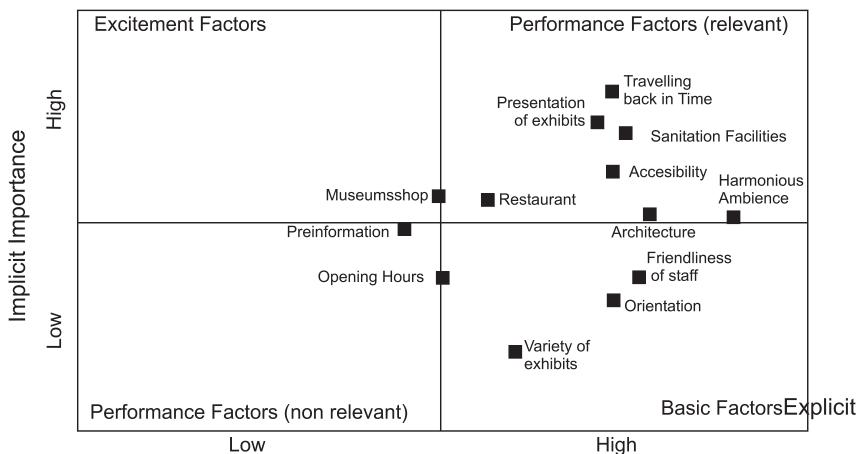
Seeing the importance in fig. 14, that correspond to the single dimensions, relatively high scores can be observed for the aspects rated more than average, architecture and atmosphere. On the other hand also the slightly low satisfaction scores on accessibility and staff friendliness are also rated with a high explicit meaning.

**Figure 14**



By multiplying these single ratings with the collected meanings, an overall engagement according to the adequacy-importance-method can be calculated. This turned out as 1,0 (transformed on a scale -2 to +2). This means that the overall satisfaction rate gained from the single ratings is considerably lower than the satisfaction score expressed spontaneously at the beginning of the interview. But as per the attitude model shown in fig. 1, the attitude score (in a narrow sense) affects the desired behavior (cognitive component); a good match with the stated intention to revisit can be seen.

To produce an importance grid (see fig. 15), not only the directly surveyed (explicit) importance, but also the implicit importance needed do be determined. The latter is calculated as the standardized regression coefficient with the (directly surveyed) overall satisfaction as dependant variable and the single satisfaction items as independent variables (see Matzler/Sauerwein/Stark 2994, p.460).

**Figure 15**

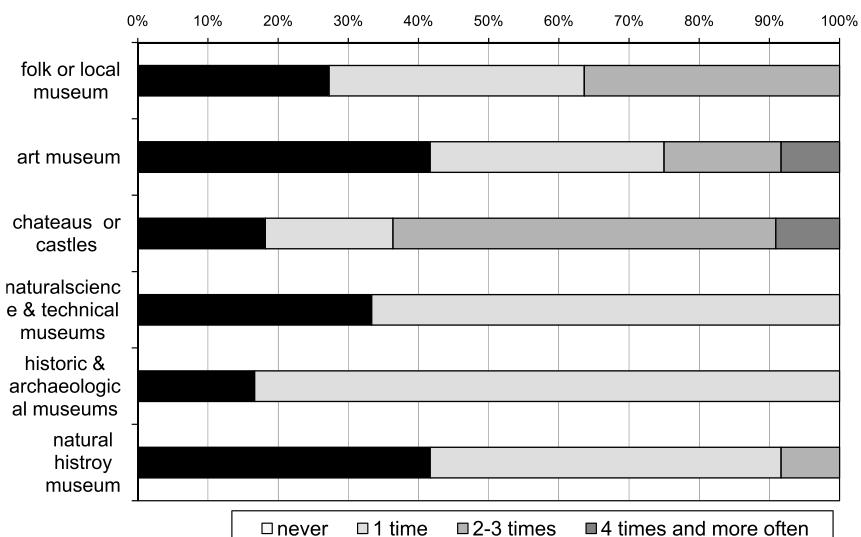
From the importance grid shown in fig. 15 you can see that none of the surveyed aspects acts as a real excitement factor (I. quadrant). Given the high explicit importance, i.e. the standards the probands have, only the restaurant and the museum shop show tendency towards excitement factors. At the same time, there are hardly any areas were the attractions offers elements that are not appreciated by the probands (unimportant performance factors in quadrant III.). A wide range of exhibits means for orientation and helpful staff are considered as self-evident basic factors. Given the fact that staff friendliness received the lowest scores, a need for action on that item can be seen. As the items identified as performance indicators show relatively good results, there is no immediate need for change. But a stronger staging of the presentation could help the extraordinary performance factor "to be transferred into the past" to achieve a better result, so that the overall satisfaction can be risen significantly.

