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## EXPECTED SERVICE QUALITY MEASUREMENT IN TOURISM HIGHER EDUCATION

### Merjenje pričakovane kakovosti storitev visokega izobraževanja v turizmu

#### Abstract

UDC: 658.562:378(497.5)

This paper starts with background theory and the outlines the results of an exploratory study conducted on students at the Faculty of Tourism and Hospitality Management in Opatija (Croatia). The aims of the study are to: (1) provide a brief review of the existing tools for measuring students' experience, (2) assess students' expectations of service quality in tourism higher education, (3) test the reliability of a modified SERVQUAL scale, (5) establish the number of dimensions of service quality in tourism higher education. This study has contributed to knowledge about the service quality construct in tourism higher education in Croatia by refining and developing the SERVQUAL scale.

Key words: service quality, SERVQUAL, multivariate statistical analysis, higher education, Croatia

#### Izvleček

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Članek začnemo s pregledom relevantne teorije in potem predstavimo rezultate raziskovalne študije, ki je zajela študente Fakultete za turistični in hotelski menedžment v Opatiji (Hrvaška). Cilji študije so: (1) predstaviti kratek pregled obstoječih orodij/metod za merjenje izkušenj študentov, (2) oceniti študentska pričakovanja o kakovosti storitev visokega izobraževanja v turizmu, (3) preizkusiti zanesljivost prilagojene lestvice SERVQUAL, (4) ugotoviti število dimenzij kakovosti storitev visokega izobraževanja v turizmu. Študija je razvila in izpopolnila lestvico SERVQUAL in tako prispevala k razumevanju koncepta kakovosti storitev visokega izobraževanja v turizmu na Hrvaškem.

Ključne besede: kakovost storitev, SERVQUAL, multivariantna statistična analiza, visoko izobraževanje, Hrvaška

#### Introduction

There is a growing acknowledgement that economies of the 21<sup>st</sup> century need to be knowledge-based rather than commodity-based and be driven by knowledge development, innovation and commercialization. Knowledge will become the fundamental factor underpinning successful tourism and hospitality organizations. Tourism and hospitality management education is now at a point where there is a sufficient base of theory such that the field can easily move well beyond vocational training and expose students to a wide range of ideas, knowledge and theory. The key challenge for tourism and hospitality education is not to stay with narrow vocationalism simply to satisfy the employment needs of industry but to harness the development of knowledge that will contribute to the successful development of tourism and hospitality industry as a whole.

Croatia's current major educational reform campaign is aimed at restructuring the school system. One of its central tasks is to diversify higher education in response to the growing divergence in youths' professional orientation and values of choice. Following other reforms during the transition process, higher education in Croatia began a process of transformation, modernization and diversification. When completed, it will fundamentally alter the profile of the traditional university. In these circumstances many discussions about the future of Croatian higher education concern the issues of finance and management.

In today's competitive environment, where all students have many options open to them, factors that enable higher education to attract and retain students should be seriously studied. Tourism and hospitality management higher education institutions, which want to have competitive edge in the future, may need to begin searching for new and creative ways to attract, retain and foster stronger relationships with students.

The primary purpose of this study was to examine the applicability and reliability of the SERVQUAL instrument (Parasuraman et al., 1988) in higher education quality measurement and to determine the relationship between expectations and perceptions of academic service quality in tourism and hospitality management higher education in Croatia. Academic service was defined as service that is not directly related to classroom activity. This included adaptation of Parasuraman et al.'s (1988) constructs of tangibles, reliability, responsiveness, assurance and empathy.

Various statistical analyses were performed including descriptive statistics, paired samples statistics, factor analysis and reliability analysis. Results of this study will help management to understand the expectations of their customers about the quality of services they provide and it will also help them make improvements when the results indicate service quality shortfalls.

## Theoretical background

### Service quality concept in tourism and hospitality higher education

The field of tourism and hospitality education is a unique, rather close-knit academic area. The size and scope of the tourism and hospitality industry itself has always been difficult to define since few people can agree on what it encompasses. An early definition of tourism and hospitality included any and all business and services whose primary objective was serving people outside of a private home.

