

# Assessing the Quality of Faculty Websites: A Case Study

Ilija Hristoski<sup>1</sup>, Goran Velinov<sup>2</sup>, Tome Dimovski<sup>3</sup>

<sup>1</sup>*“St. Kliment Ohridski” University – Bitola / Faculty of Economics – Prilep, Prilepski Branitelji St. 143, MK-7500 Prilep, North Macedonia*

<sup>2</sup>*“Ss. Cyril and Methodius” University – Skopje / Faculty of Computer Science & Engineering, Rugjer Boshkovikj St. 16, MK-1000 Skopje, North Macedonia*

<sup>3</sup>*“St. Kliment Ohridski” University – Bitola / Faculty of Information and Communication Technologies – Bitola, Partizanska St., MK-7000 Bitola, North Macedonia*

*ilija.hristoski@uklo.edu.mk; goran.velinov@finki.ukim.mk; tome.dimovski@uklo.edu.mk;*

## Abstract:

For online organizations, websites play the role of digital storefronts and showrooms in the same way the physical storefronts and showrooms represent ‘mirror’ reflecting brick-and-mortar companies. The website’s quality is an enormously important aspect since the website is often the first impression an organization gives to its online visitors, who can potentially become its customers. Wanting that first impression to be a good one is imperative not only to businesses and organizations, but also to faculties, universities, and other higher-educational and research-oriented institutions. The paper aims to present a case study of how the students assessed the quality of their faculty website. Their perceptions about website quality have been drawn from four dimensions: performance, design, usability, and content. Based on an online survey containing questions addressing the most relevant aspects of these four dimensions, the data acquired from a representative sample has been subject to a factor analysis, which revealed significant insights into the most influential factors that underpin the faculty website quality. These represent a solid basis for the faculty management team while undertaking relevant measures to improve various faculty website quality aspects that can lead to increasing the satisfaction of online visitors, positive word-of-mouth spread, as well as improving faculty reputation and image in a long run.

## Keywords:

Website quality, factor analysis, faculty, assessment, case study, SPSS

## 1. Introduction

Websites are remaining a vital part of the fast-expanding phenomena related to new Internet technologies and the new Web 3.0 paradigm. Online companies have gotten more sophisticated as their usage of websites has become more effective. Some organizations use their websites as information warehouses for numerous stakeholders and the general public, as in the case of e-Government, e-Health, and e-Education. In e-Commerce, organizations use their websites to provide transaction capabilities, offering alternative payment methods for serving their online clients. Nevertheless, websites contribute significantly to the total marketing communication mix by supplementing direct selling operations, supplying online visitors with extra content and fundamental business information, and more importantly, creating an organizational reputation. As a result, online organizations are keen to quantify and analyze user impressions/perceptions of website quality. No matter of application sphere, to thrive in the extremely competitive virtual environment, it is critical to recognize the role of website quality in increasing online visitor conversion and retention.

Because websites serve as a key point of contact for most organizations, analyzing the quality of the website is critical to determine if the organization is delivering the type and quality of information and interaction required to satisfy website visitors. Quality websites highly contribute not only to attracting new online visitors but also to retaining old ones. This is particularly true for businesses that offer products and services through their websites, but it is also true for other organizations, including those present in higher education.

As the home base for a faculty's brand and an outlet of direct information for both future and existing students, alumni, and parents, the faculty website quality is crucial. It should always be aligned with the faculty's current goal and strive to enlighten, interest, and engage visitors at the same time. Given that web users spend roughly 2.5 minutes per page and browse, on average, 3-4 pages during every online session, a faculty website must stand out from the crowd. A well-planned digital strategy is now critical in higher institutions' marketing initiatives, especially given younger generations' increasing reliance on technology and internet usage. In this regard, a well-designed faculty website may assist engage present students while also connecting with potential students and informing all interested parties. It allows faculty to promote school activities, present course options, and highlight campus life. It allows the current students a wealth of information, and the prospective students to explore educational opportunities, learn about the school's history, apply, and much more. A faculty's website is its ultimate online brand statement, and it may determine whether or not someone applies to a certain institution.

