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Analysis of the Degree of Implementation of Digitalization in the Educational System through the eQual Method

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ABSTRACT

Globally, change is happening fast, especially in the current conditions of crisis (pandemic, war, economic recession), therefore citizens need to be informed, ready to change jobs, therefore continuous training helps them to overcome obstacles, to be active citizens. These changes determined the managers 'orientation towards the identification of the beneficiaries' needs, the unsatisfied requirements, but also towards the creation of other needs, in the idea of developing a long-term partnership. Initially, the method was called WebQual, later the name was changed to eQUAL. Under this name it has been experimented with for public services provided by electronic means.

1. Introduction

The permanent training of teachers offers all the factors involved in the educational activity opportunities for the development of the young generation according to the changes on the labor market. Empowered employees can participate in decision-making and are able to increase the quality of learning. TQM must be seen as a problem-solving technique, as a toolbox to address immediate problems and challenges.

However, the real benefits of TQM will only be revealed when it is treated in a unitary way, in schools there is a dependency between all members who fight for the quality of educational services and the performance of the institution.

The COVID-19 pandemic has affected education and training systems around the world and the Union, putting unprecedented pressure on them, and has brought major changes to the way we learn, teach, communicate and collaborate in our education and training communities. training and between them. This has had an impact on students, their families, teachers, trainers, institution leaders, and society at large.
Since the outbreak of the pandemic, Member States and education and training institutions have made significant efforts to ensure the safety and well-being of students and staff and to continue learning and teaching in order to maintain the right to education.

As a matter of urgency, most Member States have decided on the extended physical closure of education and training institutions, while rapidly mobilizing alternative options and support for distance learning and teaching, in particular digital solutions. In this respect the functional congruency refers to the match between stakeholders' expectations regarding the implementation of a social responsibility code and their perceptions on how an organization or system is assessed form the social perspective (Cristache et al, 2019).

This change has challenged education and training systems and stakeholders in these areas in the Member States, especially students and their families, as well as teachers and trainers, but has also provided them with valuable learning experience and training. accelerated the further digital transformation of education and training institutions.

In these exceptional circumstances, there has been outstanding collaboration between Member States, which, in a time of crisis, have shown solidarity and mutual support through regular exchanges of information on their expected national situations, challenges, measures and plans, or already implemented, as well as, where possible, through the open sharing of educational resources.

2. Literature review

E-QUAL is a method of evaluating and comparing the quality of websites and electronic services. The method has been developed since 1998 by a group of researchers from the School of Management,

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University of Bath, UK. Initially, the method was called WebQual, later the name was changed to E-QUAL. Under this name it has been experimented with for public services provided by electronic means.

The main authors of the method are S.J. Barnes and R.T. Vidgen who developed and experimented with the concepts of the method in the university environment, and the results of the research conducted were the subject of presentations at international conferences or articles in specialized journals (Barnes and Vidgen, 2002; 2003; 2005a).

The eQual method has been continuously developed and refined, with several versions. The latest version 4.0 ensures the consolidation of the evaluation concepts and procedures from the previous versions, as well as the clarification of the set of criteria (attributes) used to evaluate the quality of the websites.

The method is based on concepts and techniques, such as:

- the concept of quality evaluation from the client's perspective;
- the concept of information quality (from computer systems);
- QFD (Quality Function Deployment) technique;
- principles of human computer interaction (Human Computer Interaction),
- dimensions and attributes of service quality in the SERVQUAL method.

The method has been tested on e-commerce websites (eg online shopping, auctions) in the UK, Australia and New Zealand. The latest version, eQUAL 4.0 has been tested in the field of online public services (Barnes and Vidgen, 2005b)

The method in which the method is designed - structuring by dimensions, criteria, etc., including the evaluation procedure - is similar to that of the SERVQUAL. In fact, the authors of the method state that they were inspired by SERVQUAL and intend to refine and extend the method with the criteria used in SERVQUAL.

