Self-assessment of Higher Online Education Programmes

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Abstract: This paper presents a PhD project which purpose is to design a model to be applied in the self-assessment of online education programmes. The starting point of the design is a bibliographical-documental analysis of the elements of online education programmes as well as a specific bibliographical study of the standards, models and tools created in order to evaluate the quality of online education. Based on the results of the said analysis, a model for the self-assessment of higher online education programmes is created, composed of two variables, fourteen dimensions and one hundred eleven indicators. Before creating the definitive model, two drafts were created and subject to the validation by international online education experts and discussed in two discussion groups: one composed of experts in online education and the other one composed of online students. Nevertheless, in order to verify the total utility of the designed model it should be applied in the self-assessment of various online programmes in different countries.

1 RESEARCH PROBLEM

In order to improve the quality of online programmes, persons in charge of implementing the said programmes require, apart from the point of view offered by external assessments, their own point of view regarding the condition of the program, its strengths, weaknesses and improvement opportunities. This approach is made possible through self-assessment, which is the first step of the ongoing improvement process carried out when:

"An academic unit, seeking to create quality control and guarantee mechanisms, collects substantial information regarding the achievement of its objectives and analyses it, based on previously defined criteria and indicators in order to make decisions that will guide its future actions, selecting and proposing improving plans" (CNAP, 2001, p.10).

As a matter of fact, self-assessment provides information regarding the modifications that should be introduced in the learning program in order to improve it. This means that self-assessment should always precede any decision or action to be taken by the university to improve its learning programmes.

Nevertheless, in order for self-assessment to be an useful tool for the review of online programmes and introduction of necessary modifications or improvement actions, it should be conducted according to a model that takes into consideration the specific contexts of the online education, as postulated by Veytia & Chao (2013): "Assessing the traditional and online education requires different parameters and models, that respond to the pedagogical model, upon which they are based on, as well as to its objectives and student admittance and graduation profiles" (p. 12).

However, as shown by practice, the current trend in self-assessing online education programmes, especially when it comes to universities that offer both traditional and virtual education programmes, is to perceive them as a series of activities complementary to traditional education programmes. As a result, the quality of online programmes is assessed in the same manner as traditional education programmes, that is, by using the criteria and indicators designed for assessing the quality of traditional education without applying quality dimensions specifically designed for virtual education (Chmielewski, 2013).

At this point, it is worth noting that accreditation organizations assess and certify online programmes by applying the same models as the ones applied to traditional education programmes, as shown by the results of the research conducted by the Polish National Centre for Supporting Vocational and Continuing Education within the project "Diagnosis of the current situation of distance learning in Poland and other European countries" cofounded by

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the European Union. In the report of the said research we can read, among others:

"*All higher education programmes in European Union receive their accreditation based on the same principles and criteria. This refers both to online and traditional education programmes. The same applies to countries with specific proceedings for the accreditation of higher education online programmes (Germany, Spain and Norway). Even though, each country has its own system for the accreditation and monitoring of the quality of higher education, higher education online programmes are assessed in the same manner as traditional education programmes*". (Chmielewski, 2013, p. 49,)

On the other hand, it is worth mentioning that we can encounter several models developed to assess virtual education, such as those mentioned by Hilera (2010) or Motz (2013). Nevertheless, the said models combine a variety of approaches and, sometimes, respond to contradictory paradigms and, thus, propose divergent dimensions and meanings assigned to these dimensions to assess the quality of virtual education. The indicators proposed by the said models rarely underline the need to assess the quality of the program itself, as well as of its planning, application and impact (ongoing assessment), as postulated by Martínez (2013), who states that:

"*Program evaluation is the systematic collection of information regarding a program in order to meet specific needs, that is focused on 1) the quality of the program itself, its basic elements, structure and coherence; 2) the planning of its putting into action, taking into consideration human, material and organizational resources, 3) the development of the program and 4) the program results in the immediate, medium and long term in order to verify and assess the degree and quality with which the needs have been met and the problems have been solved (Martínez, 2013, p. 197).*

Another equally relevant issue is the scarce literature regarding the self-assessment of higher online education programmes. Neither Spanish, nor English and Polish literature mention the aforementioned self-assessment. We do not encounter results regarding the said self-assessment in any of the searched databases (ERIC, Francis, Eudised, Eurybase and Teseo).