Due to the increasing importance of website quality in general, the paper focuses on the process of quality assessment of a particular faculty website, based on the perceptions of its regular users – the students, with a single aim to shed light on the most influential factors that underpin website quality.

The paper is organized as follows. Section 2 provides a brief overview of some of the most intriguing recent studies vis-à-vis the research on website quality. In Section 3, the notions of 'quality' and 'website quality' are elaborated. The data and methodology used in this study are subject to Section 4. The results of a particular website quality assessment are presented in Section 5. The last section concludes and summarizes the paper.

## 2. Related research

Evaluation of websites and the components that are significant to their quality has become a subject of intensive professional and scientific research since the emergence of the first websites, a topic of study that is constantly growing and specializing, providing multiple prospects for exploration. Moreover, studies that are intended to identify the key criteria and their importance are still actual. Based on the extensive literature review, it can be concluded that both academics and professionals have presented a variety of methodologies, criteria, and tools for evaluating the quality of websites. Some are general, i.e. wide-ranging, and may be used to evaluate any sort of website, whilst others have been tailored to the specific qualities of websites used in a certain industry, such as education, commerce, tourism, medicine, etc. Furthermore, the recommended criteria frequently have distinct meanings and have a variable influence on the overall quality of the website.

What follows is a short chronologically ordered overview of some of the research studies made on the investigation of website quality, especially regarding higher education institutions' websites.

Aladwani & Palvia (2002) report on the development of a 25-item instrument that captures four key characteristics (specific content, content quality, appearance, and technical adequacy) of a website quality from the user's perspective, providing an aggregate measure of a website quality [1]. The study of Aguillo et al. (2008) points out the role of university webpages and their specific quality aspects in building university rankings, based on the Webometric ranking of world universities [2]. The study of Gordon & Berhow (2009), which focused on website contents analysis of a large number of university websites, has shown that the level of usage of dialogic web features differs and there was a small correlation between the use of dialogic features on the websites and higher rates of student retention and alumni giving. [3]. Closely related to the previous studies is the research of Lin (2010), which focused on developing an evolution model that integrates triangular fuzzy numbers and applies the analytic hierarchy process (AHP) to develop a fuzzy evaluation model which prioritized the relative weights of course website quality factors [4]. In their paper, Stanujkic & Jovanovic (2012) proposed a multiple criteria decision-making model for the evaluation of a faculty website, based on the utilization of the ARAS method [5]. According to Carlos & Rodrigues (2012), higher education institutions should use their websites as an effective marketing tool; they used Aladwani's and Palvia's instrument [1] to evaluate website quality from the user's perspective [6]. The research of Giannakouloupoulos et al. (2019) aimed at studying the extent to which a university's academic excellence is related to the quality of its web presence, employing a method that quantified the

website quality and search engine optimization (SEO) performance of the university websites of the top100 universities in the Academic Ranking of World Universities (ARWU) Shanghai list. According to the findings of the study, these universities place a particular emphasis on issues involving website quality [7]. Rashida et al. (2021) have developed an automated web-based tool that can evaluate any academic website based on three criteria (content of information, loading time, and overall performance) for accessing the academic website quality of universities in Bangladesh [8]. Osman (2022) proposes a model which depends on ISO quality standards for assessing the quality of educational institutions' websites in Sudan, based on six major metrics that represent a framework for website quality assessment, including aesthetics, ease of use, content, multimedia, reputation, and security, with predetermined weights. These measures are further divided into several components (sub-elements), each contributing with various weights [9].

### 3. Briefly on the notion of quality

The notion of quality is present in people's lives since ancient times. A long time ago, Aristotle<sup>1</sup> said "Quality is not an act, it is a habit." Later on, Seneca<sup>2</sup> used to say that "It is quality, rather than quantity, that matters", which was presently modified into "Quality is more important than quantity" by Steve Jobs<sup>3</sup>. Speaking about the relationship between the concepts of quality and quantity, it is well known that "Quality brings quantity" (Unknown). In modern times, quality is still a category that profoundly threads all the aspects of contemporary living and doing business. According to the Oxford Learner's Dictionaries, quality is defined as "the standard of something when it is compared to other things like it; how good or bad something is; a feature of somebody/something, especially one that makes them different from somebody/something else" [10]. Cambridge Dictionary defines the term "quality" similarly: "how good or bad something is; a high standard; a characteristic or feature of someone or something; the degree of excellence of something, often a high degree of it" [11]. There are many other definitions of quality in practice because every quality expert appears to define it in a somewhat different way, taking into account different approaches and viewpoints. The truth is that quality is a far more complex concept than it looks at first sight.