Tourism and hospitality management education is one segment of the larger tourism and hospitality industry. It could be argued that the formal preparation of industry professionals, via tourism and hospitality education programs, is the single most important segment.

So what is tourism and hospitality education? Carl Riegel (1995) has defined it as a field of multidisciplinary study which brings the perspectives of many disciplines, especially those found in the social sciences, to bear on particular areas of application and practice in the hospitality and tourism industry. Simply put, it is a field devoted to preparing students, generally, for management positions in tourism and hospitality. Tourism and hospitality education as a field of study is finally getting the respect, that has deserved for so long.

Higher education, like most business and organizations today, is increasingly concerned about the quality of its goods and services. There is increased competition for a shrinking pool of students and those students are becoming more sophisticated and demanding. While some organizations make products that are largely tangible, higher education's product is largely intangible. As a result, assurance of quality can be more difficult than in traditional manufacturing industries. Further, unlike tangible goods, the higher education product cannot be returned if the customer is dissatisfied. The money-back guarantee is virtually unheard of. The process of total quality management (TQM) must be a goal of higher education if higher education is to survive in the 21<sup>st</sup> century.

To understand this objective, the term quality must be defined and discussed. Webster's dictionary defines quality as not only the basic character or characteristic that makes something good or bad, commendable or reprehensible, but also the degree of excellence a thing processes, or superiority. Webster's goes on to define quality control or assurance as a system for maintaining desired standards in a product. The two definitions comprise the most simplistic basis for achieving quality assurance in any organization, including higher education. Obviously an organization must define itself, as through a mission statement and then set goals and objectives that will support that mission before it can hope to measure its outcome against the stated goals. This is quality assurance. Quality is everybody's job, part of our job requirements. You cannot create quality without a quality culture in your organization. Change in culture starts from a change in leadership culture and continues only with continuous measurement and feedback (Lomas, 1999).

The global quality assurance movement is increasing business's capacity to survive increased competition. So too, it will be with higher education. In both, customer expectations have been raised. Quality process management is fast becoming an organizational survival skill (Lickson *et al.*, 1994). TQM is a system of delineating, measuring and periodically comparing objectives and outcomes, with the goal of improving organizational work processes, products and services. The purpose is to deliver perceived quality and value to the customer.

University and faculty handbooks clearly state that the duties of a faculty member will include teaching, research and service. While teaching and research guidelines and expectations are generally spelled out quite clearly either at the university or faculty levels, service is more open to interpretation and may be more flexible in scope. Service is any activity in which the faculty member offers his or her professional expertise or time to others, either within or outside of the academic community.

To more narrowly define service commitments, the broad category of service can be broken down to internal service and external service. Internal service includes activities directly related to the administration of one's academic unit as well as the greater college and/or university. External service activities include not only providing professional assistance to the community at large, but also participation in professional societies, service on academic and industry boards, and making preparations to groups and associations. In contrast to internal service, external service can be even harder to delineate and as a result, evaluate. Together, these two forms of service represent a very important contribution that faculty members make to their institutions and the external environment.

The service component of a tourism and hospitality educator's job plays a critical role in professional development, in a faculty member's level of visibility in an institution and the greater tourism and hospitality industry, and contributes significantly to the effectiveness of the various academic units. In recent years, service has been a relatively underappreciated aspect of faculty responsibilities. However, the role of service may finally be getting some of the attention that it has deserved for so long.

Many of the tourism and hospitality managers who will be responsible for meeting the challenges of tomorrow are the tourism and hospitality management students of today. How well prepared they are to meet these challenges depends on the quality of the current tourism and hospitality management curriculum and educators.

### Service Quality Concept

Quality is an elusive and indistinct construct (Parasuraman *et al.*, 1985). »Quality« is not a singular but a multi-dimensional phenomenon. Explication and measurement of quality also present problems for researchers, who often bypass definitions and use unidimensional self-report measures to capture the concept.

Efforts in defining and measuring quality have come largely from the goods sector. According to the prevailing Japanese philosophy, quality is zero defects - doing it right the first time. Crosby (1979) defines quality as conformance to requirements.