The lack of knowledge of the universities when it comes to the correct self-assessment of higher online education programmes, the lack of models that contribute to the said self-assessment and the lack of detailed bibliography in this area inspired us to conduct our own research.

2 OUTLINE OF OBJECTIVES

The general objective of the thesis is to design and validate a model to be applied by universities in the assessment of online education programmes, which includes assessment of the quality of the program itself, as well as its continuous assessment. This way the model is expected to become an useful tool in order to evaluate and improve all the elements of online education programmes, as well as the three phases of its existence, that is, the initial phase, the development phase and the final phase.

In the context of the general objective, the following specific objective have been formulated:

- In the Area of Bibliography:

- To identify and describe, through bibliographical and documentary revision, all the elements of a higher education online program that define its quality and can constitute the dimensions of a self-assessment model for the said program.
- To characterize the assessment of online programmes.
- To identify and analyse different standards, models and tools developed to assess the quality of online education that can be used in the self-assessment of higher online education programmes.

- In the Area of Empirical Research:

- To design a model applicable to the self-assessment of higher online education programmes, that integrates the assessing of the quality of the program itself, as well as the ongoing assessment of the program.
- To validate the model by different audiences and analytical proceedings.
- To verify the utility of the designed model by applying it in the self-assessment of different online programmes.

- In the Area of the Proposed Own Solution:

- To present the model of self-assessment of higher online education programmes.
- To make different proposals in order to facilitate the implementation of the model.

3 STATE OF THE ART

Currently, there are many models that can be used to assess online programmes. These models can be divided in two groups:

1) Traditional models created to assess traditional education programmes and adapted to assess online education programmes and
2) Models developed with the purpose of assessing online education in general which are used as reference to assess educational online programmes.

As for the models of the first group, among the traditional models recommended by many authors (Bieliukas and Ornes, 2014; Díaz-Maroto, 2009; Ruhne and Zumbo, 2009) for its use in the assessment of online programmes, we encounter: Tyler's Objective Model, Stake´s Respondent Assessment Model, Scriven's Goal-free Assessment Model, Kirkpatrick's Four Level Assessment Model, Stufflebeam's CIPP Model and Pérez Juste's Integrated Assessment Model.

When it comes to the models developed to assess the quality of online education, Rubio (2003) divides them in two types, which, though different, can be complementary:

3.1 Models with a Partial Approach

These models are focused on the following assessments:

a) Models focused on assessing the educational activity

These models are focused on assessing a particular online educational action, such as a course or a programme. The purpose of this assessment is based on three main aspects: verification of the degree of fulfilment of the educational goals, the improvement of the educational action itself and the determination of the return of the investment (Rubio, 2003). The assessment should be applied to all the elements of the educational action. According to García Aretio (2014), among others, it is important to assess the following aspects of the said action: educational goals, contents, activities, documentation and materials, the activity of the online teacher, online methodology, technological environment (virtual platform).

Nevertheless, we encounter models for the assessment of online educational actions which present an approach differing from the one presented by the aforementioned author (OLC, 2002; Rekkedal, 2006; Attwell, 2006; Díaz-Maroto, 2009; Lam & McNaught, 2007; University of Wiscosin, 2008; Giorgetti et al., 2013; Ajmera & Dharamdasani, 2014; Marshall & , Mitchell 2006).

b) Models focused on assessing the materials for online education

These models are focused on determining to what extent the materials have characteristics that are considered desirables and that have been specified based on previously established criteria (Opdenacker et al., 2007; Morales, 2010; Fernández-Pampillón et al., 2013). In general terms, these models indicate different contextual dimensions that should be taken into consideration when it comes to assessing or designing teaching materials for online education programmes. Among other dimensions, we would like to highlight: the suitability in terms of the receivers of the programme, the coherence of the curriculum, the pedagogical and graphic design, the quality of the contents, the suitability of the learning activities, the facility of use, the style and language used and the flexibility and efficiency.

c) Models focused on assessing virtual platforms

These models are focused on assessing the quality of the virtual platform used in the implementation of the online programme (ISO/IEC 9126:2000; Zaharias & Poylymenakou, 2009; Giannakos, 2010; Al-Ajlan, 2012; Abdulaziz et al., 2014). A more detailed analysis of the models proposed by the aforementioned authors shows that, in general terms, the assessment of a virtual platform is carried out by analyzing different dimensions of its quality, such as, administrative tools, tools for the course management by users, synchronous and asynchronous communication tools, assessment, monitoring and self-assessment tools and compliance with standards.

