Evaluating a museum as a tourist product using the servqual method

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Abstract

The article presents an attempt to use the SERVQUAL evaluation method for judging the tourist product quality of the Rogalin Palace, a branch of the National Museum situated near Poznań (western Poland). A 36-item questionnaire instrument was used to assess visitors' expectations, perceptions, and level of satisfaction. The survey was carried out among 102 visitors. With the use of correlation, factor and graphic analysis of their expectations and perceptions, strong and weak points of the museum were identified.
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1. Introduction

Tourist development leads to a growing competition in the tourist market. In the case of heritage tourism, the main criterion for the choice of destination is tourist attractions. Increasingly, travel agencies advertise broad-scale destinations rather than hotels, restaurants, and cultural institutions. According to Kozak and Rimmington (2000), it is the tourists' satisfaction with destination attractions (e.g. museums) that makes them visit a place again. Augustyn and Samuel (1998: 71) claim that "the environment quality, the opportunity to learn something new, the complexity and authenticity of an experience will

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make the tourist choose a destination". Therefore, the quality of tourist attractions and destinations, and the ability to manage them to satisfy tourists' needs, are particularly significant. Managers need to be as equally interested in information about visitor perceptions as they are in information about the attraction itself.

Technical analysis of the attractions by professionals must accompany inputs from visitors (expectations and perceptions). As Ham and Krumpe (1996) stated, the purpose of evaluation is to help professionals better reach the goals they have in mind by providing reliable services for the visiting public. A survey among the visitors is necessary to learn what they expect, and this should be followed by an analysis of whether and how managers want to fulfill visitors' needs and help them to reach their own goals (cf. Loomis, 1996).

1.1. Studies of service quality and other characteristics in tourist entities

Evaluating service quality is far more difficult than evaluating 'material' products, because of its intangible character. Despite this, many authors have attempted to do both. Chadee and Matson (1995) have claimed that perception and experience depend on the type of tourists, especially on their cultural background. Dunn Ross and Iso-Ahola (1991) investigated satisfaction with trips and identified six satisfaction determinants: knowledge, sense of escape, tour pace, social interaction, social security and practical aspects. Having investigated trips from Israel to Europe and the USA, Geva and Goldman (1991) found that tourist satisfaction, along with trip organization, tourist interaction, local services and hotels, were all mutually dependent. Tourist satisfaction was not affected by guides, entertainment, timetable or itinerary. Haber and Lerner (1999) proposed a model of tourist satisfaction, where the independent variables are: location attractiveness, range and number of services offered, managerial skills and personnel attitudes. Ekinci and Riley (2001) identified six parameters of hotel service quality: physical quality I (design and decoration), physical quality II (cleanliness), personnel attitude and behavior, overall quality, accessibility, punctuality and reliability. The overall quality parameter turned out to be positively correlated with the willingness to stay in the same hotel again. Baker and Crompton (2000) proposed a satisfaction and quality evaluation model, with quality evaluation to be based on the tourist's perception of the service provider's performance. Satisfaction refers both to a tourist's satisfaction at the time of a visit, and to the tourist's emotional state after the visit. This means that tourist satisfaction may be affected by psychosocial conditions while at the attraction (mood, needs), and by external factors (e.g. group interactions) which remain beyond the service provider's control, as well as by the assets of the attraction that are controlled by the provider. Baker and Crompton understand 'performance quality' as the initial measure of the service provider's efforts, whereas satisfaction relates to tourists' impressions. As part of their investigations, they confirmed that the product quality perception (provider's performance) affects future behavioral intentions more than satisfaction.

Spreng, Mackenzie, and Olshavsky (1996: 12) define satisfaction as "an affective state that is the emotional reaction to a product or service". Satisfaction is preceded by two events, which they call attribute satisfaction and information satisfaction. The attribute satisfaction is related to consumers' feelings resulting from dealing with a product. Information satisfaction is related to information used by clients in choosing a product.

A review of the differing methods of studying tourist satisfaction has been compiled by Ryan (1995).

1.1.1. Development of SERVQUAL method

Parasuraman, Zeithaml, and Berry (1985, 1988, and 1990) developed SERVQUAL—a questionnaire scale for measuring service quality. Service quality is a major component of perceptions of tourist venues. Service quality, in a larger sense, is related to services, as well as to cultural products such as museum objects, exhibitions, and heritage attractions, the latter of which stand by themselves and, in addition, depend upon service delivery such as personnel competence, accessibility, comfortable setting, etc. The authors assumed that perceived service quality is "the degree and direction of discrepancy between the consumers' perceptions and expectations" (Parasuraman et al., 1988: 17). Consumers' expectations are based on verbal information, personal needs, experience and commercial information. Parasuraman et al. (1985) identified a number of discrepancies in the relations between the client and the service provider. During interviews in focus groups, they established 10 service quality dimensions:

(1) Tangible features: physical facilities, equipment, and appearance of personnel;
(2) Reliability: ability to perform the promised service dependably and accurately;
(3) Responsiveness: willingness and readiness to help clients and provide them with services;
(4) Communication: providing information in a language that the client understands;
(5) Credibility: honesty and truthfulness;
(6) Security: ensuring physical and financial security for the client;
(7) Competence: adequately trained and skilled personnel;
(8) Courtesy: helpfulness, respect and a friendly attitude to the client;
(9) Understanding: understanding visitors and their needs;
(10) Access: openness and interacting with the client.