Quality in a service organization is a measure of the extent to which the service delivered meets the customer's expectations. Knowledge about the quality of goods is insufficient to understand service quality. Three characteristics of services - *intangibility*, *heterogeneity* and *inseparability* - must be acknowledged for a full understanding of service quality.

First, most services are intangible (Berry, 1980). Because they are performances rather than objects, precise manufacturing specifications concerning uniform quality can rarely be set. Most services cannot be counted, measured, inventoried, tested or verified in advance of sale to ensure quality. Because of intangibility, the firm may find it difficult to understand how consumers perceive their services and evaluate service quality (Zeithaml, 1981).

Second, services, especially those with high labor content, are heterogeneous: their performance often varies from producer to producer, from customer to customer, and from day to day. Consistency of behavior from service personnel (uniform quality) is difficult to ensure (Booms and Bitner, 1981) because what the firm intends to deliver may be entirely different from what the consumer receives.

Third, production and consumption of many services are inseparable (Grönroos, 1984). As a consequence, quality in services is not engineered at the manufacturing plant and then delivered intact to the consumer. In labor intensive services, for example, quality occurs during service delivery, usually in an interaction between the client and the contact person from the service firm. The service firm may also have less managerial control over quality in services where consumer participation is intense because the client affects the process.

Service quality has been discussed by only a handful of researchers (Lewis and Booms, 1983; Sasser, Olsen and Wyckoff, 1978). Examination of their researcher and other literature on services suggests three underlying themes:

- Service quality is more difficult for the consumer to evaluate than goods quality.
- Perceptions of service quality result from a comparison of consumer expectations with actual service performance.
- Quality evaluations are not made solely on the outcome of a service; they also involve evaluations of the process of service delivery.

Researchers and managers of service firms concur that service quality involves a comparison of expectations with performance: Service quality is a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis (Lewis, 1983).

In line with this thinking, Grönroos (1984) developed a model in which he contends that consumers compare the service they expect with perceptions of the service they

receive in evaluating service quality. Grönroos (1984), for example, postulated that two types of service quality exist: *technical quality*, which involves what the customer is actually receiving from the service, and *functional quality*, which involves the manner in which the service delivered.

Sasser, Olsen and Wyckoff (1978) discussed three different dimensions of service performance: levels of material, facilities and personnel. Implied in this trichotomy is the notion that service quality involves more than outcome; it also includes the manner in which the service is delivered.

Lehtinen and Lehtinen's (1982) basic premise is that service quality is produced in the interaction between a customer and elements of the service organization. They use three quality dimensions: *physical quality*, which includes the physical aspects of the service, *corporate quality*, which involves the company's image or profile and *interactive quality*, which derives from the interaction between contact personnel and customers as well as between some customers and other customers.

Higher education can be termed a »pure« service, as distinguished by the degree of »person-to-person« interaction (Solomon *et al.*, 1985). Viewing higher education (or education in general) as a service (Dotchin and Oakland, 1994) can facilitate generalizing service quality dimensions for this sector. Identifying the specific characteristics of any service industry necessitates finding its unique dimensions in addition to the features it has in common with other services. More careful generalization is required to the case of higher education due to its complex characteristics.

### Service Quality Measurement

There is a plethora of measurement tools and techniques for assessing service quality and consumer satisfaction levels. The leading protagonists in the area of service measurement studies have been Parasuraman *et al.* (1985) with development and subsequent refinement in 1988 and 1991 of the SERVQUAL instrument (Parasuraman *et al.*, 1991).

The SERVQUAL instrument consists of 22 statements for assessing consumer perceptions and expectations regarding the quality of a service. Respondent are asked to rate their level of agreement or disagreement with the given statements on a 7-point Likert scale. Consumers' perceptions are based on the actual service they receive, while consumers' expectations are based on past experiences and information received. The statements represent the determinants or dimensions of service quality. Refinement of this work reduced the original service dimensions used by consumers to judge the quality of a service from ten to five. The five key dimensions (Parasuraman *et al.*, 1991) that were identified are as follows:

1. *Reliability* – the ability to perform the promised service dependably and accurately.
2. *Tangibles* – the appearance of physical facilities, equipment, personnel and communications materials.
3. *Responsiveness* – the willingness to help the consumers and to provide prompt service.