3.2 Models with a Global Approach

These models includes two kind of models:

a) Models and/or standards of total quality.

These systems include standards, ISO norms and assessment models of TQM (Total Quality Management). Currently, work is carried out in order to introduce TQM in online education. García Aretio (2014) states that a large share of the quality proposals and quality models for online education is based on the TQM model, as they are focused, mainly, on customer satisfaction. The customer satisfaction, in turn, depends on the continuous improvement, measurements and utmost attention to processes, teamwork and individual responsibility. Regarding this point, apart from the existing ISO norms and quality standards (ISO/IEC 19796-1:2005, CWA 15660:2007, CWA 15661:2007, UNIQUe, EFMD CEL, UNE 66181:2012, PAS 1032-1, BP Z 76-001, BCTD Quality Mark, ICT

Mark Standard, NADE's Quality Standards for Distance Education), we can highlight the model designed by the European Foundation for Quality Management (EFQM) and the Balanced Scorecard Model, as confirmed by Ehlers (2012). This author states that more than 600 models used across Europe were encountered within the project titled "European Quality Observatory carried out in 2005. The most widely used were the following: ISO norms, EFQM model, Balanced Scorecard Model and the SCORM standard.

b) Models based on benchmarking practice.

The purpose of these assessment models is to identify the key factors that lead online programmes to success. Recently, we can observe that the relevance of benchmarking in online education is rapidly growing, as confirmed by various authors (Devedžić et al., 2011; Keppell et al., 2011; Op de Beeck et al., 2012; Marciniak, 2015, 2017) and different benchmarking projects, such as BENVIC, CHIRON, ELTI, ACODE, MASSIVE, MIT90s, PICK&MIX, OBHE, OpenECB, eMM, E-xcellence+, SEVAQ+ and others. Among these projects we encounter the BENVIC project (Benchmarking of Virtual Campus) focused on the development and application of assessment criteria in order to promote quality standards in online education in particular and distance learning in general. The main areas or dimensions of online education taken into consideration are: institutional basis and mission when it comes to student service, learning resources, teacher support, assessment, accessibility, effectiveness (related to the financial aspects), technological resources and institutional execution.

Each of the aforementioned models seeks to assist universities to improve the quality of their online education. Nevertheless, these models do present certain limitations, as great majority of them do not duly focus on the assessment of the educational programmes which the education is based on. The dimensions and indicators proposed by these models rarely respond to the need of assessing the pedagogical-didactic and technological elements of the programme, as well as its planning, application and results. To fill this void, the project will propose an integrated model that allows to assess in a complex manner all of the aforementioned elements of the programme, while also allowing to carry out its ongoing assessment.

4 METHODOLOGY

According to Hernández et al. (1991), a research can include different types of study methods at the various stages of its development. Accordingly, in this research we encounter:

4.1 In the Area of Bibliography

- Bibliographical and documentary analysis of online higher education and higher online education programmes. The main emphasis is set on the elements that compose the said programmes, as well as on the assessment of their quality.
- Documentary study regarding different initiatives designed worldwide to assess the quality of online education in order to identify which of them provide indications and suggestions regarding the process of self-assessment of higher online education programmes. The said initiatives are: standards, models and tools designed by researchers, universities and accreditation organizations.

4.2 In the Area of Empirical Research

- Validation of the model by international expert judgment.
  - Quantitative validity of the model by calculating the facial validity index, the contents validity index and the interjudge reliability index for all the indicators composing the model.
  - The qualitative validation of the model.
  - Discussion group.
  - Data triangulation.
  - Pilot application of the model.

5 OUTCOMES

5.1 In the Area of Bibliography

The bibliographical revision shows that online modality requires the educational program to be composed of all the relevant pedagogical and technological elements such as: program justification, program objectives, student profile, thematic contents, online teacher profile, learning activities, teaching resources and materials, teaching strategies, learning assessment strategies, tutoring and virtual classroom. These elements describe the

quality of online programme itself, and for this reason should be assessed constantly in order to improve it.