Tangible features, such as the personnel's or exhibition's appearance, are relatively easy to assess. However, intangible features such as safety and understanding clients' needs, may be very difficult for the professional and the client to evaluate.

As a result of a further study, Parasuraman et al. (1988) proposed a five-dimensional scale for measuring service quality. The scale included: tangible features, reliability, responsiveness, assurance, and empathy (Table 1). It was first tested in four sectors:

Table 1
SERVQUAL scale dimensions (Parasuraman et al., 1998)

| Dimension	Description
Tangibles	Physical facilities, infrastructure, equipment, appearance and personnel
Reliability	Ability to ensure reliable, proper service
Responsiveness	Willingness to help customers and provide prompt service
Assurance	Knowledge and courtesy of employers and their ability to inspire trust and confidence
Empathy	Care for the client, attention to individual clients, individualization of service

banking, credit cards, repair services and telephone services. Finally, a 22-item instrument was obtained and evaluated by respondents, according to Likert's seven-point scale. Each item was recast into two statements—one to measure expectations about services in general, and the other to measure perceptions about particular entities, of which the service quality was being assessed. A seven-point Likert's scale accompanied each statement. The expectation statements were grouped together and formed the first half of the questionnaire. The perception statements formed the second half.

The SERVQUAL scale has been adapted for the evaluation of service quality in many branches of the economy, including tourism. It has been applied to measuring service quality in hotels (Ekinci, & Riley, 2001), hospitals (Babakus, & Mangold, 1992) and winter resorts (Weiermair, & Fuchs, 1999). Also, the quality of a region's tourist product has been analyzed, but without evaluating particular tourist attractions (Augustyn, & Samuel, 1998; Danaher, & Arweiler, 1996; Gołembski, 1999). Cliff and Ryan (1994) adapted the scale for measuring the quality of travel agencies' services. They found out that, as a rule, clients perceive material elements and the skills of personnel positively, and they are less concerned with the reliability of the provided service.

The aim of this study is to evaluate the quality of a museum product, as well as verify the research tool for evaluating the product of a tourist attraction. The SERVQUAL method is used for evaluation of a tourist attraction quality and to identify the visitors' satisfaction determinants. This study is a part of a larger research project titled 'Determinants and Developing Product of Tourism Attractions', and deals with Rogalin Palace, Park and Museum.

1.1.2. The palace and park in Rogalin as a tourist attraction

Rogalin is situated 19 km from Poznań (western Poland), on the right bank of the Warta River in the Rogalin Landscape Park. The complex consists of a baroque-classical palace dated 1768 (later modernized), outbuildings connected to the main building by 'quarter-circular' galleries, a carriage house, stables, a manège, an art gallery (in a building dating from 1910 to 1912), and a classical chapel (St Marcel—presently a parish church) (Fig. 1). On the west side, the palace borders an extensive 18th century park which spreads out into a romantic-style park and includes three of the most famous Rogalin oaks: Lech, Czech and Rus. The main part of the palace, with the Armour Room on the first floor, has been under reconstruction since 1980 and cannot be visited at present. Both the south out-building and the Gallery house the Museum of Palace Interiors (a branch of the Poznań National Museum), and present paintings, China, old furniture and clocks. In the North Gallery, Edward Raczyński's London office is reconstructed (Edward Raczyński was a Polish ambassador in London and a Polish President in exile), where he spent the last 26 years of his life. The Rogalin Gallery contains 19th and early 20th century European and Polish paintings. The carriage house contains an exhibition of several horse carriages. The Raczyński family mausoleum is located under the chapel (in 1993, Edward Bernard, the last of the family, died in London but was buried at Rogalin). Today, the Rogalin estate (the palace, the collection of paintings, park and the surrounding farms) is managed by the Raczyński Foundation at the Poznań National Museum. The foundation was established in 1991 by Count Edward Raczyński (Plenzler, 2000).
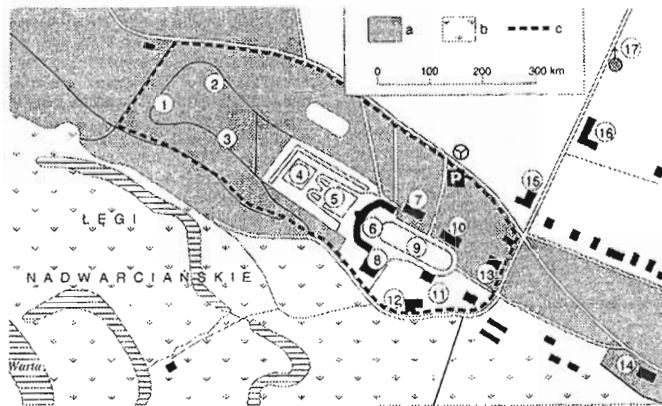
a - park, b - waterlogged forest, c - Rogalin boundary
1 - the 'Edward' oak, 2 - the 'Lech', 'Czech' and 'Rus' oaks, 3 - viewpoint,
4 - the 'Parnas' mound, 5 - the French-Dutch Garden, 6 - palace, 7 - manege,
8 - painting gallery, 9 - courtyard, 10 - stables, 11 - carriage house,
12 - distillery, 13 - servants' quarters, 14 - chapel