For John Ruskin<sup>4</sup>, "quality is never an accident; it is always the result of intelligent effort", whilst for Joseph Juran<sup>5</sup>, quality is a synonym with and refers to, the "fitness for use" concept, according to which "an essential requirement of ... products is that they meet the needs of ... members of society who will actually use them. This concept of fitness for use is universal. It applies to all goods and services, without exception" [12]. Juran defines quality as "fitness for use" in terms of design, conformance, availability, safety, and field use. His definition says that quality is about "meeting or exceeding customer expectations." This is in line with William Deming's<sup>6</sup> opinion who states that the customer's definition of quality is the only one that matters and with Peter Drucker's<sup>7</sup> saying that "Quality in a service or product is not what you put into it; it is what the client or customer gets out of it." In this context, meeting customer expectations through quality products and services always results in a satisfied customer, be it external or internal. However, meeting customer expectations is not enough today, in a global and fiercely competitive environment. To exceed customer expectations is a step ahead that is a result of an extra quality, i.e. a quality that is far beyond what is expected; it is a feature that generates a competitive advantage over the competitors.

Given the previous, building a quality website should not be considered an expense, but rather an investment. It is a highly creative and multidimensional activity that includes art and science,

<sup>1</sup>Aristotle (384 BCE–322 BCE) was a Greek philosopher and polymath during the Classical period in Ancient Greece.

<sup>2</sup>Seneca, in full Lucius Annaeus Seneca (4 BCE–65 CE), also known as Seneca the Younger, was a Roman Stoic philosopher, statesman, dramatist, and satirist from the post-Augustan age of Latin literature.

<sup>3</sup>Steven 'Steve' P. Jobs (1955–2011) was an American entrepreneur, industrial designer, business magnate, media proprietor, and investor.

<sup>4</sup>John Ruskin (1819–1900) was an English writer, philosopher, art critic and polymath of the Victorian era. He wrote on subjects as varied as geology, architecture, myth, ornithology, literature, education, botany and political economy.

<sup>5</sup>Joseph M. Juran (1904–2008) was a Romanian-born American engineer and management consultant and theorist, an evangelist for quality and quality management.

<sup>6</sup>William E. Deming (1900–1993) was an American engineer, statistician, professor, author, lecturer, and management consultant, the inventor of the famous Plan-Do-Check-Act (PDCA) quality assurance cycle.

<sup>7</sup>Peter F. Drucker (1909–2005) was an Austrian-American management consultant, educator, and author, whose writings contributed to the philosophical and practical foundations of the modern business corporation.

experience and knowledge, many steps, human traits, and features. As a long-lasting activity, it needs to be carried out continuously through the processes of maintenance, enhancement, and upgrade.

#### 4. Data and Methodology

This study is based on utilizing primary data, obtained thru an online survey among the active students of the Faculty of Economics in Prilep, North Macedonia. The acquisition of data was carried out fortwo months, from March 15th to May 15th, 2022. The online questionnaire was answered by 279 respondents, which is quite a representative sample size supposing a 95% confidence level and a margin of error of 5%, given that the total population size (the number of all active students on the Faculty) is slightly above 800 students.

Google Forms was used as a tool for the acquisition of the student’s responses. The survey was comprised of 15 questions/statements in affirmative form, addressing different features of the official faculty website (<https://eccfp.uklo.edu.mk/>). The answers to all 15 questions were recorded on an ordinal7-point Likert scale, as follows: (1) –Strongly disagree; (2) –Mainly disagree; (3) –Somewhat disagree; (4) –Neither agree nor disagree; (5) –Somewhat agree; (6) –Mainly agree; (7) –Strongly agree.