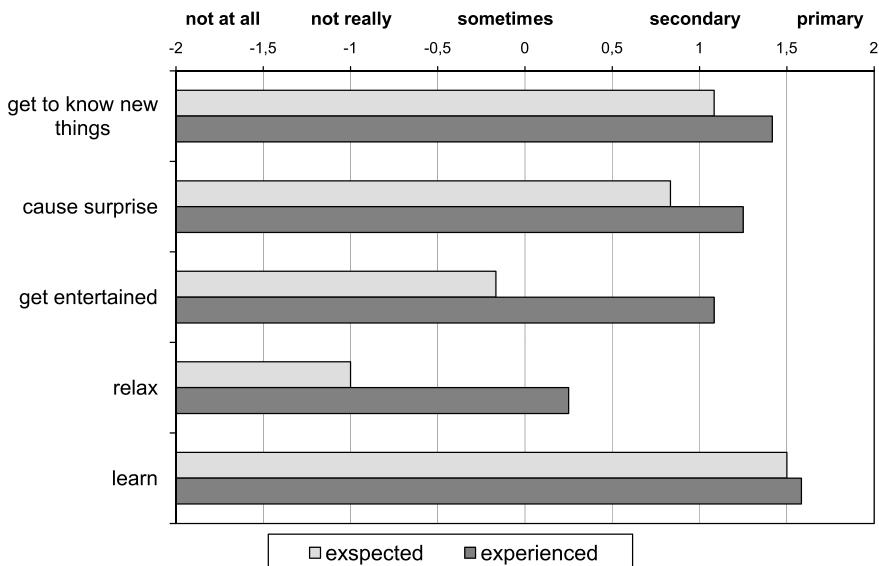
Overall the results achieved by the item related approach reflect a high degree of visitor satisfaction of the probands. It became clear that the differentiation of single items compared to the overall satisfaction gives additional findings, despite a relatively high overall score. By using the importance grid, fields to be worked on could also be identified.

## Comparison of expectations and experience

With the group of probands there was the option of an ex-ante / ex-post comparison of expectations. This is usually difficult to realize. Relating to the expectation-disconfirmation model (see fig. 2), the background knowledge on industrial heritage of the test persons has been determined via an ex-ante survey. It showed that the students were not part of the main users of museums. The visiting frequency in fig. 16 shows that a high proportion has visited different facilities not at all or only once during the last year. Only castles show a slightly higher intensity. Even if most of the students had already heard of the route of industrial heritage, only half of them had already visited at least one attraction of that kind. It must be added that it was students from the faculty for geography and tourism. The route of industrial heritage was covered in different lectures and most of the mentioned visits happened on field trips. Only two students had been to Zeche Zollern before.

**Figure 16**



**Figure 17**

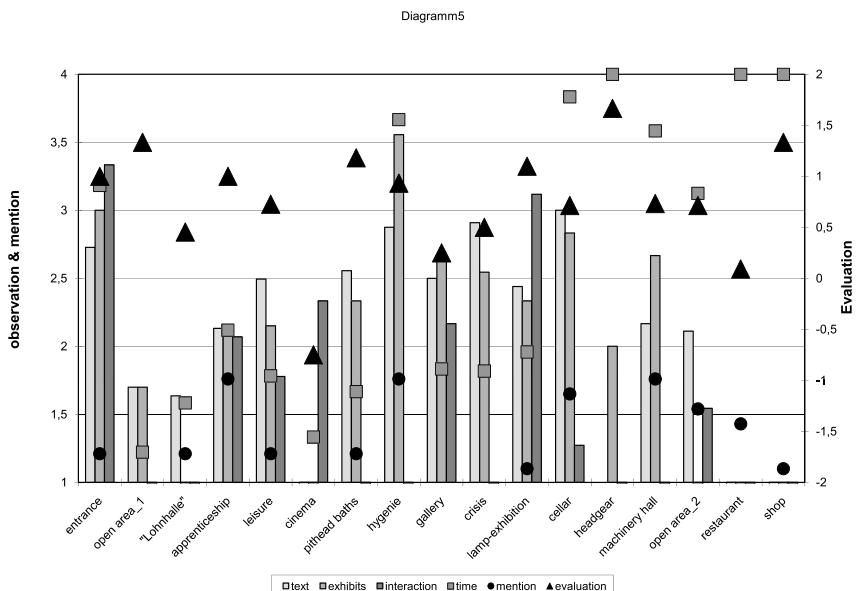
That the probands not really considered industrial heritage sites as attractive options to spend leisure time previous to the visit, is illustrated by the assumptions mentioned beforehand, which sort of experience is offered there (see fig. 17). The image of industrial heritage attractions is dominated by the conception you could "learn" and "make new experiences". Significantly lower were the expectations towards the more hedonistic reasons "being entertained" and "relaxing". After the visit the picture is clearly different. The positive experience that is also reflected in the rating of the overall impression is marked by the fact that the visit was also considered as entertaining and exciting (despite the excursion taking place on an educational background). This indicates that the marketing strategies might rely too much on cognitive aspects rather than the combination with affective experiences that are typical for edutainment attractions.