Fig. 1. Map of the Rogalin complex (Anders, Łęcki, & Maluśkiewicz, 1992).

The Rogalin Landscape Park extends over the river meadows, forests and the former riverbed. In the vicinity of the palace complex, on the Warta River, there are 1435 oaks under preservation, 255 of which are natural monuments (Antkowiak, Bednorz, &, Szczepanik-Janyszek, 1993). In order to protect them, a part of the area was transformed by law in 1994 into a natural landscape preserve known as 'The Rogalin Marshes'. The oaks constitute a feeding area for a very rare and protected species of beetle.

2. Study methods

The survey questionnaire is based on the SERVQUAL questionnaire (Parasuraman et al., 1988) and the Visitor Attractions Inspection Scheme (1995). The division into the main elements of a tourist attraction was preserved (access, exhibitions, catering, souvenirs, and toilet facilities), and 36 statements referring to different elements of the tourist attraction were selected (Table 2). This takes into account the dimensions important for evaluating service quality, as suggested by Parasuraman in SERVQUAL.

In the first part, respondents were asked to evaluate tourist attraction elements generally (*How important would the quality of individual elements be for you in an 'ideal' tourist attraction?*). This part was filled in before the tourists visited the attraction. Although the concept of an ideally operated tourist entity along with a perception measure, as distinct from a perceptions-minus-expectations measure alone, is likely to have a higher level of prediction, as argued by Baker and Crompton (2000), the author followed the model suggested by Parasuraman et al. (1988: 17, 31) in applying

Table 2
Mean values for questionnaire items and differences between perception and expectations

Questionnaire items		Expec-tations	Percep-tions	Differ-ence	t-test*	N**
Surroundings of the attraction						
1.	External appearance of the buildings	4.45	3.92	0.53	6.47[a]	100
2.	Suitable car park	3.77	1.85	1.92	17.45[a]	82
3.	Easy access for the elderly and disabled	4.38	1.76	2.62	23.21[a]	97
Reception/ticket office						
4.	Friendly and sensitive personnel	4.23	3.26	0.97	9.86[a]	100
5.	Ticket office personnel supplies detailed information	4.36	2.4	1.97	16.04[a]	86
6.	Clear posters with individual tourist attraction elements marked	4.22	2.64	1.57	12.88[a]	97
7.	Accessibility of specific information on the tourist attraction	4.16	2.65	1.51	12.41[a]	99
8.	Accessibility of clear maps of the attraction and vicinity	4.21	2.19	2.02	16.54[a]	97
9.	Computerized System of Tourist Information	2.71	–	–	–	102
10.	Warnings of possible problems and potential danger	3.82	1.73	2.1	18.97[a]	81
11.	Accessibility of information about forbidden and limited behavior	3.55	1.9	1.65	10.57[a]	83
Literature and souvenirs selling area						
12.	Interesting and high quality choice: literature, souvenirs, etc.	3.46	3.21	0.25	ir.	100
13.	Reasonable prices of these articles	3.88	2.61	1.27	9.66[a]	83
14.	Presentation of the products	3.34	2.79	0.55	4.50[a]	97
Exhibition						
15.	Interestingly arranged and attractive exhibition	4.63	3.47	1.16	12.17[a]	101
16.	Exhibition presenting a given problem or a series of ideas in a logical order	4.25	3.62	0.62	6.29[a]	93
17.	Exhibition presenting natural environment issues	4.03	2.58	1.45	10.24[a]	85
18.	Exhibition presenting historical events or the history of the building/vicinity	3.86	3.01	0.85	5.89[a]	87
19.	Exhibition personnel making contact with the visitors	3.86	2.21	1.65	10.49[a]	101
20.	Exhibition personnel providing competent information	4.49	2.28	2.21	18.43[a]	95
21.	Exhibition focusing on the important and unique qualities of the building/vicinity	4.37	3.05	1.32	12.00[a]	100
22.	Exhibition providing interesting information for children	4.16	1.91	2.25	15.19[a]	89
23.	Exhibition stimulating discussion with family and friends	3.61	2.79	0.82	6.11[a]	92