A Likert scale is a psychometric scale typically offering five or seven possible response options to a statement or question, often used in questionnaire-based research. It is commonly used to measure respondents’ attitudes, knowledge, perceptions, values, and/or behavioral changes, by allowing the individual to express how much they agree or disagree with a particular statement [13,14].

The statistical package IBM® SPSS® Statistics v20 was utilized for statistical analysis of the gathered data. Table 1 shows the list of variables representing the chosen faculty website quality attributes and their meaning, which entirely correspond to the survey statements’ formulations. Even though multiple dependent website qualities have been identified and mentioned in existing website quality research studies, there is no unifying framework to categorize them.

**Table 1:**  
SPSS variables and their meaning

No.	Variable	Meaning and survey statement formulation
1.	CompelValuableInfo	The provided information is compelling and valuable for visitors.
2.	TypographyTypefaces	The website uses unique typography and a few typefaces.
3.	AvailableWebsite	The website is available all the time.
4.	TimelyRegUpdatedInfo	The content is timely and regularly updated.
5.	TimeToFirstByte	The time between requesting a page and start receiving it is quite short.
6.	AccurCompleteObjInfo	The provided information is accurate, complete, error-free, and objective.
7.	FormatAccessContent	The website content is provided in a suitable format and is highly accessible.
8.	ColorSpectrum	The used color spectrum is visually attractive and pleasant.
9.	NavigationEasyIntuitive	The navigation and interaction are both easy and intuitive.
10.	WorkingLinks	There are working links to the most popular social media.
11.	FullPageLoadTime	The full page loading occurs very neatly and quickly.
12.	ImagesVideosGraphics	The images, videos, and other graphics are engaging and of high quality.
13.	ResponsiveDesign	The website design is highly responsive.
14.	StableOptimized	The web page is stable and optimized for different devices and platforms.
15.	LayoutElements	The website layout is user-friendly and its constituent elements are hierarchically well-organized and visually appealing.

The research relies on the utilization of factor analysis (FA), a statistical approach for describing variability in observed, correlated variables, in terms that may reflect the variations in a possibly smaller number of underlying, influential, unobserved variables known as factors. A factor is a weighted average of the original variables. FA looks for such joint fluctuations in response to latent variables that are not observed. The knowledge gathered regarding the mutual interdependencies between observed variables may later be utilized to minimize the collection of variables in a dataset,

which is a typical rationale for FA techniques, based on the fact that “correlation does not mean causation” in terms that there could always be a third variable that explains the relationship between two variables. In this context, FA looks for that ‘third’ variable, called a factor, underlying the correlations between the two or more variables. This, however, does not mean that all correlations are explained by factors. Instead, FA can be thought of as a way of investigating whether factors might exist, i.e. whether factors can be extracted from the observed variables [15,16]. FA is a specific form of errors-in-variables models since the observed variables are described as linear combinations of the possible factors plus ‘error’ terms. A variable’s factor loading measures the amount to which it is connected to a specific factor [17]. This study is based on the utilization of an Exploratory Factor Analysis (EFA), which attempts to identify complex correlations by exploring the dataset [18]. EFA is employed when a researcher wants to find out how many factors influence variables and which variables ‘go together’. The underlying premise of EFA is that there are a certain number of common ‘latent’ factors in the dataset to be located, and the objective is to find the fewest number of common factors that would explain the correlations. Besides the goal of determining the appropriate number of factors, yet another goal of FA is to help in data interpretation.

### 5. Results of the Factor Analysis

The lower left half of the Correlation matrix shown in Figure 1 shows the heat map containing the observed correlation coefficients; those with values higher than 0.3 are bolded and enlarged. The upper right half contains the significance values (1-tailed) of the observed correlation coefficients. Those values that are not significant at the 5% level (Sig.  $\geq$  0.05) are bolded and enlarged. The numerous high correlation coefficients’ values and the fact that the majority of them are significant at a 5% level are both indicators of the observed variables’ factorability.