Comparing ex ante and ex post scores only resulted in minor variances. Only the two concrete aspects restaurant and shop, that were considered as relatively unimportant beforehand, gained in importance from the probands perspective. Connections between scores and changes

in importance, e.g. positive aspects also gain in importance, could not be proofed.

## **Results of the observation**

Referring to the methodology presented in section 3, the following four dimensions were included at each of the so called contact points: reading of explanation boards (cognitive stimulus), looking at exhibits or exposure to architecture or machinery, using of interactive elements and additionally the time spent in the different areas. In figure 18 the averages of each dimension are presented for each contact point. As visible in the figure the interaction in each setting is rather different. After the intensive interaction with the wide range of information given right after the entrance area, the following two areas are rather neglected by the visitors. In the main exhibition hall a quite cursory interplay is visible within the first two sectors dealing with apprenticeship in mining industry and traditional leisure activities within the region. In the following setting, which is designed following the layout of a 1950's cinema, also a rather low interaction-level has to be stated, what may be explained by the quite long time horizon in-between the presentation of the movie.

**Figure 18**

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The following section dealing with hygiene and healthfulness in mining industry is able to reach the highest amount of attention amongst all sections. Nevertheless the thematic area dealing with the major mining industry crises and the following lamp-exhibition were able to reach rather long duration of stay. While discussing those two areas it has to be mentioned that the majority of visitors only took a brief look on the text, regarding the interactive exhibits also only timid interaction can be recorded. To sum up the results within the main exhibition hall from a methodological point of view, a relatively high correlation regarding the time spent and interaction with the given setting can be recorded.

After leaving the exhibition hall, which offers a rather conventional museum setting the majority of the visitors spend their time in the cellar below the main exhibition area, which mainly aims on children and therefore does not refer to their specific interests.

**Foto 5**



Outside the exhibition-hall the two dominating buildings of the complex, the machinery hall and the headgear draw the attention of the visitors. Contrasting to the exhibition hall only a limited amount of textual or interactive stimuli exist. Therefore the experience is based on the “in-situ-situation” of the buildings. The end of the tour is than characterized by a pretty long stay in the gastronomic are and the following museums-shop.

To return to the methodological opportunities given by this approach a clear identification of specific areas, which need a further optimization can be concluded.

**Foto 6**



In the survey following the just described observation, the visitors were asked which exhibition areas they really remember, the results showed a correlations between the times spend, the level of interaction and the memories of the visitors. The exhibition areas “apprenticeship in mining industry”, “hygiene” and the children’s area in the cellar showed a significantly higher nomination than the other areas.

That the before mentioned variables of commemoration, time spend and level of interaction not necessarily lead to a high satisfaction level becomes obvious by considering figure 18. When contrasting the satisfaction level with the before mentioned dimensions, especially those areas not being part of the museums-style main exhibition hall get high satisfaction ratings. The headgear, the museums-shop and the experience of the overall complex are those dimensions contributing to a high satisfaction level, but the time spend in those areas is rather short. On the other hand the positively rated areas within the exhibition site show a clear correlation of 0.38 between the times spend and the satisfaction

level. Therefore it has to be distinguished between the evaluation of the museums-style exhibition hall and the authentic “in-situ-situation”.

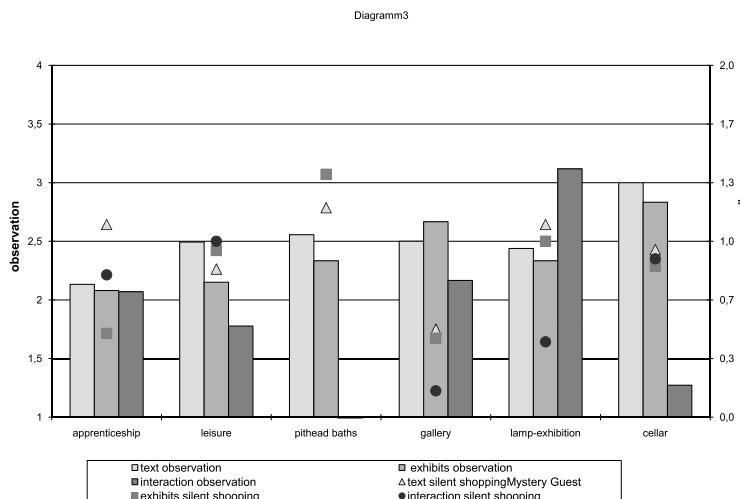
## SILENT-SHOPPING RESULTS

In a third step an empirical tool was developed and applied following a silent-shopping approach. This tool was applied within individual visits of students at the chosen site. This methodology was used in order to generate more detailed results on the before already identified weakness of customer interaction. While not presenting any details of this study the competence and the friendliness of the staff was also in the context of the silent-shopping approach the major aspects as it was in the standardized survey.