Table 2 *(continued)*

Questionnaire items		Expec-tations	Percep-tions	Differ-ence	*t*-test*	N**
24.	Exhibition aesthetics	4.19	3.96	0.23	2.18[a]	99
25.	Signs facilitating orientation and movement	4.31	2.82	1.49	12.28[a]	97
26.	Using appropriate means for information transfer	4.19	2.65	1.54	11.48[a]	96
27.	Clarity of exhibitions, clear and complementary descriptions	4.37	3.37	1	8.67[a]	99
28.	Personnel appearance	3.69	2.99	0.7	6.27[c]	64
Catering						
29.	Decor	4.02	3.1	0.92	6.05[a]	79
30.	Suitable menu	3.96	2.47	1.49	7.43[a]	62
31.	Aesthetics of food service	4.45	2.63	1.83	10.91[a]	54
32.	Cleanliness and freshness	4.69	3.02	1.68	10.48[a]	60
Toilets						
33.	Proper toilets	4.53	3.37	1.16	9.59[a]	67
34.	Cleanliness of toilets	4.73	3.4	1.33	12.38[a]	65
General impression						
35.	Attraction encouraging visits to the vicinity	4.51	3.73	0.78	8.38[a]	101
36.	Attraction arrangement which allows its appreciation	4.41	3.53	0.88	8.61[a]	100
	Mean value	4.08	2.82	1.32		
	SD	0.43	0.61	0.59		

* Statistical level of significance differences: [a]$p < 0.001$, [b]$p < 0.01$, [c]$p < 0.05$, ir.—irrelevant; ** different values of *N* results from possibilities of choosing *No option.*

the perception-minus-expectation measure. The choice of measures followed from the circumstances of asking visitors for expectations prior to, and perceptions after, visiting the attraction. This potentially could increase the prediction level of the method.

In the second part, respondents were asked to evaluate the quality of the same elements, but specifically at Rogalin itself *(What is the quality of the individual tourist attraction elements in the Rogalin museum, palace and park?).* This part was filled in after the tourists visited the attraction. In addition, a general satisfaction level with the visit was evaluated in four separate statements (Baker, & Crompton, 2000; Kozak, & Remington, 2000): *How do you evaluate the quality of this tourist attraction in general? Are you generally satisfied with your visit to this attraction? Would you recommend this attraction to your friends? Would you like to visit this place again in the future?* The questionnaire included only affirmative statements because, according to Babakus and Mangold (1992: 771), "combining both positive and negative statements caused respondents' confusion and frustration." Statements were assessed using Likert's five-point scale, not the original seven-point one. The author's earlier experience showed that respondents were confused when faced by too many choices. Prentice (1998: 8) notices that with European conditions, a five-point scale works better than the seven-point scale often used in the USA. Prentice suggests that it reflects "cultural differences between the UK and North American

respondents." The survey also had an extra option—*I don't know*—for people who had no opportunity to evaluate the quality of all the elements.

The survey, carried out at the Rogalin complex, was conducted by second-year students at the Tourism and Recreation Department of the University School of Physical Education in Poznań. The number of collected completed questionnaires was 102.

2.1. Study results

In the first phase of the analysis, mean values for questionnaire items were calculated[1] (Table 2). The visitors' highest expectations were focused on toilet facilities: *the cleanness of the toilets* ($x=4.73$) and *proper toilets* ($x=4.53$). Catering was also considered as very important: *cleanliness and freshness* ($x=4.63$) and *food service aesthetics* ($x=4.45$). The combination of physical facility and exhibition elements came third: *interesting and involving exhibitions and surroundings* ($x=4.63$); *attraction encourages visiting the vicinity* ($x=4.51$); *competent personnel providing information* ($x=4.49$); *good external appearance of the buildings* ($x=4.45$). The least important elements of an 'ideal' tourist attraction were *the Computerized System of Tourist Information* ($x=2.71$); *product presentation (literature, souvenirs)* ($x=3.34$); and *product quality* ($x=3.46$). The mean values for all the variables were high: $x=4.08$, with a standard deviation of 0.43, which indicates that high requirements are placed for an ideal tourist attraction.