4. *Assurance* – the knowledge and courtesy of employees and their ability to convey trust and confidence.
5. *Empathy* – the provision of caring, individualized attention to consumers.

One of the purposes of the SERVQUAL instrument is to ascertain the level of service quality based on the five key dimensions and to identify where gaps in service exist and to what extent. The gaps are generally defined as:

- *Gap 1 (positioning gap)* – pertains to managers' perception of consumers' expectations and the relative importance consumers attach to the quality dimensions.
- *Gap 2 (specification gap)* – is concerned with the difference between what management believes the consumer wants and what the consumers expect the business to provide.
- *Gap 3 (delivery gap)* – is concerned with the difference between the service provided by the employee of the business and the specifications set by management.
- *Gap 4 (communication gap)* – exists when the promises communicated by the business to the consumer do not match the consumers' expectations of those external promises.
- *Gap 5 (perception gap)* – is the difference between the consumers internal perception and expectation of the services (Zeithaml *et al.*, 1990).

The lower the mean score, the larger the gap in service quality and conversely the higher the mean score, the smaller the gap. Gaps 1 to 4 are within the control of an organization and need to be analyzed to determine the cause or causes and changes to be implemented which can reduce or even eliminate Gap 5. The surveying of employees can help to measure the extent of Gap 2 to 4 (Zeithaml *et al.*, 1990). This may reveal a difference in perception as to what creates possible gaps.

As with any research tool, there are concerns expressed by other researchers. Lam (1997) and O'Neill and Palmer (2001) have reviewed the criticisms of the original instrument. Criticisms include the failure to draw on the various disciplines of psychology, social sciences and economics. Other issues relate to measuring time, stability over time, the measuring scale, the service quality dimensions and the use of difference scores. Another criticism was the generic nature of the instrument. It was suggested that the survey instrument needed to be customized for use in the specific industry to which it was being applied by including additional related questions (Carman, 1990; Babakus and Boller, 1992; Brown *et al.*, 1993). Other researchers refuted the criticism when they proposed that practitioners require a generic model to ensure reliability, which allows both cross-industry and cross-functional comparisons to be made (Pitt *et al.*, 1997).

Fick and Ritchie (1991) examined the operation of the SERVQUAL instrument in four major tourism sectors: airline, restaurant and ski area service. They found that the two most important expectations concerning service were reliability and assurance for all four sectors. Some of the

inadequacies they identified included problems with positively and negatively worded statements; the inability of the 7-point Likert scale to distinguish subtle differences in expectations and perceptions; its inability to take into account any relationship existing between the levels of expectations and performance and the cost of that service; and an inadequate attempt to include those tangible factors contributing to the overall quality of the service expectations. It should be noted that Parasuraman *et al.* (1991) have since addressed some of the problems in their modified version.

Bojanic and Rosen (1994) examined the nature of the association between service quality as perceived by consumers and its determinants by applying SERVQUAL in a restaurant setting. The dimension that rated highest on expectation was assurance, followed by reliability, tangibles, access, knowing your customer, and responsiveness. In this study, the empathy dimension segmented into two: knowing the customer and access.

Lee and Hing (1995) assessed the usefulness and application of the SERVQUAL instrument in measuring and comparing the service quality of two fine dining restaurants. The findings suggest that for both establishments, assurance and reliability were the highest expectations and tangibles were the lowest.

An adapted/modified version of SERVQUAL instrument was used in lodging (Knutson, Stevens, Wullaert, Patton and Yokoyama, 1990) and restaurant settings (Stevens, Knutson and Patton, 1995). In the former, only the expectation items (and not the perception) were adapted to capture the consumers' expectations of service quality in a hotel experience. Reliability had the highest mean score, followed by assurance, responsiveness, tangibles and empathy. The findings of the restaurant study revealed that reliability ranked first, followed by tangibles, assurance, responsiveness and empathy. Both the lodging and restaurant customers ranked reliability as first on the hierarchy; the only difference between the two was that tangibles ranked second for the restaurant and fourth for the lodging customers.