Referring to the observation regarding the exhibition area also in the silent-shopping approach the dimensions, reading of explanation board, looking at exhibits and using of interactive elements had to be rated. In comparison to the results of the observation (see figure 19) the silent-shopping approach does not provide a coherent data. In case of the hygiene-area for example the results are more positive than the observation results suggest. In other cases right the opposite effect can be witnessed. Nevertheless the arithmetic mean of the ratings within the silent-shopping approach corresponded clearly with the standardized survey (see figure 20).

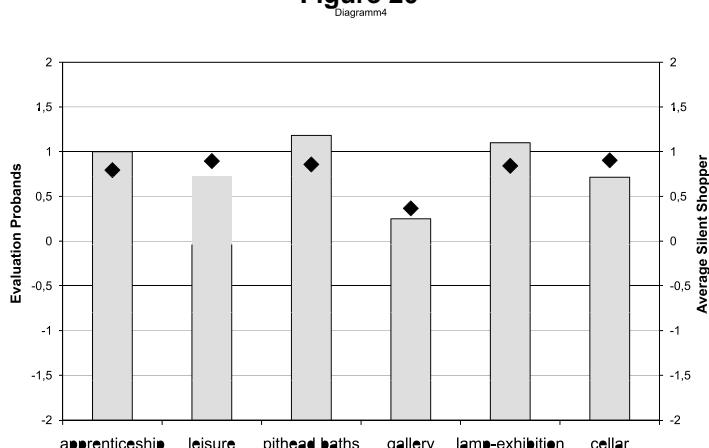
Therefore it can be concluded that the observation of visitors gives details on the attractiveness of specific section of the exhibition, but unfortunately no conclusion regarding the expressed satisfaction level of the visitors can be drawn. Maybe at this point the limits of the silent shopping approach are reached due to the fact that the method was mainly developed for evaluating interactions within the service sector (cf. Matzler/Pechlaner/Kohl 2000). Due to the before mentioned results obviously the silent-shopping approach is less suitable for evaluating the exhibits of a museum than for evaluating staff-customer-interactions.

**Figure 19**



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**Figure 20**



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## CONCLUSION

The present article was not aiming on detailed evaluation of a specific industrial heritage site, but to test several methods in the field of customer satisfaction in form of a case study at one specific site.

It became obvious that the usually used methods based on an attribute-oriented approach deliver a suitable result, but that several aspects being relevant for the further development of the product are neglected. While the incident-orientated methods can especially if it comes to improvements deliver very helpful information.

Furthermore it became obvious that the different methods do not necessarily create congruent results. At the same time the different methods did not create conflicting results, but stressed different aspects. Due to the fact that each method sticks to a specific perspective the conclusions drawn from each method can hardly replace each other but only complement each other.

Therefore the so far in the field of customer satisfaction evaluation rather usual attribute-orientated approach should be accompanied in future by incident-orientated methods as well. Incident-orientated methods can be included in standardized survey as well and therefore do not necessarily create an additional work. Also the silent-shopping approach can be implemented by spending not too much effort.

Less applicable seems the observation approach, based on the experience within the case study quite often the interest of measuring reactions of the visitors conflicts with the protection of individual privacy. At the same time beside the approach chosen in this research to observe a visitor throughout the visit, a location specific instead of a individual specific approach may deliver similar results while less conflicting with the individual privacy. Regardless those concerns the observation technique can deliver helpful results when it comes to optimization of specific parts of an exhibition as shown in this research. Moreover additional options such as benchmarking of several sections within an exhibition can be applied. Coeval a more observation orientated approach could stress the importance of a more customer centred behaviour of staff. This dimension may especially interesting in education orientated institutions such as museums. Based on such an approach the regularly appearing low satisfaction level regarding the interaction with the staff is likely to be reduced, due to a rising awareness of staff members. This dimension referring to a higher customer orientation, will become jointly with the generation of new target groups and a increased customer retention basic needs in a more competitive leisure market of tomorrow.

Above all the mentioned aspects this article should be understood as well as a appeal towards a more creative and more experimental way of evaluating customer satisfaction.

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