After visiting the Rogalin complex, the respondents re-evaluated elements of the complex and their experience in it: the *exhibition* ($x=3.96$); *external appearance of the buildings* ($x=4.92$); and *attraction encourages visiting the vicinity* ($x=3.73$). This combination had the highest rating. The lowest scores were given to *warning accessibility* ($x=1.73$), *attraction accessibility for elderly and disabled* ($x=1.76$) and *a proper car park* ($x=1.85$). The mean evaluation of overall perception was relatively low: $x=2.82$, with a standard deviation of 0.61. This means the visitors' expectations with regard to the attraction visited were much higher than the perceptions of it, and this trend was valid for the majority of the respondents.

Next, following Parasuraman's suggestions, the difference between expectations and perception was calculated for all the attraction elements (with the exception of the Computerized System of Tourist Information, as it is not used in Rogalin). The smallest differences between expectations and perception were found in the *exhibition* (0.23), *product quality* (0.25) and *external appearance of the buildings* (0.53).

The largest differences were found in *accessibility for the elderly and the disabled* (2.62), *information for children* (2.25) and *personnel competence* (2.21). In nearly all cases, the difference between expectations and perceptions, examined with the use of a test for correlated samples (Ferguson, & Takane, 1997), was statistically significant (except for *product quality*). The mean value for the differences was 1.32 and the standard deviation

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[1] Mean scores were calculated by assigning the following values: very important—5, important—4, no strong feelings/undecided—3, little important—2, no important—1.

Table 3
Factor analysis of the scale items-reception area and ticket office

Questionnaire items-reception/ticket office	Factor 1	Factor 2	Factor 3
Friendly and sensitive personnel	0.122	−0.148	0.853
Ticket office personnel supplies detailed information	−0.272	0.167	0.778
Clear posters with individual tourist attraction elements marked	−0.824	−0.001	0.109
Accessibility of specific information on the tourist attraction	−0.914	−0.095	−0.044
Accessibility of clear maps of the attraction and vicinity	−0.823	0.106	0.073
Warnings of possible problems and potential danger	0.014	0.887	−0.037
Accessibility of information about forbidden and limited behavior	0.009	0.878	0.017
Eigenvalue[a]	2.28	1.62	1.35
Explained variance (%)	33.31	23.23	18.64
Accumulated percentage of the explained variance	33.31	56.54	75.18

[a] It was assumed that eigenvalue should be greater than 1 according to Kaiser (1960) criterion.

was −0.59. The reliability of the whole research tool (35 items) was very high: Cronbach's-α = 0.89.[2]

In the next step, factor analysis[3] (the principal components method) followed. It was done in order to investigate the questionnaire's factor structure, reduce the number of variables, eliminate the mutual correlation among dependent variables, and obtain a highly reliable research tool (cf. Brzeziński, 1996; Hornowska 1989). As a result of the factor analysis of all the variables of the scale, 11 factors were obtained, which were difficult to interpret. Therefore, further analyses were carried out, separately referring to individual parts of the attraction. The vicinity, the souvenir selling area, catering, toilets and general impressions did not demonstrate factor differences. For each of these elements, indexes were created for which Cronbach's-α coefficients were calculated. They proved to be very high (Table 5), which indicates a high reliability of the indexes. Only the elements of the 'attraction vicinity' did not show any mutual correlation, and were treated separately in further analysis.

As far as the reception area and ticket office were concerned, three factors were obtained: factor 1—*orientation marking* (variables 6, 7, 8); factor 2—*safety information* (10, 11) and factor 3—*personnel* (4, 5). The accumulated variance explained by these factors was high −75.18%[4] (Table 3).

The factor analysis of the scale for measuring the exhibition area revealed four factors (Table 4): factor 1—*exhibition and personnel standard* (15, 17, 19, 20, 21, 22), factor 2—*technical aspect of the exhibition* (25, 26, 27), factor 4—*exhibition theme and*

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[2] Reliability is defined as the extent to which a measurement taken with multiple-item scale reflects mainly the true score of the dimension that is to be measured. If all items are perfectly reliable and measure the same thing (true score), then coefficient alpha is equal to 1. It is assumed that if α-value is greater than 0.7 reliability of a scale is acceptable.

[3] Factor analysis is a statistical multivariate method applied in analysis of matrix of correlation coefficients. The basic function is data reduction—the initial number of variables is to be reduced into a lower number of 'factors' and the structure of relationships between variables is discovered.

[4] This means that the total variance of seven variables was explained in 75% by three extracted factors (by its nature this is an arbitrary assessment how many factors to retain and how much variance each successive factor extracts).

