



Measuring Perceived Tourism Service Quality in Quantitative Marketing Research

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Received: November 21, 2021
Revised: March 14, 2022
Accepted: March 23, 2022

Keywords:

SERVQUAL;
Construct;
Structural Equation
Modelling;
SmartPLS



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Abstract: *The need to measure service quality in the tourism industry is present for decades. During that period many different instruments designed to perform that measurement were developed. However, the analysis performed when using those instruments relatively rarely relies on scientific contributions by which service quality should be treated as reflective-formative constructs. Such misspecifications can lead to serious mistakes in the results and can raise doubts about implications from studies that do not consider service quality appropriately. Having all previously stated in mind, this paper has three main objectives. The first objective is to present instruments designed to measure perceived tourism service quality in one place. The second goal is to demonstrate the view of perceived service quality as second order formative-reflective construct. Finally, the third objective is to present simulation of differences in the results when treating perceived service quality as reflective-reflective and as a reflective-formative construct.*

1. INTRODUCTION

When it comes to service quality, there can be identified two conceptualization models (Arias-Bolzmann et al., 2018). The first model is known as the Nordic model, which was developed by Grönroos. It incorporates two dimensions: technical and functional quality. In the case of the former, the emphasis is on what the customer directly receives as a result of the process, while considering latter, the stress is on “how” the service is provided. Such a model is also present in the research of tourism services as will be presented later (e.g. Ali et al., 2016). The second model is known as American (Arias-Bolzmann et al., 2018). It was developed by Parasuraman, Zeithaml and Berry, and is founded on the disconformity paradigm i.e. the difference between the expected level of service and the customer’s perception of it. That model is implemented to a larger extent in research, including in those of a tourism service quality (Ali et al., 2016), although the instrument originating from that approach is sometimes adapted to specific circumstances (e.g. Knutson et al., 1990; Getty & Thompson, 1994; Wong Ooi Mei et al., 1999; Frochot & Hughes, 2000; Getty & Getty, 2003) or even the measurement is performed only for performances (Cronin & Taylor, 1992).

Many instruments are concretely used for measuring tourism service quality (Liu et al., 2016; Ali et al., 2016). They are to a large extent based on the SERVQUAL instrument. However, because of the wide range of circumstances in which tourism services are delivered as well as different aspects of that process, the adaptations of the previously mentioned instrument or development of new ones are performed, resulting in questionnaires measuring the quality of services provided in lodging, hotels, historic houses, at specific destinations, regarding food as souvenirs, etc.

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An important issue regarding tourism service quality is its operationalization. It has sometimes been operationalized in different wrong manners: as a single-item measure, as a first-order reflective construct or by using first-order subdimensions as separate latent constructs, which can lead to empirical bias and create measurement errors (Hallak et al., 2017). Even the researchers that treat service quality as higher-order construct, often present it as reflective-reflective instead of reflective-formative (Liu et al., 2016). That can also have, as is stressed in a general case by Jarvis et al. (2003), significant consequences for theoretical conclusions regarding the model.

2. INSTRUMENTS FOR MEASURING TOURISM SERVICE QUALITY

In the literature, there can be identified different instruments for measuring perceived service quality in the tourism area: SERVQUAL, SERVPERF, LODGQUAL, HOLSERV, LODGSERV, HISTOQUAL, LQI (Liu et al., 2016; Ali et al., 2016). In addition, many instruments have no specific names but do have specific dimensions as described by Ali et al. (2016). Hereby, in this section are provided items and dimensions of previously listed instruments, as well as of some of the instruments used in part of the research conducted in recent years.

Table 1 presents dimensions (dim.) and items of the original SERVQUAL instrument. The instrument is based on the gap theory. Within it are observed service users' expectations regarding the performance of a general class of service providers on one side. On the other side, attention is devoted to the assessment of the actual performance of a specific service provider. The difference between performances and expectations is what drives the perception of service quality. It should be however noted that items written in italic in Table 1 must be reverse coded. A later development introduced the possibility to add important weights regarding elements of the instrument.