In their research in the hotel sector, Gabbie and O'Neill (1996) reported that the highest expectations of consumers related to the dimensions of reliability and assurance while the dimensions of tangibility and empathy were lowest in their ranking.

This discussion demonstrates that most of the studies used a modified or adapted version of the SERVQUAL scale in the hospitality and tourism area.

Viewing higher education (or education in general) as a service (Dotchin and Oakland, 1994; Zimmerman and Enell, 1988) can facilitate generalizing service quality dimensions for this sector. However, identifying the specific characteristics of any service industry necessitates finding its unique dimensions in addition to the features it has in common with other services. More careful generalization is required for the case of higher education due to its complex characteristics.

McElwee and Redman (1993) used a model of service quality dimensions (SERVQUAL) developed by Parasuraman *et al.* (1985, 1988) as the basis for an adapted model for higher education. In view of the framework structure of SERVQUAL, their main emphasis was placed on functional (interactive) aspects of quality. Hill (1995) also investigated the implications of service quality theory for higher education. In another study, Anderson (1995) used SERVQUAL to evaluate the quality of an administrative section in a university (office of student service). Rigotti and Pitt (1992) used a version of the SERVQUAL instrument to evaluate an MBA program successfully. It was decided that a modified version of the SERVQUAL instrument should be tested on current students and an evaluation should be prepared.

The use of a measure of service quality that is the difference between expectations and perceptions was seen as a better way to measure satisfaction or dissatisfaction with the course experience. The students who form the population for this study have already had experience in higher education. Thus it was felt that they would base their expectations on this prior experience, and so the service quality scores should provide a guide as to whether students see the quality of their experience declining or improving.

#### Exploratory study: SERVQUAL application

The specific aims of the study are to: (1) test the reliability of a modified SERVQUAL scale; (2) establish the number of dimensions of service quality in tourism and hospitality management higher education; (3) determine which dimension is the best predictor of expected service quality in higher education, and (4) assess the students' expectations of service quality.

A modified version of SERVQUAL scale was developed for this purpose. The paper focuses on the multivariate analysis of SERVQUAL scale, its reliability, its application, and the service quality perceptions of students. In addition, the implications for future research are discussed.

#### Methodology

This exploratory study analyzed students' expectations of service quality at the Faculty of Tourism and Hospitality Management in Opatija (FTHM) in Croatia. Questionnaires were designed according to the SERVQUAL model of measuring service quality expectations and perceptions (Parasuraman *et al.*, 1988). The survey instrument (self-administered questionnaire) consisted of two sections: (1) statements focused on student expectations of service quality at FTHM, and (2) demographic data about the respondents (mode of study, year of study, gender, lectures attended).

Statements in SERVQUAL scale in this study were as follows: 22 original SERVQUAL statements (Parasuraman *et al.*, 1988) and 18 new statements adapted for tourism and hospitality management higher education in Croatia. The scale has a total of 40 statements in final SERVQUAL scale. In order to minimize the impact on reliability, changes to the wording were reduced to minimum necessary to provide the appropriate context. Statements were positively and negatively worded and pre-tested for wording, layout and comprehension.

A totally new instruction page was prepared and a 5-point Likert scale adopted rather than the 7-point scale used originally. The scale was arranged so that »strongly agree« was coded as five, while »strongly disagree« was coded as one. Each question was associated with the number one to five and to complete their answers users were asked to circle the number that best matched their opinion.

#### Sample Characteristics

Service quality surveys were conducted in academic year 2002/2003 with all-year graduate students at the end of the summer semester. Students were given verbal and written instructions, and completed the questionnaires during the first few minutes of class. The respondents remained totally anonymous. Of the 500 students surveyed for this study, 444 returned usable questionnaires giving a response rate of 89 per cent. This was considered an adequate sample size, since other scale developers in the marketing area had used a sample size of 200 to analyze group data (Parasuraman *et al.*, 1986).