Table 4

Factor analysis of the scale items-exhibition area

Questionnaire items-exhibition	Factor 1	Factor 2	Factor 3	Factor 4
Interestingly arranged and attractive exhibition	0.589	0.034	0.361	0.236
Exhibition presenting a given problem or a series of ideas in a logical order	0.262	0.128	0.472	0.535
Exhibition presenting natural environment issues	0.688	0.04	−0.334	0.019
Exhibition presenting historical events or the history of the building/vicinity	0.209	0.165	−0.177	0.659
Exhibition personnel making contact with the visitors	0.559	0.276	0.002	0.248
Exhibition personnel providing competent information	0.786	0.148	0.128	0.107
Exhibition focusing on the important and unique qualities of the building	0.507	0.055	−0.092	0.417
Exhibition providing interesting information for children	0.688	0.01	−0.019	0.108
Exhibition stimulating discussion with family and friends	0.063	−0.097	0.05	0.724
Exhibition aesthetics	0.102	0.388	0.672	0.141
Signs facilitating orientation and movement	−0.017	0.852	−0.018	0.016
Using appropriate means for information transfer	0.272	0.716	0.115	0.032
Clarity of exhibitions, clear and complementary descriptions	0.079	0.57	0.098	0.57
Personnel appearance	0.239	0.281	−0.621	0.308
Eigenvalue	4.09	1.62	1.25	1.12
Explained variance (%)	29.21	11.58	8.91	7.99
Accumulated percentage of the explained variance	29.21	40.79	49.71	57.71

stimulation (16, 18, 23). Factor 3 can be referred to as *aesthetics* (24—exhibition aesthetics; 28—personnel appearance). However, due to both positive and negative correlations, the author resolved to treat them separately in a further analysis. The accumulated variance explained by these obtained factors was moderate − 58%.

In the further analysis, the author decided to check which attraction elements were correlated most strongly with visitor satisfaction. The satisfaction variable index was based on the arithmetic mean of four consecutive items on the scale, used for measuring general satisfaction. The mean value for the satisfaction variable was $x = 3.91$, with a standard deviation of 0.66. This means the visitors agreed that they were satisfied with the visit (satisfaction was evaluated on a five-point scale from *very satisfied*—5 to *very dissatisfied*—1). The index thus created was highly reliable: Cronbach's-$\alpha = 0.82$.

The indexes used in further analysis were arithmetic means of the items they included. In order to identify variables that are significant for the visitor's satisfaction, R—Spearman's[5] correlation coefficients were computed. Factors significant for the satisfaction variable were *access for the disabled* (item no. 3 in the questionnaire) ($R = −0.22$, $p < 0.05$), *reception service* (reception personnel index)

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[5] Spearman-R is a non-parametric correlation coefficient which is a measure of the relation between two or more variables. Correlation coefficients can range from − 1.00 to + 1.00. The value of − 1.00 represents a perfect negative correlation while a value of + 1.00 represents a perfect positive correlation.

Table 5
Spearman's coefficients (R) of the correlation between satisfaction and questionnaire items and factors

Questionnaire items and indexes	α-Cronbach's coefficient	R-Spearman's coefficient	$T (N-2)$	p-level	N
External appearance of the buildings (1[a])	–	−0.1	−1	ir.	99
Suitable car park (2)	–	−0.01	−0.11	ir.	81
Easy access for the elderly and disabled (3)	–	−0.22	−2.22	0.05	96
Orientation marking index (6, 7, 8)	0.76	−0.18	−1.71	ir.	91
Safety information index (10, 11)	0.68	−0.09	0.8	ir.	78
Reception personnel index (4, 5)	0.49	−0.29	−2.74	0.01	85
Souvenir index (12, 13, 14)	0.64	−0.01	−0.06	ir.	80
Exhibition and personnel index (15, 17, 19, 20, 21, 22)	0.79	−0.32	−2.75	0.01	69
Technical aspect of exhibition index (25, 26, 27)	0.68	−0.21	−2	0.05	91
Exhibition theme and stimulation index (16, 18, 23) Exhibition factor 4	0.54	−0.23	−2.02	0.05	75
Exhibition aesthetics (24)	–	−0.28	2.82	0.01	98
Personnel appearance (28)	–	0.23	1.85	ir.	64
Catering index (29, 30, 31, 32)	0.87	−0.06	0.34	ir.	49
Toilet index (33, 36)	0.88	−0.14	1.15	ir.	64

[a] Numbers of questionnaire items which formed the indexes.

($R= -0.29, p<0.01$), *exhibition and personnel standard* (exhibition and personnel index) ($R= -0.32, p<0.01$), technical *aspect of the exhibition* (technical aspect of exhibition index) ($R= -0.21, p<0.05$), *exhibition aesthetics* (item no. 24 in the questionnaire) ($R= -0.28, p<0.01$) and *exhibition theme and stimulation* (exhibition theme and stimulation index) ($R= -0.23, p<0.05$) (Table 5). The above variables are considerably connected with the visitors' satisfaction; thus, they should be a main focus by the managers.

The graphic analysis of the obtained values was carried out with the use of an action grid. Perception values were marked on the horizontal axis, and expectation values were marked on the vertical axis (Fig. 2). The mean values of important perception scores were used as the crossing point in constructing the grid (Martilla, & James, 1977).