Table 1. SERVQUAL instrument

Dim.	Items - expectations	Items - performances
Tangibles	• They should have up-to-date equipment & technology.	• XYZ has up-to-date equipment.
	• Their physical facilities should be visually appealing.	• XYZ 's physical facilities are visually appealing.
	• Their employees should be well dressed and appear neat.	• XYZ 's employees are well dressed and appear neat.
	• The appearance of the physical facilities of these institutions should be in keeping with the type of services provided.	• The appearance of the physical facilities of XYZ is in keeping with the type of service provided.
Reliability	• When these institutions promise to do something by a certain time, they should do so.	• When XYZ promises to do something by a certain time, it does so.
	• When customers have problems, these institutions should be sympathetic and reassuring.	• When you have problems, XYZ is sympathetic and reassuring.
	• These institutions should be dependable.	• XYZ is dependable.
	• They should provide their services at the time they promise to do so.	• XYZ provides its services at the time it promises to do so.
	• They should keep their records accurately.	• XYZ keeps its records accurately.
Responsiveness	• <i>They shouldn't be expected to tell their customers exactly when services will be performed.</i>	• <i>XYZ does not tell its customers exactly when services will be performed.</i>
	• <i>It is not realistic for customers to expect prompt service from employees of these institutions.</i>	• <i>You do not receive prompt service from XYZ employees.</i>
	• <i>Their employees don't always have to be willing to help customers.</i>	• <i>Employees of XYZ are not always willing to help customers.</i>
	• <i>It is okay if they are too busy to respond to customer requests promptly.</i>	• <i>Employees of XYZ are too busy to respond to customer requests promptly.</i>

Assurance	• Customers should be able to trust employees of these institutions.	• You can trust employees of XYZ.
	• Customers should be able to feel safe in their transactions with these institutions' employees.	• You can feel safe in your transactions with XYZ's employees.
	• Their employees should be polite.	• Employees of XYZ are polite.
	• Their employees should get adequate support from these institutions to do their jobs well.	• Employees get adequate support from XYZ to do their jobs well.
Empathy	• <i>These institutions should not be expected to give customers individual attention.</i>	• <i>XYZ does not give you individual attention.</i>
	• <i>Employees of these institutions cannot be expected to give personal attention to customers.</i>	• <i>Employees of XYZ do not pay personal attention to you.</i>
	• <i>It is unrealistic to expect employees to know what the needs of their customers are.</i>	• <i>Employees of XYZ do not know what your needs are.</i>
	• <i>It is unrealistic to expect these institutions to have their customers' best interests at heart.</i>	• <i>XYZ does not have your best interests at heart.</i>
	• <i>They shouldn't be expected to have operating hours convenient to all their customers.</i>	• <i>XYZ does not have operating hours convenient to all its customers.</i>

Source: Parasuraman et al. (1988)

Although criticized from several aspects, the approach based on the gap model is present in the literature from the moment the instrument was introduced.

Cronin and Taylor (1992) argue that performance-based measure of service quality (SERVPERF) may be an improved means of measuring the service quality construct, whereas it outperforms SERVQUAL (Service Quality = (Performance – Expectations)), weighted SERVQUAL (Service Quality = Importance* (Performance - Expectations)), and weighted SERVPERF (Service Quality = Importance* (Performance)). However, it should be noted that the items used in that approach are equal to the original items from SERVQUAL but only on its performance side.

Table 2. LODGQUAL instrument

Dimensions	Items
Tangibles	• Front desk was visually appealing.
	• Employees had neat, clean uniforms.
	• Rooms were comfortable.
	• Property was bright and well lighted.
	• Property was well maintained.
	• Property was clean.
	• Mechanical equipment worked correctly.
	• Property provided a safe environment.
Reliability	• Room service orders were correct.
	• Room service bills were correct.
	• Meeting arrangements carried out OK.
	• Check-in/out procedures were efficient.
Contact	• Employees greeted me with a smile.
	• Employees helped me solve problems.
	• Reservations were made accurately.
	• Employees accurately answered questions.
	• Employees were committed to a good job.
	• I received individual attention.
	• Reservationists made an effort to accommodate my needs.
	• Employees were eager to please me.
	• Employees understood my problems.
	• Employees listened to me.

Source: Getty & Thompson, 1995.

The LODGQUAL scale was developed to measure customers' perceptions of delivered quality within the lodging industry. The scale is based upon SERVQUAL, but the results reveal that there were three dimensions: tangibility, reliability and contact. The initial 68 items can be seen in Getty and Thompson (1994), while the adapted version of 22 item scale was provided in Getty and Thompson (1995). The dimensions and items of that scale are presented in Table 2.

Knutson et al. (1990) developed an instrument named LODGSERV. The intention was to measure expectations for service quality in the hotel experience. It is also based on SERVQUAL and keeps its five dimensions. The instrument consists of 26-items, as can be seen in Table 3.