	CompeValuableInfo	TypographyTypefaces	AvailableWebsite	TimelyRegUpdatedInfo	TimeToFirstByte	AccurCompleteObjInfo	FormatAccessContent	ColorSpectrum	NavigationEasyIntuitive	WorkingLinks	FullPageLoadTime	ImagesVideosGraphics	ResponsiveDesign	StableOptimized	LayoutElements
CompeValuableInfo	1,000	,024	,000	,000	,012	,000	,000	,000	,000	,000	,000	<b>,315</b>	<b>,051</b>	,014	,025
TypographyTypefaces	,119	1,000	,000	,049	,000	,010	<b>,325</b>	,000	,000	,000	,000	,000	,000	,000	,000
AvailableWebsite	,211	<b>,359</b>	1,000	,000	,000	,000	,000	,000	,000	,000	,000	,003	,000	,000	,000
TimelyRegUpdatedInfo	<b>,582</b>	,099	<b>,378</b>	1,000	,000	,000	,000	,002	,000	,000	,000	<b>,361</b>	<b>,129</b>	,001	,008
TimeToFirstByte	,135	<b>,672</b>	<b>,703</b>	,203	1,000	,000	<b>,235</b>	,000	,000	,000	,000	,000	,000	,000	,000
AccurCompleteObjInfo	<b>,792</b>	,139	<b>,347</b>	<b>,787</b>	,247	1,000	,000	,000	,000	,000	,000	<b>,500</b>	,001	,000	,027
FormatAccessContent	<b>,530</b>	,027	,209	<b>,688</b>	,043	<b>,675</b>	1,000	,004	,000	,000	<b>,046</b>	<b>,205</b>	<b>,045</b>	<b>,224</b>	,001
ColorSpectrum	,225	<b>,757</b>	<b>,538</b>	,168	<b>,707</b>	,231	,157	1,000	,000	,000	,000	,000	,000	,000	,000
NavigationEasyIntuitive	<b>,710</b>	<b>,410</b>	<b>,410</b>	<b>,690</b>	<b>,419</b>	<b>,674</b>	<b>,484</b>	<b>,541</b>	1,000	,000	,000	,000	,000	,000	,000
WorkingLinks	<b>,670</b>	,283	<b>,396</b>	<b>,618</b>	<b>,396</b>	<b>,725</b>	<b>,529</b>	<b>,465</b>	<b>,854</b>	1,000	,000	,000	,000	,000	,001
FullPageLoadTime	,223	<b>,576</b>	<b>,725</b>	,243	<b>,743</b>	<b>,318</b>	,101	<b>,710</b>	<b>,585</b>	<b>,575</b>	1,000	,000	,000	,000	,000
ImagesVideosGraphics	,029	<b>,543</b>	,165	,021	<b>,465</b>	,000	,050	<b>,616</b>	<b>,346</b>	,263	<b>,480</b>	1,000	,000	,000	,000
ResponsiveDesign	,098	<b>,753</b>	<b>,442</b>	,068	<b>,579</b>	,194	,102	<b>,816</b>	<b>,368</b>	<b>,330</b>	<b>,635</b>	<b>,567</b>	1,000	,000	,000
StableOptimized	,132	<b>,543</b>	<b>,744</b>	,182	<b>,870</b>	,253	,046	<b>,691</b>	<b>,384</b>	<b>,319</b>	<b>,740</b>	<b>,410</b>	<b>,656</b>	1,000	,000
LayoutElements	<b>-,117</b>	<b>,537</b>	,281	<b>-,143</b>	<b>,469</b>	<b>-,115</b>	<b>-,193</b>	<b>,577</b>	,225	,182	<b>,525</b>	<b>,732</b>	<b>,551</b>	<b>,454</b>	1,000