With the graph divided into four parts, the quarters may be interpreted in the following way. The first quarter, 'keep it up,' consists of high-ranked elements, perceived positively. The second quarter, 'less attention may be paid to it,' are unimportant, although high-quality elements. The third quarter, 'small importance,' consists of elements that are unimportant for the visitors and poorly evaluated at the same time. The fourth quarter, 'focus your attention here,' contains elements which are important for the visitors and, at the same time, poorly evaluated by them. According to this analysis, the most important elements of the Rogalin complex are in the following order: accessibility for the elderly and disabled, competent information provided by the personnel, children's satisfaction, and providing clear maps of the attraction and its vicinity. Managers of the tourist site should focus on the fourth quarter or quandrant.
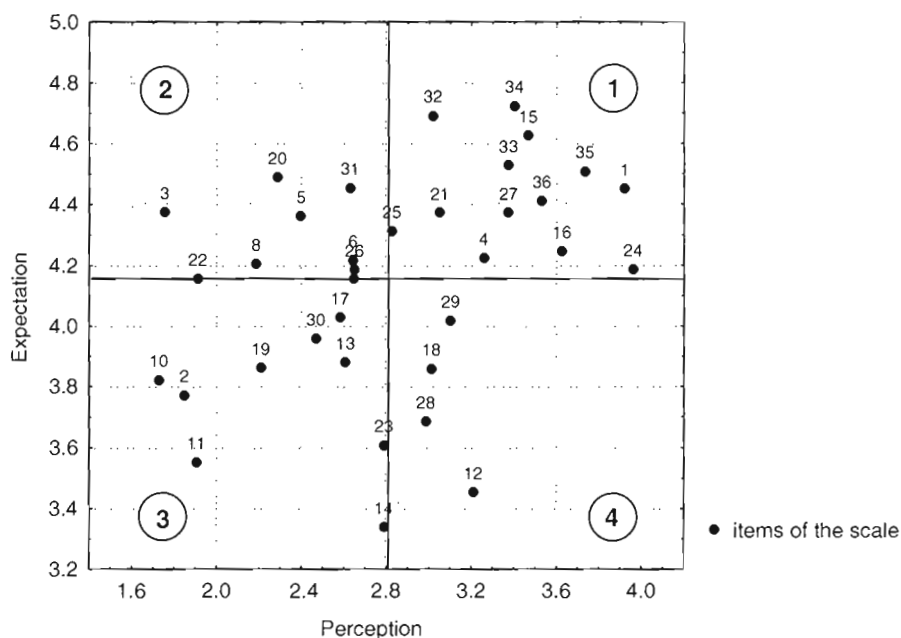
Fig. 2. Expectation–perception grid for the visitors to the Rogalin complex.

3. Conclusions

The research permits a two-fold conclusion: for managers of the Rogalin museum and for the general reader. Concerning the former, the research shows that a tourist attraction like the Rogalin palace complex can give visitors a lot of satisfaction. The analysis of the responses to the individual items on the measuring scales showed that visitors' highest expectations concerned food service (catering) and toilet facilities which, in traditional studies, are considered having secondary importance. The low position of the computerized tourist information system is somehow surprising. It results from its low popularity at museums, and the fact that visitors are unaccustomed to using it. Other work shows that multimedia techniques can raise the attractiveness of an exhibition considerably (Beck, & Cable, 1998; Blockley, 1996). Among the attraction elements, external appearance of the Rogalin buildings, renovated in the recent years, and the exhibition aesthetics, were evaluated the highest.

Despite the fact that the main building had been closed to visitors for over 20 years because of the continuing refurbishment, the palace outbuildings and galleries impressed them greatly. Yet, reception and orientation services did not offer any information about why the main building had been closed.

Furthermore, it is difficult to understand why the attraction was perceived as an encouragement to visit the vicinity. The exhibition did not present the richness of the natural environment surrounding the palace complex, and no interpretation panels in the Rogalin Landscape Park could be found. It is surprising because the palace complex

and the park are undoubtedly the largest tourist attraction in the Rogalin Landscape Park, and the latter could be a center of visitor interest by interpreting and providing information about the natural environment in the surrounding area. Perhaps the respondents had known about the Warta River marshes and their oaks, and that prior knowledge encouraged them to visit the area. The attraction did not offer any facilities for the disabled, and the sampled visitors did not assign this a priority. The respondents' evaluation of the paid car park situated in a historic avenue leading from the palace to the chapel was also quite low.