Table 3. LODGSERV instrument

Dimensions	Items
Reliability	• Equipment Works
	• Dependable/Consistent
	• Quickly Correct Problems
	• Services On-Time
Assurance	• Trained/Experienced Employees
	• You Feel Comfortable
	• Company Supports Employees
	• Knowledgeable Staff
	• Reservationists Are Knowledgeable
Responsiveness	• Prompt Service
	• Staff Shift Where Needed
	• Do Special Requests
Tangibles	• Neat Personnel
	• Quality Food/Beverage
	• Attractive Room
	• Decor Reflects Concept
	• Attractive Public Areas
	• Up-To-Date Equipment
Empathy	• You Feel Special/Valued
	• No Red Tape
	• Sympathetic Employees
	• Sensitive Employees
	• Convenient Hours
	• Anticipates Your Needs
	• Complimentary Services
	• Has Healthful Menus

Source: Knutson et al., 1990.

Wong Ooi Mei et al. (1999) researched the dimensions of service quality in the hospitality industry. The resulting instrument is shown in Table 4.

The authors started from the SERVQUAL scale and extended it by including eight new items specific to the hospitality industry and named the instrument HOLSERV. Within the instrument, there are 27 items belonging to three dimensions: employees (their behaviour and appearance), tangibles and reliability. The questionnaire was formulated in one-column format, whereas the items were measured on a seven-point scale (from “completely failed to meet my expectations” to “far exceeded my expectations”). Besides the items and their corresponding dimensions, in Table 4 are also presented the dimensions of SERVQUAL to which items originally belonged (either originally or customised or being new).

Frochot and Hughes (2000) developed a historic houses assessment scale (Table 5).

Table 4. HOLSERV instrument

Dimensions	Items	Original dimensions
Employees	• Gives prompt service.	Responsiveness
	• Always willing to help.	Responsiveness
	• Never too busy to respond to guests' requests.	Responsiveness
	• Instils confidence in guests.	Assurance
	• Guests feel safe in the delivery of services.	Assurance
	• Polite and courteous employees.	Assurance
	• Have the knowledge to answer questions.	Assurance
	• Have the skill to perform the service.	Assurance
	• Gives individual attention.	Empathy
	• Deals with guests in a caring fashion.	Empathy
	• Has guests' best interests at heart.	Empathy
	• Understands guests' specific needs.	Empathy
	• Neat and professional employees.	Tangibles
Tangibles	• Equipment, fixtures and fittings are modern looking.	Tangibles
	• Facilities are visually appealing.	Tangibles
	• Materials are visually appealing.	Tangibles
	• Fixture and fittings are comfortable.	Tangibles
	• Equipment and facilities are easy to use.	Tangibles
	• Equipment and facilities are generally clean.	Tangibles
	• Variety of food and beverages meet guests' needs.	Tangibles
	• Services are operated at a convenient time.	Tangibles
Reliability	• Promises to provide a service and does so.	Reliability
	• Shows dependability in handling service problems.	Reliability
	• Performs the service right the first time.	Reliability
	• Provides services at the time it promises to do so.	Reliability
	• Tells guests exactly when the services will be performed.	Responsiveness
	• Guests feel safe and secure in their stay.	Assurance

Source: Wong Ooi Mei et al., 1999.

Table 5. HISTOQUAL instrument

Dimensions	Items
Responsiveness	• Staff are always helpful and courteous.
	• Staff are willing to take time with visitors.
	• Visitors are made to feel welcome.
	• Level of crowding is tolerable.
	• Staff are well informed to answer customers' requests.
	• Visitors feel free to explore, there are no restrictions to access.
	• The property and grounds are opened at convenient hours.
	• Staff are always available when needed.
Tangibles	• The property is well kept and restored.
	• The general cleanliness and upkeep of the property and grounds is satisfying.
	• The grounds are attractive.
	• The site has remained authentic.
	• Direction signs to show around the property and grounds are clear and helpful.
	• The garden and/or park contain a large variety of plants.
	• The interior of the house offers a lot of interesting things to look at.
Communications	• The written leaflets provide enough information.
	• The information on the property and grounds is detailed enough.
	• Visitors are well informed of the different facilities and attractions available at the property.
	• Foreign language leaflets are helpful.

Consumables	• The restaurant offers a wide variety of dishes and refreshments.
	• The shop offers a large variety of goods.
	• The restaurant' staff provides efficient service.
Empathy	• The property considers the needs of less able visitors.
	• Facilities for children are provided.

Source: Frochot & Hughes, 2000.