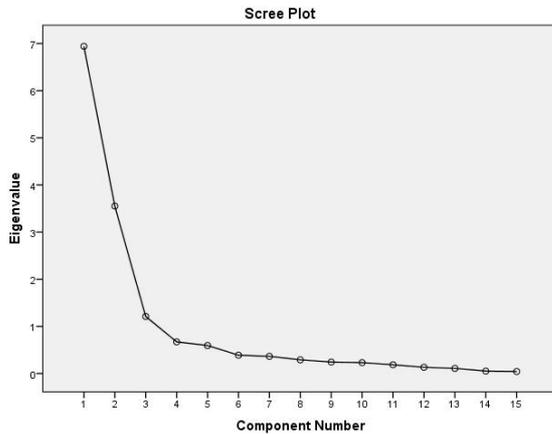
Figure 1: Correlation matrix (Source: Authors’ calculations, SPSS output + Excel)

According to Table 2, the high KMO value (0.761), which is a measure of the amount of variance within the data that could be explained by factors, suggests the existence of factors. The significance of the Bartlett's Test of Sphericity ( $\chi^2 = 4268.180$ ;  $df = 105$ ;  $Sig. = 0.000 < 0.05$ ) also indicates that the data is factorable.

The Scree plot (Figure 2a) shows that the first three components with eigenvalues greater than 1.0 should be extracted and taken into account. The Extraction column of the Communalities table (Figure 2b) shows how much variance in each variable is explained by the FA. The extraction of the components has been carried out using the Principal Component Analysis (PCA) extraction method.

**Table 2:**  
KMO and Bartlett’s Test (Source: Authors’ computations, SPSS output)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,761
	Approx. Chi-Square	4268,180
Bartlett’s Test of Sphericity		df
		105
	Sig.	,000



(a) Scree plot

	Initial	Extraction
CompeValuableInfo	1,000	,727
TypographyTypefaces	1,000	,684
AvailableWebsite	1,000	,855
TimelyRegUpdatedInfo	1,000	,764
TimeToFirstByte	1,000	,842
AccurCompleteObjInfo	1,000	,853
FormatAccessContent	1,000	,626
ColorSpectrum	1,000	,825
NavigationEasyIntuitive	1,000	,837
WorkingLinks	1,000	,787
FullPageLoadTime	1,000	,794
ImagesVideosGraphics	1,000	,784
ResponsiveDesign	1,000	,718
StableOptimized	1,000	,869
LayoutElements	1,000	,737

Extraction Method: Principal Component Analysis.

(b) The Communalities table

Figure 2: Extraction of the components (Source: Authors’ calculations, SPSS output)

The relatively high values of the Extraction communalities in the table shown in Figure 2b indicate that all the observed variables have to be kept in the analysis.

The factor loadings before the rotation is carried out are contained within the Component Matrix table, shown in Figure 3a. In this table, each column representing a specific component shows the loadings of each variable on that specific component. The loading can be thought of as the measure of the correlation between the component and the variable: the larger the value, the more likely it is that the component underlies that variable.

The Rotated Component Matrix table (Figure 3b) shows the factor loadings after the rotation is carried out. The applied rotation method was Varimax with Kaiser Normalization. In this table, the bolded values show the strongest loadings, i.e. those which indicate which variables load most strongly on which factor.

	Component		
	1	2	3
CompeValuableInfo	,476	,692	,149
TypographyTypefaces	,712	(,380)	,181
AvailableWebsite	,709	(,041)	(,591)
TimelyRegUpdatedInfo	,496	,717	(,060)
TimeToFirstByte	,803	(,305)	(,323)
AccurCompleteObjInfo	,566	,730	(,025)
FormatAccessContent	,370	,690	,119
ColorSpectrum	,848	(,302)	,117
NavigationEasyIntuitive	,779	,435	,202
WorkingLinks	,728	,483	,156
FullPageLoadTime	,850	(,198)	(,182)
ImagesVideosGraphics	,579	(,416)	,525
ResponsiveDesign	,746	(,379)	,134
StableOptimized	,781	(,308)	(,406)
LayoutElements	,526	(,590)	,335

Extraction Method: Principal Component Analysis.  
a. 3 components extracted.