The current version of the method incorporates three dimensions of quality, namely: the quality of the information, the quality of the interaction and the ease of use of the site (see Table 1).

Table 1. Quality dimensions and their significance

Quality dimensions	The meaning
Quality of information	The quality of the content of the website: the adequacy of the information for the purpose of the user
Quality of interaction	The quality of the interaction between the user and the website, manifested by trust and active and attentive support with each user.
Ease of use of the site	Features related to site design and ease of use.

3. Subtitle Dimensions quality

Dimensions include those customer-perceived quality characteristics. To these is added a fourth dimension that includes the quality features of the domain to which the website refers.

For each dimension, a set of statements (or criteria) is developed to assess the extent to which that dimension is found on the evaluated website (see Table 2). Depending on the scope of the site, a set of domain-specific criteria is developed.

A level of importance is established for each criterion based on the opinions of a group of users. In the evaluation process using eQUAL, the “user group” is represented by the evaluators of the respective site. For this purpose, the Quality Function Deployment (QFD) technique is used.

Table 2. Quality dimensions and evaluation criteria

Size	Statements (Evaluation criteria)	Eij	Pij	Pij- Eij
Ease of use Q101	1. The site is easy to learn and operate	5	4,26	-0,74
	2. The interface with the site is clear and easy to understand	5	4,25	-0,75
	3. It's easy to navigate the site	5	4,26	-0,74
	4. The site is easy to use	4	4,26	0,26
	5. The site looks attractive	4	4,08	0,08
	6. The design of the site is appropriate to the type of site	4	4,15	0,15
	7. The way the site is created proves a high level of competence	4	4,09	0,09
	8. The site creates a positive user experience	4	4,11	0,11

Size	Statements (Evaluation criteria)	Eij	Pij	Pij- Eij
TOTAL				-1,54
Quality of information Q102	1. Provides accurate information	5	4,25	-0,75
	2. Provides credible information	5	4,33	-0,67
	3. Provides up-to-date information	5	4,26	-0,74
	4. Provide relevant information	4	4,32	0,32
	5. Provides easy-to-understand information	4	4,33	0,33
	6. Provides information at an appropriate level of detail	4	4,27	0,27
	7. Present the information in an appropriate format	4	4,31	0,31
TOTAL				-0,93
Quality of interaction Q103	1. The site has a good reputation	5	4,25	-0,75
	2. It is safe to complete the transaction	5	4,33	-0,67
	3. The customer's personal data is protected	5	4,26	-0,74
	4. Create customization possibilities	3	4,32	1,32
	5. Attention is paid to the community (interests) in the field	4	4,33	0,33
	6. It is easy to communicate with the company that owns the site	4	4,27	0,27
	7. The customer is confident that the goods will be delivered as promised	4	4,31	0,31
TOTAL				-0,07

Users are asked to rate the importance of each criterion using a 5-degree scale. If the user considers that a certain criterion is essential for the quality level of the website, then he gives a maximum grade of 5 (the criterion is "the most important"). If the user considers that a certain criterion is not essential, then he gives the minimum grade 1 (the criterion is "the least important").

In order to collect the data, the questionnaire technique is used. The questionnaires are sent to the evaluators, in electronic or paper format, accompanied by instructions for completing and using the questionnaires, as well as explanatory comments on the significance of the criteria. The evaluator's answers are concretized by giving a grade to each criterion, on a Lickert scale with 5 degrees of intensity. The evaluator must grade all the criteria included in the questionnaire.

If the evaluator perceives that the website meets that criterion, then he gives the maximum grade 5. If the evaluator perceives that the website does not meet that criterion, then he gives the minimum grade.

1. The other grades are intermediate values more or less close to the minimum or maximum values, reflecting the different levels of the evaluator's perception of the quality of the website.

The end result of the evaluation is an index of the quality of the website.