The authors start from the SERVQUAL scale as a useful tool to measure service quality but stress the need for its adaptation. During the survey for the development of the instrument named HISTOQUAL, the respondents were asked to rate on a five-point scale whether they believed the attraction had the features described in individual statements. The result was a 24-item solution with five corresponding dimensions, as can be seen in the previous table.

Getty and Getty (2003) developed Lodging quality index (LQI) which was specific by taking into account all ten dimensions that were considered in developing original SERVQUAL (reduced later to five). The resulting questionnaire can be seen in Table 6.

Table 6. LQI instrument

Dimensions	Items
Tangibility	• The front desk was visually appealing.
	• The employees had clean, neat uniforms.
	• The restaurant's atmosphere was inviting.
	• The shops were pleasant and attractive.
	• The outdoor surroundings were visually attractive.
	• The hotel was bright and well lighted.
	• The hotel's interior and exterior were well maintained.
	• The hotel was clean.
Reliability	• My reservation was handled efficiently.
	• My guestroom was ready as promised.
	• TV, radio, A/C, lights, and other mechanical equipment worked properly.
	• I got what I paid for.
Responsiveness	• Employees responded promptly to my requests.
	• Informative literature about the hotel was provided.
	• Employees were willing to answer my questions.
	• Employees responded quickly to solve my problems.
	• Room service was prompt.
Confidence	• Employees knew about the local places of interest.
	• Employees treated me with respect.
	• Employees were polite when answering my questions.
	• The hotel provided a safe environment.
	• The facilities were conveniently located.
Communication	• Charges on my account were clearly explained.
	• I received undivided attention at the front desk.
	• Reservationists tried to find out my particular needs.
	• Employees anticipated my needs.

Source: Getty & Getty, 2003.

The adapted version of the previous instrument was integrated as part of the model that use Ali et al. (2016). The LQI instrument was used for measuring functional quality. However, the authors stress that technical quality, often neglected in research, should be measured as well. For its measurement, they relied on another previously developed instrument, that included dimensions named sociability, valence and waiting time. This approach is in accordance with the Nordic conceptualization model of service quality developed by Grönroos. The first version of the instrument is presented in Table 7, while the items typed in italic were deleted because of low factor loadings.

Table 7. Instrument for measuring functional and technical quality

Dimensions	Items
Tangibility	• The front desk was visually appealing.
	• The employees had clean, neat uniforms.
	• The hotel's atmosphere was inviting.
	• The hotel's interior was pleasant and attractive.
	• The outdoor surroundings were visually attractive.
	• The hotel was bright and well lighted.
	• The hotel's interior and exterior were well maintained.
	• <i>The hotel was clean.</i>
Reliability	• My reservation was handled efficiently.
	• My room was ready as promised.
	• All the equipment in the room worked properly.
	• I got what I paid for.
Responsiveness	• Employees responded promptly to my requests.
	• Informative literature about the hotel was provided.
	• Employees were willing to answer my questions.
	• Employees responded quickly to solve my problems.
	• Room service was prompt.
Confidence	• Employees knew about local places of interest.
	• Employees treated me with respect.
	• Employees were polite when answering my questions.
	• The hotel provided a safe environment.
	• The facilities were conveniently located.
Communication	• Charges on my account were clearly explained.
	• I received undivided attention at the front desk.
	• Reservationists tried to find out my particular needs.
	• <i>Employees anticipated my needs.</i>
Sociability	• I was provided with opportunities for social interaction.
	• I felt a sense of belonging with other customers.
	• I made social contacts.
Valence	• At the end of my stay, I felt that I had a good experience.
	• When I left, I felt that I've got what I wanted.
	• <i>I would evaluate the outcome of the services favourably.</i>
Waiting time	• The waiting time for service was reasonable.
	• The employees tried to minimize my waiting time.
	• The employees understood that waiting time is important to me.
	• The employees provided service for me punctually.
	• <i>The employees were able to answer my questions quickly.</i>

Source: Ali et al., 2016.

Dmitrović and Žabkar (2010) consider tourism quality at the destination level. They use different quality attributes (including attributes that are destination-specific) for assessing the quality of a city destination, seaside destination and spa-recreational destination. Not all of the attributes were connected to all three destinations (minus in the appropriate column in the table). The participants evaluated the level of their approval that certain attribute was exceptional/at an exceptionally high level at a particular tourist destination, as well as the overall quality of the tourist destination. The list of the attributes can be seen in Table 8.