There was a sample of 444 graduate students of the Faculty of Tourism and Hospitality Management Opatija, comprising 28.2 per cent male and 71.8 per cent female respondents (Table 1). Within the sample, 30.6 per cent of the students were in their first year, 37.2 per cent in their second year, 14.6 per cent in their third year and 17.6 per cent students in their final year. Most of the students (95.5 per cent) were full-time graduate students, and majority of them attended more than 75 per cent of the lectures.

Table 1: Student respondent profile (N = 444)

Description	Number of respondent	
	Frequencies	Percent
Mode of study:		
Full-time graduate student	424	95.5
Part-time graduate student	20	4.5
	444	100.0
Year of study:		
Year 1	136	30.6
Year 2	165	37.2
Year 3	65	14.6
Year 4	78	17.6
	444	100.0
Gender:		
Male	125	28.2
Female	319	71.8
	444	100.0
Lectures attended:		
> 75 per cent	207	46.6
50 – 75 per cent	155	34.9
25 – 50 per cent	63	14.2
< 25 per cent	19	4.3
	444	100.0

#### Data analysis

The statistical package SPSS (11.0) was used to analyze the data received from the questionnaire. To enable ease of data entry, questions were pre-coded beforehand. This also confirmed that the design of the questionnaire was suitable for such analysis. Each questionnaire was individually numbered, with the first variable on the SPSS package reflecting this. This enabled the successful identification of errors, which when they did occur, were easy to correct.

**Table 2:** *Expected service quality in Croatian higher education*

Statements		Expected SQ Mean score
E1	Faculty should have up-to-date equipment.	4.86 <sup>a</sup>
E2	The facilities should be visually appealing.	4.21
E3	The employees should be well dressed and appear neat.	3.87
E4	The appearance of faculty facilities should correspond to the services provided.	4.40
E5	When faculties make a commitment to provide a service at the scheduled time, they should do so.	4.80
E6	Faculties should show consideration for students' problems.	4.73
E7	Faculties should be reliable.	4.79
E8	Services should be provided at the scheduled time.	4.69
E9	Faculties should keep their records accurately.	4.69
E10	Working hours of a faculty should not be expected to be adjusted to all students. (-)	2.53 <sup>b</sup>
E11	It is not realistic to expect prompt service from faculty employees. (-)	3.53
E12	Faculty employees are not obliged to help students at all times. (-)	4.04
E13	It is acceptable that faculty employees are too busy to answer students' requests. (-)	4.19
E14	Students should have confidence in faculty employees.	4.31
E15	Students should feel confident while performing transactions with faculty employees.	4.49
E16	Faculty employees should be polite.	4.77
E17	Faculty employees should be provided adequate support by faculty in order to perform their jobs successfully.	4.49
E18	Faculties are not to be expected to give students individual attention. (-)	3.08
E19	Faculties should not be expected to inform students about the time of a service to be provided. (-)	4.24
E20	Faculty employees are not to be expected to give each student individual attention. (-)	3.03
E21	It is not realistic to expect faculties to take thoughtful care of the students. (-)	3.60
E22	It is not realistic to expect faculties to know the students' needs.	3.56
E23	Faculty curriculum should keep up with the latest scientific achievements.	4.48
E24	Faculty curriculum should provide the possibility of multi-disciplinary study (the possibility to take subjects at other faculties).	4.18
E25	Students should be given opportunity to choose subjects in accordance with their interests.	4.57
E26	Faculties should enable virtual (on-line) study.	3.56
E27	Students should be enabled to exercise a profession.	4.40
E28	Students should be enabled to take part in scientific projects.	4.27
E29	Students should be enabled to take part in writing reviews and scientific papers.	4.07
E30	Faculties should organize extra-curricular activities at the faculty.	4.48
E31	Teaching procedure should support independent learning.	3.95
E32	Teaching procedure should not support team-work. (-)	3.50
E33	Faculties should provide students with the possibility to access on-line data bases.	4.17
E34	School fee should include additional services in accordance with students' needs.	4.30
E35	Faculty should provide students with the possibility to purchase literature at a price suitable for students.	4.83
E36	Faculties should enable international exchange of students.	4.62
E37	Students should be given possibility to give grades to each teacher.	4.11
E38	It is justified that only the teachers give grades to students, but not vice versa. (-)	3.57
E39	Students should be given opportunity to register exams on-line.	4.37
E40	Students should be given opportunity to contact teachers using e-mail.	4.58
	Overall	4.17