Table 3. Overall (unlighted) quality of service

Nr. crt.	Size	The average value of service quality
Q102	Quality of information	-0,93
Q103	Quality of interaction	0,07
Q101	Ease of use of the site	-1,54
TOTAL		-2,4/5=-0,48

a) determining the quality of service for each dimension

The indicator is calculated as the average deviation between “perceptions” and “expectations” for each dimension of service quality.

$$SQj=\frac{\sum_{i=1}^{nj}(Pij-Eij)}{ni}$$

where:

SQj-quality of service for dimension j, j = 1,..., 5

Pij-perceptions for the statement i of dimension j, i = 1,... 22, j = 1,... 5

Eij-expectations for the statement i of dimension j, i = 1,... 22, j = 1,... 5

nj-the number of statements in size j.

b) calculation of the general (unweighted) quality of the service

The indicator is calculated as the average value of the service quality, without taking into account the weights (levels) of importance assigned by the evaluator

$$SQ=\frac{\sum_{j=1}^{5} SQ}{5}$$

c) calculation of the general (weighted) quality of the service (SQp)

The indicator is calculated taking into account the weights given by the evaluator to each dimension of service quality

$$SQp=\frac{\sum_{j=1}^{5} SQj*Pj}{100} \text{ unde, } \sum_{j=1}^{5} Pj = 1$$

Table 4. Weights of each size

Nr. crt.	Size	Weight (%)
Q102	Quality of information	40
Q103	Quality of interaction	25
Q101	Ease of use of the site	35
TOTAL		100

Table 5. Overall (weighted) quality of service

Nr. crt.	Size	The average value of service quality	Weight (%)	Weighted average value of service quality
Q102	Quality of information	-0,93	40	-0,373
Q103	Quality of interaction	0,07	25	0,0175
Q101	Ease of use of the site	-1,54	35	-0,539
TOTAL				-0,8945/5=-0,1789

Regarding the final result of the evaluation - the "quality of service" indicator expressed as the difference between perceptions and expectations - the interpretation is as follows:

• **negative values show poor quality;**

Globally, there is research into the development of e-QUAL-like methods, including their experimentation and comparative analysis of results (e. g. Bressolles and Nantel, 2004; Iwaarden and van der Wiele, 2003).

4. Conclusions

The application of TQM in schools provides quality assurance of education, improved test scores and increased learning outcomes. The schools that implemented TQM acknowledged that the students were the most important customers and treated them accordingly. The adoption of TQM helped them achieve their goals, the quality of school management and the involvement of all school members. TQM has improved self-satisfaction and self-esteem and allowed schools to better prepare for societal pressures.

However, there are limitations in applying TQM. The main obstacles are associated with the lack of awareness of TQM and the resistance to change of mentality and culture by school management or staff.

In this context, it should be noted that the human dimension of a school system ensures quality, efficient management and quality control in all areas. Thus, students have satisfied needs, aspirations, desires, teachers through the training offered to students achieve their own values and the community gains by streamlining activities.

At present, Romania is still anchored in the educational models of industrial education, which no longer correspond to the present and future realities. The main features of this policy are: anchoring in past orientations, the immobility of the curriculum; a staff policy that does not provide differentiated career paths is not even correlated with the current needs of schools, a policy on students that does not take into account individual characteristics, an outdated training system that ignores world best practices, a Ignorance of education specialists materialized by the paucity or lack of demand for analysis studies, impact and implementation of reform implementation models, lack of education specialists at the level of education units, a non-incentive wage policy for young people and for performance (Gabor M.R. et al, 2021).

On the other hand, only by developing cooperation between the various actors involved, as well as by building partnerships between groups of suppliers and beneficiaries, respectively, can essential information be collected and processed so that it can reach the recipient in the form and time he needs. The required data

sets refer to the types of training, the modalities of accomplishment, the places of development, the costs, the dependencies on the previous or the basic training and the like.

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