Hallak et al. (2017) consider the perceived quality of tourism destinations in the case of Australia. The authors used a model of reflective-formative type. The items were measured on a five-point Likert scale from 1 – “much lower than my expected quality level” to 5 – “much higher than my expected quality level”. Those items as well as the six dimensions to which those items belong are presented in Table 9.

Table 8. Measuring tourism service quality through destination attributes

Attributes	City destination	Seaside destination	Spa-recreational
Personal safety and security	+	+	+
Destination can be reached easily	+	+	+
Overall cleanliness of the destination	+	+	+
Unspoiled nature	+	+	+
Climate conditions	+	+	+
Diversity of cultural/historical attractions (architecture, tradition and customs...)	+	+	+
Quality of accommodation (hotel, motel, apartment...)	+	+	+
Friendliness of local people	+	+	+
Organization of local transportation services	-	-	-
Local cuisine	+	+	+
Possibilities for shopping	+	+	+
Nightlife and entertainment	-	+	-
Opportunity for rest	+	+	+
Availability of sport facilities and recreational activities	-	+	+
Offer of cultural and other events	-	+	-
Thermal spa offer	-	+	+
Wellness offer	-	+	+
Casino and gambling offer	-	+	-
Conference offer	-	-	-

Source: Dmitrović & Žabkar, 2010.

Table 9. Instrument for tourism destination quality

Dimensions	Items
Natural and well-known attractions	• Australia has spectacular scenery and natural attractions.
	• Australia is a country with many well-known tourist sites.
	• Australia has magnificent sunny beaches.
	• Australia has fascinating native animals and vegetation.
Variety of tourists services and culture	• Australia offers a food variety of souvenirs and duty-free goods for travellers.
	• Australia has wonderful historical sites and excellent museums/art galleries.
	• Australia has a unique aboriginal culture.
Quality of general tourists atmosphere	• Australia service staff are qualified, helpful and friendly.
	• Australia is a safe destination for travellers.
	• The environment in Australia is very clean.
Entertainment and recreation	• Australia has a variety of entertainment/nightlife activities for travellers.
	• Australia offers many opportunities for sports and adventurous activities.
	• Australia has good tourism infrastructure facilities, for example, restaurants, accommodations, and so on.
General environment	• Australia's climate is good.
	• Australia is a good place for rest and relaxation.
Accessibility	• Australia is a value for money destination.
	• Communication is not a serious problem for non-English speaking tourists.
	• Australia is easy to access.

Source: Hallak et al., 2017.

Ho et al. (2020) researched the quality of food souvenirs. They consider quality as a multidimensional construct and explain it as formative-formative model. The items and dimensions used in that research can be seen in Table 10.

Previously presented instruments are only the part of instruments possible to be presented. However, the authors believe that, besides providing those instruments with all their dimensions and corresponding items in one place, the special contribution of this part of the paper is the possibility to observe the variety of tourism service quality measurements.

Table 10. Instrument for measuring food souvenir quality

Dimensions	Items
Production specification	• The product is made by special/unique manufacturing method.
	• I like the local materials/ingredients of the products.
Brand	• I buy the product because of its brand-name.
Traditions & history	• I like and learn the stories behind the product.
	• I find the products sold by the manufacturer with a history.
Packaging	• I like the aesthetic packaging of the product.
Word-of-mouth	• I think the food souvenir is a hot product.
	• I find the online comments about the product are positive.
	• I receive good recommendations from friends/relatives for the product.
Award	• The product has been awarded a prize in a contest.
Food safety & health	• The food souvenir manufacturer certificates in food safety.
	• I find the food souvenir manufacturer follows the standards of hygiene in product production.
Price	• I accept the price of the product.
Sensory appeal	• I find the taste of the food souvenir pleasant.
	• I like the freshness of the product.
	• I think the appearance of the product is attractive.

Source: Ho et al., 2020.

3. TOURISM SERVICE QUALITY AS A REFLECTIVE-FORMATIVE MODEL

It has already been emphasised that treating service quality as higher order reflective-reflective construct instead of reflective-formative construct presents a mistake (Liu et al., 2016) which can lead to significant consequences for theoretical conclusions regarding the model (Jarvis et al., 2003). At this place are presented instructions for differentiation between formative and reflective constructs – Table 11.