As far as the tourist attraction is concerned, the tangible elements play a predominant role (exhibition, buildings, natural environment). The remaining elements of the SERVQUAL scale (service reliability, personnel empathy and sensitivity, safety) are important in the perceptions of service quality, yet may only be usefully evaluated when visitors learn more about the attraction through a guided tour or other orientation means (the respondents did not go on such a tour). In the latter case, a tourist entity's theme would be more effectively interpreted by the personnel, and visitors would have better informed impressions and greater knowledge (cf. Knudson, Cable, & Beck, 1995; Regnier, Gross, & Zimmerman, 1994).

The variables correlated with visitor satisfaction are: the exhibition, its aesthetics, the theme and the way it is arranged. Despite the fact that toilets and catering were the most important attraction elements, their correlation with satisfaction was not confirmed in a further study. Perhaps we are dealing here with the phenomenon described earlier by Baker and Crompton (2000). They identified a satisfaction-generating factor and a dissatisfaction-generating factor. The former consisted of elements generating excitement and stimulation (e.g. superb exhibition quality, unusual elements and surprises). The latter dealt with basic infrastructure, such as toilet facilities, food services, accessible facilities, etc. The latter defined the minimum quality level below which visitors would feel dissatisfied. If the latter were high-valued, it would not strongly affect certain decisions, such as revisiting the place in the future. On the contrary, the higher the standard of the impression and excitement factors, the greater the willingness to visit the place and the higher the satisfaction with the visit. Care for product quality should constitute an important consideration of the management strategy applied to tourist attractions such as museums, heritage parks, and theme parks.

The graphic analysis can be a useful visual management tool which makes strengths and weaknesses easy to view. The elements that were important to visitors' satisfaction, but in which the museum did not perform well, are classified in quadrant 4. It shows, as indicated above, that managers should pay particular attention to, among other things, making the building accessible for the disabled. They should also focus on personnel competence. The suggestions proposed by the author in earlier works (Nowacki, 2000a,b, 2001) are applicable in this case as well. The competence of the technical personnel (museum guards) was very low, not to say non-existent. It is difficult to understand why the information about the exhibits often is provided by guards. Can museums afford to employ a double number of people—some as guards and others as interpreters? Also, the problem of poor orientation and information within the premises returns. The exhibition, in which original palace interiors are presented, ideally should not be filled to capacity and congested. Managers have to work on this matter. An exception is the modern exhibition

of Edward Bernard Raczyński's London office and memorabilia, situated in the North Gallery of the palace, which offers more space to move about.

Despite certain formal limitations, such as the selection of the study group and the relatively small number of respondents, the analysis enabled the testing of the research tool. The expectations–perception analysis shows that the quality of almost all the elements differs considerably from visitors' expectations (with the exception of the souvenirs and literature). The factor analysis of the questionnaire items, however, did not bring fully satisfying results, and the author did not obtain factors which would reflect the service quality parameters, as suggested by Parasuraman et al. (1988). Other authors (Babakus, & Mangold, 1992; Ekinci, & Riley, 2001) also have found it difficult to empirically confirm this model. This may result from the fact that the tools and models shown above were conceived for other uses, such as measuring commercial organizations and products. They are harder to apply to the characteristics of a tourist attraction product (to services, as well as to material products). The evaluation method, based on the SERVQUAL scale, as adjusted by this author and others, can be useful and reliable if carefully worked, and it can provide a potentially strong method for evaluating visitors' expectations and perceptions. Ultimately, it can be useful in improving heritage and cultural tourist products. This instrument, although developed for the Rogalin Museum, can be applied to assess the quality of other heritage sites. Depending on site-specific features, the methodology has flexibility; it can have extensive measures or it can be scaled back. Final versions of the methodology have to be adjusted individually to particular tourist entities and their particular characteristics.

Due to the fact that carrying out the survey before and after the visit is difficult to manage, it is suggested to carry out the survey only after the visit, using the perception scale. The application of both expectation and perception scales can be used in surveys carried out among organized groups of visitors, with whom it is easier to carry out extended research.

In practice, the questionnaire may be abridged (with a view to reducing the feeling of weariness among the group in question), and elements of some scales may be modified. This refers especially to *exhibition and personnel index scales*, in which the items may be redundant, and to scales that appear to have no relevance with visitors' satisfaction.

The application of the instrument, as described by Parasuraman et al. (1988: 31), is valuable when it is used periodically to track tourist product quality trends, and when it is used in conjunction with other forms of product quality measurement. It could be used, for example, alongside visitor focus groups and qualitative interviews, both of which would make it possible to learn more about customer suggestions, complaints, and perceptions. Surveys could include questions concerning changes which visitors would advocate in improving the quality of the tourist product.

In the future, the questionnaire survey should be conducted among a larger group of visitors, selected at random. Further research could examine what particular characteristics of visitors, including their demographic, behavioral, and psychological characteristics, correlate with satisfaction, and how heritage attractions are perceived and experienced by different types of visitors.

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