*Notes:* Expectations scores are measured on a 5-point Likert scale. Mean value of 1 = »strongly believe that the statement is wrong«; Mean value of 5 = »strongly believe that the statement is not wrong«. <sup>a</sup> Statement with the highest mean score, <sup>b</sup> Statement with the lowest mean score.  
(-) negatively worded statements.

Appropriate statistical analysis was used to provide useful information which relates directly to the objectives detailed at the start of this report. Following the completion of the data entry, frequencies of all the variables were produced to provide a starting point for analysis. Data were analyzed using descriptive and multivariate statistical analyses. Paired samples statistics (paired samples correlations and paired samples t-test) comparing the service statements were performed to see if there were any significant differences among them. Additional variables were created to re-code the negatively scored questions to the equivalent positive code.

The 40 service quality variables were factor analyzed to determine the existence of underlying dimensions of expected service quality. A principal component analysis

with orthogonal varimax rotation was conducted on the 40 expectation statements measuring the service quality of higher education.

The purpose of the analysis was to summarize the information contained in the original 40 variables into smaller sets of explanatory composite factors which define the fundamental constructs assumed to underline the original variables. Factors with an eigenvalue equal to or greater than 1 were chosen for interpretation. Only variables with factor loading coefficients of 0.45 were considered; that is, items with less than 0.45 were excluded.

A reliability analysis (Cronbach's alpha) was performed to test the reliability and internal consistency of each of the expectation attributes. Alpha ranges from 0 to 1, and is a



measure of the internal consistency of multi-item scales. A coefficient alpha of .50 or higher is considered to be adequately reliable for group data purposes.

## Results

The study's findings are presented in the following order: (1) students' expectations, (2) identification of expected service quality dimensions, and (3) reliability of the modified version of the SERVQUAL scale.

Table 2 shows the means for students' expectations by questionnaire statements. The range of expected service quality statements was from 1 (very low perceptions) to 5 (very high perceptions). The mean scores in this study ranged from 2.53 to 4.86, with an overall of 4.17 for expectations scale.

In expectations scale, the statement E1 »faculty should have up-to-date equipment« was considered most important, followed by E35 »faculty should provide students with the possibility to purchase literature at a price suitable for students«. The least important statement was »working hours of a faculty should not be expected to be adjusted to all students«.

As shown in Table 3 the study used factor analysis to reduce the 40 statements into a set of underlying dimensions or factors that portray the expectations of the tourism and hospitality students in Croatia. In addition, for the purpose of quality control of the factors, the data were first tested by Bartlett's test, a statistical test for the overall significance of all correlations within a correlation matrix. This indicated that factor analysis could be performed to further analyze the data.

Factor analysis was applied to 40 statements on expectations of higher education services, with responses on a 5-point Likert scale. Principal component analysis with varimax rotation was used in the analysis. The suitability of factor analysis was determined by correlation and alpha reliability. The criteria for the number of extracted factors were based on the characteristic value, variance percentage, factor importance and factor structure. Significant factors were considered to be those with characteristic value equaling or exceeding one. All factors with a value less than 1 will be considered insignificant and should be disregarded. The result amounting to at least 45 per cent of the total cumulative variance was considered a satisfactory solution. It is considered that a variable has practical importance and that it can be included in a factor when its correlation degree equals or exceeds 0.50 (Nunnally, 1967). However, 14 statements are deleted from the expectations scale because their factor loadings are less than 0.45. Most of the deleted statements are new statements included in SERVQUAL scale. The results of factor analysis and reliability analysis are presented in Table 3.