Table 11. Differentiation between formative and reflective constructs

	Formative model	Reflective model
1. Direction of causality from construct to measure implied by the conceptual definition	• Direction of causality is from items to construct	• Direction of causality is from construct to items
• Are the indicators (items) (a) defining characteristics or (b) manifestations of the construct?	• Indicators are defining characteristics of the construct	• Indicators are manifestations of the construct
• Would changes in the indicators/items cause changes in the construct or not?	• Changes in the indicators should cause changes in the construct	• Changes in the indicator should not cause changes in the construct
• Would changes in the construct cause changes in the indicators?	• Changes in the construct do not cause changes in the indicators	• Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	• Indicators do not have to be interchangeable	• Indicators should be interchangeable
• Should the indicators have the same or similar content?• Do the indicators share a common theme?	• Indicators do not need to have the same or similar content/indicators do not need to share a common theme	• Indicators should have the same or similar content/indicators shouldshare a common theme
• Would dropping one of the indicators alter the conceptual domain of the construct?	• Dropping an indicator may alter the conceptual domain of the construct	• Dropping an indicator should not alter the conceptual domain of theconstruct
3. Covariation among the indicators	• Not necessary for indicators to covarywith each other	• Indicators are expected to covary with each other

• Should a change in one of the indicators be associated with changes in the other indicators?	• Not necessarily	• Yes
4. Nomological net of the construct indicators	• Nomological net for the indicators may differ	• Nomological net for the indicators should not differ
• Are the indicators/items expected to have the same antecedents and consequences?	• Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

Source: Jarvis et al., 2003.

If implementing previously listed instructions to, for example, already presented LQI instrument (Getty & Getty, 2003), several conclusions can be made. Firstly, relationship between individual items and their corresponding dimensions can be examined. Secondly, relations between quality dimensions and second-order quality construct can be studied.

When it comes to the first issue, an example can be taken. If looking at the two items belonging to the dimension Responsiveness: “Employees responded promptly to my requests” and “Employees responded quickly to solve my problems”, it can be seen that those items are actually manifestations of the dimension and that changes in them should not cause changes in the dimension, but opposite. In addition, the items have similar content/share a common theme and dropping one of them should not alter the conceptual domain of the dimension. Finally, a change in one of the items is associated with changes in another and they have the same antecedents and consequences. From all presented above, it can be concluded that the relation of dimensions and their corresponding items is reflective.

On the other hand, when considering relations of quality dimension and second-order quality construct, the example of Tangibility and Reliability can be taken. The first refers to physical characteristics regarding service encounters, while the second is related to performing the service right the first time. If considering those relations, it can be seen that those dimensions are defining characteristics of the quality construct and changes in them cause changes in the quality, but not instead. Furthermore, those dimensions do not have similar content, nor share a common theme, and dropping one of the dimensions will alter the conceptual domain of the construct. Those dimensions do not necessarily covary, nor have the same antecedents and consequences. It can be concluded that the relationship between quality dimensions and quality construct is formative.

Having all previously said in mind, it can be concluded that it is supported by a specific example that quality as a hierarchical construct should be reflective-formative, as stressed in part of the literature.

4. RESULTS OF THE SIMULATION

It has already been announced that the point of the simulation is to present the differences in the results when treating perceived service quality as reflective-reflective and as reflective-formative construct. A graphical representation of those two models is given in Figure 1. The analysis is performed on a base consisting of answers from 100 respondents regarding items from LQI instrument. Data processing is conducted in SmartPLS3 software according to instructions provided by Grubor et al. (2021). Repeated-indicator approach was used. It should be stressed that since the simulation is implemented, the results cannot be generalized (from managerial implications aspect). In addition, items in Table 12 are provided in the same order as in Table 6, when the instrument was introduced.