(a) The Component Matrix table

	Component		
	1	2	3
CompeValuableInfo	<b>,852</b>	,028	,022
TypographyTypefaces	,087	<b>,728</b>	,382
AvailableWebsite	,234	,072	<b>,891</b>
TimelyRegUpdatedInfo	<b>,847</b>	(,104)	,188
TimeToFirstByte	,109	,429	<b>,804</b>
AccurCompleteObjInfo	<b>,900</b>	(,047)	,201
FormatAccessContent	<b>,789</b>	(,053)	(,019)
ColorSpectrum	,212	<b>,730</b>	,496
NavigationEasyIntuitive	<b>,806</b>	,371	,224
WorkingLinks	<b>,811</b>	,287	,217
FullPageLoadTime	,248	,491	<b>,701</b>
ImagesVideosGraphics	,047	<b>,883</b>	,048
ResponsiveDesign	,097	<b>,718</b>	,439
StableOptimized	,081	,365	<b>,854</b>
LayoutElements	(,158)	<b>,820</b>	,199

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 5 iterations.

(b) The Rotated Component Matrix

Figure 3: Factor loadings and rotated component matrix (Source: Authors’ calculations, SPSS output)

Based on the highest values found within the Rotated Component Matrix (Figure 3b), the distribution of the observed variables across the three extracted components can be specified as shown in Table 3.

**Table 3:**  
Distribution of variables by factors/components (Source: Authors' computations)

Component #1	Component #2	Component #3
CompelValuableInfo TimelyRegUpdatedInfo AccurCompleteObjInfo FormatAccessContent NavigationEasyIntuitive WorkingLinks	TypographyTypefaces ColorSpectrum ImagesVideosGraphics ResponsiveDesign LayoutElements	AvailableWebsite TimeToFirstByte FullPageLoadTime StableOptimized

The results of the FA show that all 15 observed variables are important and distributed by particular components/factors, i.e. none of them is omitted from the analysis.

Component #1 is comprised of six variables. The first four of them are related to the faculty website content issues, and the remaining two are elements of the website's usability. Therefore, it can be concluded that, according to the students, the most valuable aspects of the faculty website quality are its contents and usability features.

Component #2 contains five variables. The first three variables and the last one are belonging to website design issues. Since the fourth variable can be considered an aspect of both website design and website performance, it can be concluded that the students find website design elements the most compelling aspect of the faculty website quality, following the contents and usability features.

Finally, all four variables comprising Component #3 can be recognized as performance issues, which seem to be the fourth most valuable aspect. Put differently, performance issues are the least significant aspects of the overall faculty website quality.

## 6. Conclusions

In the contemporary immensely turbulent and concurrent environment, increasing the quality of organizations' websites becomes of the utmost importance for both organizations' management teams and online visitors. For the management teams, quality websites represent a powerful tool for attracting new online visitors and retaining the existing ones; for the online visitors, quality websites contribute to enriching their online experience and satisfaction.

As per the research conducted in this study, the factor analysis confirmed that all 15 variables coming from four different quality dimensions were significant enough to be kept in the solution, each of them contributing to the three extracted components with a different intensity. Taking into account their highest loading values, it turned out that Component #1 (the most valuable one according to the students) can be identified as faculty website content and usability. Component #2 (second-ranked according to the students) is comprised of variables contributing to the website design. Component #3 (the least valuable one according to the students) refers to faculty website performance. These findings are quite reasonable and expected. The faculty website content and usability are the issues that matter the most, followed by the website's design. The least significant factor is the faculty website performance, which is quite understandable regarding the informative nature of faculty websites. This knowledge can provide a valuable reference for both website and system designers seeking to enhance the faculty website's effectiveness and usefulness. It can also contribute to setting relevant standards and models for maintaining and sustaining the faculty website quality.

As per the limitations of the research, it should be notified that one of the biggest drawbacks of factor analysis is that the obtained solution is not unique: two researchers can find two different sets of factors that can be interpreted quite differently, yet fit the original data equally well. Another important limitation is the fact that many other quality dimensions have not been taken into account.

### **Acknowledgment:**

The authors would like to cordially thank all the students of the Faculty of Economics in Prilep, North Macedonia, who took part in the online survey, thus significantly contributing to the acquisition of data needed for completing this study.