On the basis of varimax rotation 7 significant factors were defined on the expectations scale. Factor analysis results indicate factor structure with relatively high factor coefficients on the corresponding factors. This confirms that the factors overlapped the least possible, and that they were independently structured. High factor coefficients indicate correlation of variables with the factors they define.

Communality of each of the variables is relatively high ranging from 0.50 to 0.82, and this indicates the variance of original values being well covered by the factors.

A seven-dimensional solution for the expectations scale results in the following factors (refer to Table 3):

- Factor 1: *Reliability* (6 statements, eigenvalue = 6.371, 18.738 per cent of variance, alpha = 0.7437),
- Factor 2: *Students in scientific work* (4 statements, eigenvalue = 2.569, 7.556 per cent of variance, alpha = 0.7281),
- Factor 3: *Empathy* (4 statements, eigenvalue = 1.907, 5.608 per cent of variance, alpha = 0.6802),
- Factor 4: *Assurance* (3 statements, eigenvalue = 1.571, 4.621 per cent of variance, alpha = 0.5255),
- Factor 5: *E-learning* (3 statements, eigenvalue = 1.330, 3.911 per cent of variance, alpha = 0.5255),
- Factor 6: *Responsiveness* (3 statements, eigenvalue = 1.250, 3.678 per cent of variance, alpha = 0.6230),
- Factor 7: *Tangibles* (3 statements, eigenvalue = 1.124, 3.307 per cent of variance, alpha = 0.5569).

**Table 3:** Results of factor analysis and reliability analysis

Factors and statements	Factor loadings	Factor mean	Cronbach's alpha	Cumulative Variance Explained (%)
<i>Factor 1</i>		4.73	0.7437	18.738
E9	0.674			
E8	0.650			
E5	0.634			
E7	0.609			
E6	0.537			
E1	0.460			
<i>Factor 2</i>		4.15	0.7281	26.294
E28	0.820			
E29	0.814			
E27	0.668			
E31	0.468			
<i>Factor 3</i>		3.57	0.6802	31.902
E21 (-)	0.799			
E22	0.728			
E19 (-)	0.573			
E20 (-)	0.562			
<i>Factor 4</i>		4.41	0.6631	36.523
E14	0.787			
E15	0.781			
E17	0.513			
<i>Factor 5</i>		4.36	0.5255	40.435
E24	0.710			
E25	0.688			
E39	0.525			
<i>Factor 6</i>		3.881	0.6230	44.112
E12 (-)	0.777			
E13 (-)	0.663			
E11 (-)	0.606			
<i>Factor 7</i>		4.15	0.5569	47.419
E2	0.683			
E3	0.664			
E4	0.625			
Overall		4.17	0.7783	

Notes: (-) negatively worded statements

Five factors from the expectations scale correspond to five SERVQUAL factors (dimensions) and two factors (*Students in scientific work, E-learning*) include new statements.

In addition, reliability analysis was conducted to measure the inside of each of the factors. The results indicate that all factors exceed the recommended level of 0.50 (Hair *et al.*, 1995). Alpha coefficients for the expectations scale totals 0.7783. The relatively high alpha values indicate good internal consistency among the statements, and the relatively high alpha value for the overall scale indicates that the SERVQUAL instrument is reliable and applicable.

## Conclusion

This study has contributed to knowledge about the service quality construct in tourism and hospitality higher education in Croatia by refining and developing the existing SERVQUAL scale. These findings have demonstrated that the SERVQUAL instrument is suitable for use by managers in higher education institutions, so that they can confidently design service strategies that meet students' expectations. It has presented further challenges to SERVQUAL methodology for assessing students' expectations and perceptions of service quality.

Further research is being undertaken to validate these results. There are several opportunities to extend this study. For example, further studies on service quality measurement must focus on issues of how different socio-demographic variables affect service quality dimensions. Another factor that might have to be considered in future research is whether the factor structure proposed in this study is valid in other faculties in Croatia.

In this case, the SERVQUAL scale should be treated as a useful starting point in the development of service quality dimensions in higher education, and not the final answer for assessing and improving service quality in higher education.

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