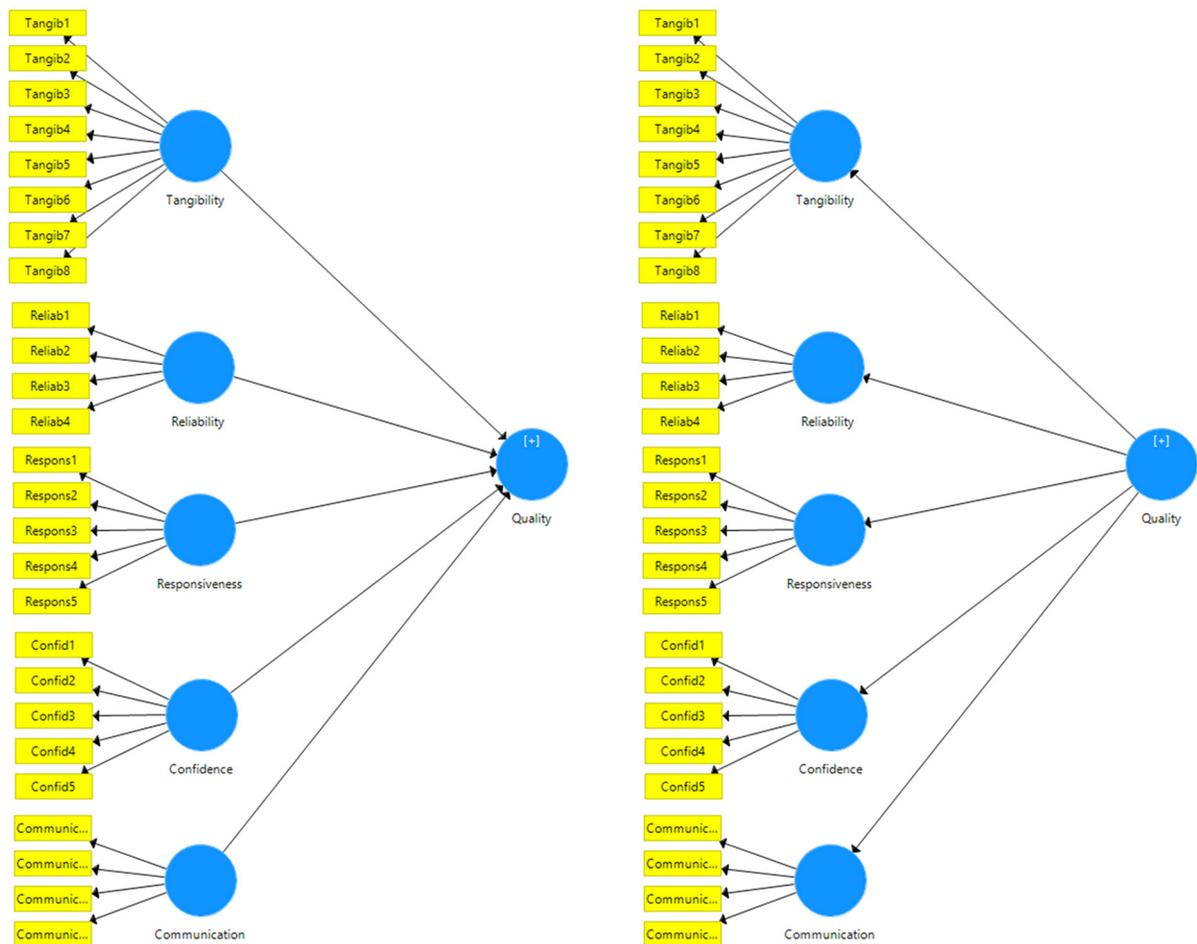


Figure 1. Reflective – formative (left) and reflective-reflective (right) model

Source: Authors' analysis in SmartPLS3 software

For testing convergent validity, indicator reliability (outer loadings) was checked and all items with corresponding loadings higher than 0.7 were kept. The other items with values of loadings between 0.4 and 0.7 (tangib8, confid1 and communicat3 in the first stage and confid2 in the second) were removed in order to increase composite reliability and average variance extracted. In addition, during convergent validity testing, average variance extracted (AVE) was observed and was in all cases equal to or higher than 0.5, as suggested (that was also performed after removal of listed items as well, but is not reported since values were acceptable already at the first stage). Testing reliability (internal consistency) was also performed. Hereby, all alpha coefficients were higher than 0.7 and composite reliability (CR) values were from 0.7 to 0.95 (analogously to AVE, since those values were acceptable already at the first stage (before removing individual items) and were later only improved, the results from the beginning are presented). The previously described results are presented in Table 12. Table 13 presents the results of testing discriminant validity by using Fornell-Larcker criterion. It can be seen that the square root of average variance extracted from each construct was (even before excluding certain items) higher than its correlations with other constructs. Thus, discriminant validity is also proven.

It should be noticed that since first-order constructs are treated as reflective in both cases, there were no differences in previous tests. The only difference appears in the case of testing the relation of quality as second-order construct with its dimensions as first-order constructs. Those results are presented in Table 14. Those results can also serve for testing second-order construct

in the case of reflective-formative model. Hereby, all VIF values (1,380; 1,334; 1,149; 1,198 and 1,403 in that order) are lower than 5, and the impact of the four dimensions is at $p < 0.05$, significantly contributing to the formation of the second-order construct.