### **References:**

- [1] A. M. Aladwani, P. C. Palvia, Developing and validating an instrument for measuring user-perceived web quality. *Information & Management*, 39(6) (2002) 467–476. doi: 10.1016/S0378-7206(01)00113-6.
- [2] I. F. Aguillo, J. L. Ortega, M. Fernández, Webometric Ranking of World Universities: Introduction, Methodology, and Future Developments, *Higher Education in Europe*, 33(2-3) (2008) 233–244. doi: 10.1080/03797720802254031.
- [3] J. Gordon, S. Berhow, University websites and dialogic features for building relationships with potential students, *Public Relations Review*, 35(2) (2009) 150–152. doi: 10.1016/j.pubrev.2008.11.003.
- [4] H.-F. Lin, An application of fuzzy AHP for evaluating course website quality, *Computers & Education*, 54 (2010) 877–888. doi: 10.1016/j.compedu.2009.09.017.
- [5] D. Stanujkic, R. Jovanovic, Measuring a Quality of Faculty Website using ARAS Method, in: *Proceedings of the International Conference on Contemporary Issues in Business, Management and Education, CIBME '2012*, 2012, pp. 545–554. doi: 10.3846/cibme.2012.45.
- [6] V. S. Carlos, R. G. Rodrigues, Web site quality evaluation in Higher Education Institutions, *Procedia Technology* 5 (2012) 273–282. doi: 10.1016/j.protcy.2012.09.030.
- [7] A. Giannakouloupoulos, N. Konstantinou, D. Koutsompolis, M. Pergantis, I. Varlamis, Academic Excellence, Website Quality, SEO Performance: Is there a Correlation?, *Future Internet* 11, 242 (2019) 1–25. doi:10.3390/fi11110242.
- [8] M. Rashida, K. Islam, A. S. M. Kayes, M. Hammoudeh, M. S. Arefin, M. A. Habib, Towards Developing a Framework to Analyze the Qualities of the University Websites, *Computers* 10, 57 (2021) 1–16. doi: 10.3390/computers10050057.
- [9] A. S. A. Osman, Assessing the Quality of Educational Websites in Sudan using Quality Model Criteria through an Electronic Tool, *International Journal of Advanced Computer Science and Applications*, 13(1) (2022) 329–334. doi: 10.14569/IJACSA.2022.0130141.
- [10] Oxford Learner's Dictionaries, The Definition of "Quality", 2022. URL: [https://www.oxfordlearnersdictionaries.com/definition/english/quality\\_1?q=quality](https://www.oxfordlearnersdictionaries.com/definition/english/quality_1?q=quality).
- [11] Cambridge Dictionary, The Definition of "Quality", 2022. URL: <https://dictionary.cambridge.org/dictionary/english/quality>.
- [12] M. Cohn, What Is Quality?, 2014. URL: <https://www.mountangoatsoftware.com/blog/what-is-quality>.
- [13] W. M. Vagias, Likert-type Scale Response Anchors, 2006. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University. URL: <http://media.clemson.edu/cbshs/prtm/research/resources-for-research-page-2/Vagias-Likert-Type-Scale-Response-Anchors.pdf>
- [14] S. McLeod, Likert Scale Definition, Examples and Analysis, 2019. URL: <https://www.simplypsychology.org/likert-scale.html>
- [15] N. Brace, R. Kemp, R. Snelgar, Chapter 11: Factor analysis, in: *SPSS for Psychologists: A Guide to Data Analysis using SPSS for Windows*, 2nd ed., Palgrave Macmillan, London, UK, 2003, pp. 277–306.
- [16] N. Shrestha, Factor Analysis as a Tool for Survey Analysis, *American Journal of Applied Mathematics and Statistics*, 9(1) (2021), 4–11. doi: 10.12691/ajams-9-1-2.
- [17] D. L. Bandalos, *Measurement Theory and Applications for the Social Sciences*, 1st ed., The Guilford Press, New York, NY, USA, 2018.
- [18] A. G. Yong, S. Pearce, A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis, *Tutorials in Quantitative Methods for Psychology* (2013) 79–94. doi: 10.20982/tqmp.09.2.p079.