Table 12. Testing internal consistency reliability and convergent validity

Dimensions and items	Loadings	Alpha	CR	AVE
Tangibility		0.931	0.944	0.680
Tangib1	0.881			
Tangib2	0.858			
Tangib3	0.777			
Tangib4	0.831			
Tangib5	0.899			
Tangib6	0.835			
Tangib7	0.834			
Tangib8	0.658			
Reliability		0.744	0.837	0.562
Reliab1	0.722			
Reliab2	0.721			
Reliab3	0.755			
Reliab4	0.797			
Responsiveness		0.931	0.948	0.784
Respons1	0.863			
Respons2	0.922			
Respons3	0.912			
Respons4	0.876			
Respons5	0.853			
Confidence		0.829	0.879	0.596
Confid1	0.612			
Confid2	0.714			
Confid3	0.823			
Confid4	0.908			
Confid5	0.769			
Communication		0.855	0.904	0.704
Communicat1	0.848			
Communicat2	0.934			
Communicat3	0.689			
Communicat4	0.866			

Source: Authors' analysis

Table 13. Testing discriminant validity

Dimensions	Communicat.	Confid.	Reliab.	Respons.	Tangib.
Communication	0.839				
Confidence	0.299	0.772			
Reliability	0.451	0.228	0.749		
Responsiveness	0.181	0.236	0.213	0.885	
Tangibility	0.382	0.299	0.329	-0.073	0.825

Source: Authors' analysis

Table 14. Results of the two models

Reflective-formative model			Reflective-reflective model		
	Path coefficients	p		Path coefficients	p
Tangibility-> Quality	0.695	0.000	Quality -> Tangibility	0.825	0.000
Reliability-> Quality	0.194	0.000	Quality -> Reliability	0.632	0.000
Responsiveness -> Quality	0.066	0.613	Quality -> Responsiveness	0.259	0.258
Confidence-> Quality	0.182	0.000	Quality -> Confidence	0.559	0.000
Communication -> Quality	0.240	0.000	Quality -> Communication	0.706	0.000

Source: Authors' analysis

When looking at the results of the reflective-formative model, it can be concluded that perceived tourism quality is formed to a far larger extent by perceptions regarding tangibles. The coefficient is high, almost 0.7. Three additional dimensions significantly form quality construct – communication, reliability and confidence. The values of the obtained coefficients are lower in comparison to the ones associated with tangibility and range from 0.182 to 0.240. The influence of responsiveness is not significant.

On the other hand, the results of the reflective-reflective model, although resembling to some extent to previous results, are at the same time different. If looking at individual coefficients, their order and significance are similar to the previous situation. However, the difference in their strength is not. According to the results, quality is significantly reflected through tangibility, relatively closely followed by communication, reliability and confidence. The range of all path coefficients is in this case from 0.559 to 0.825.

5. FUTURE RESEARCH DIRECTIONS

Future research could be directed to several aspects introduced in this paper. Firstly, a critical review of the instruments can be conducted. Secondly, the level to which general instruments correspond to individual cases can be considered. Thirdly, research regarding real situations can be performed and compared with each other.

6. CONCLUSION

The importance of measuring perceived tourism service quality is widely recognized resulting in many instruments developed for that function. This paper deals with that issue trying to provide several contributions.

As the first contribution of the paper can be stressed that different instruments previously developed for measuring perceived tourism service quality are presented together in one place. They are used for measuring the quality of services provided in lodging, hotels, historic houses, at specific destinations, or regarding food as souvenirs. Besides pointing out that there is a wide range of circumstances in which tourism services are delivered as well as different aspects of that process, some methodological considerations are provided together with the presentation of the instruments.

The second contribution of the paper is the emphasis on the appropriate operationalization of tourism service quality as a construct. Although one might have an appropriate instrument at his/her disposal, if inappropriately formulating the model, the results would not be useful. Therefore, it is stressed that, in the case of most of the developed instruments, it would be appropriate to consider tourism service quality as reflective-formative model. Besides, the instructions from relevant literature are provided allowing the decision of which model would be appropriate in the case of individual instruments. Those instructions can be valuable for developing new instruments as well, especially when considering the possibility of mixing formative and reflective approaches regarding constructs of the same level.

Finally, the third contribution of this work can be identified in the presented simulation. On the one hand, it can be used as instruction on how to process data after their collection in quantitative marketing research on the quality of tourism services. On the other hand, the simulation presents how conclusions change in the case of inappropriate modelling. On the concrete database, the order and the significance of dimensions were not changed, but the range of coefficients did to a large extent. In some other simulations, the changes could be even greater.

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