The results of the bibliographical analysis regarding assessment of the quality of online programmes show that, apart from the elements of the programme, the assessment of online programmes should include the assessment of all the stages the programme goes through during its existence, that is, of its initial, development and final stage. The purpose is to review what have been planned, organized and prepared in order to know whether the programme can be launched, as well as how the programme has been developed and, finally, whether the objectives of the programme have been reached (measuring of the effects).

The results of the analysis of the scope of the standards, rules and instructions for the self-assessment of online programmes show that, even though we encounter different standards applied to virtual education, none of them has is focused on the self-assessment of online higher education programmes.

Once the main part of the existing guides and tools to assess and improve online education has been analysed, we can conclude that there is a limited number of tools for the self-assessment of this kind of education. This scarcity of literature appears both at a national and international level. Moreover, it can be concluded that there is no tool that allows to assess both the quality of the programme itself, as well as of each of the stages of its existence (initial, development and final stage).

Different models seek to provide a response to the issue of the assessment of the quality of virtual higher education programmes. Some of them have been adapted from models applied to traditional education, while others developed with the purpose of assessing virtual higher education programmes. Nevertheless, so far none of the said models manages to satisfy on its own all the educational needs of the said programmes. Among these needs, we encounter the need for the application of different dimensions and indicators allowing the persons in charge of the programme and/or the universities to measure the quality of the programme itself and of each of the three stages of its existence (initial, development and final stage) in order to verify the degree and the quality with which the programme has been planned and implemented, as well as to evaluate the results of the programme, according to the set goals.

5.2 In the Area of Empirical Research

The documentary and bibliographical revision has made it possible to determine the variables of the first draft of our model and its dimensions, as well as to determine its operative definitions presented in table 1.

Table 1: Operative definitions of the dimensions o the model for the self-assessment of higher education online programmes.

Variable 1: The assessment of the quality of the online education program itself	
Dimension	Operative definition
Online Program Justification	It determines the reason for the existence of the online program, by making reference to why the student should participate in the program.
Online program objectives	It describes the objectives that are aimed to be reached through the online program.
Access and graduation profile	Access profile should be understood as a set of knowledge, skills and attitudes that the person willing to take part in the program should possess in order to complete it in the most successful way possible. Graduation profile defines the skills that the student should develop and acquire thanks to participating in the program.
Thematic contents of the online program	It presents the themes and topics that constitute the program in order for the student to address, in general terms, the issue presented by the virtual program.
Learning activities	It refers to the different tasks through which the teacher applies teaching methods, strategies and techniques in order to facilitate the learning process.
Online teacher profile	A set of particular features that characterize the person who teaches the virtual program.
Educational resources	Any resource that provides the students with all the necessary information in order to carry out the learning activities, as well as the resources used by the teacher in the teaching process.
Educational strategies	Strategies and technologies used by the online teacher in order to support the teaching-learning processes.
Tutoring	Coaching process during the learning process carried out by the online teacher through individual attention.
Assessment of learning	Procedures related to how or whether the university assesses the student's learning experience.
Quality of the virtual classroom	Technological tools that work as a support for virtual education, that is, a software that allows educational contents to be distributed and to carry out online educational programmes.

Table 1: Operative definitions of the dimensions o the model for the self-assessment of higher education online programmes (Cont.).

Variable 2: Ongoing assessment of the online program	
Dimension	Operative definition
Initial assessment of the programme	It allows to verify what has been planned, organized and prepared in order to know whether the programme can be launched. The assessment of this stage should be carried out one week before the planned start of the programme online.
Processual Assessment of the Online Programme	The second stage of the programme. It allows to verify how the programme has been developed. The assessment of this stage should be carried out in the medium stage of its realization.
Final assessment of the online programme	The last stage of the programme. It allows to verify, among others, whether the educational objectives have been achieved. The assessment of this stage should be carried out immediately after the completion of the online programme.

The first draft of the model was validated by 23 international experts, who validated the model when it comes to its univocality, suitability and relevance of each of the indicators composing the model, as well as the suitability of the calculation formula of the indicator and the relevance of the evidence required to assess the degree of its fulfilment.

Based on the results of the said validations, the quantitative and qualitative validity of the model was verified. The quantitative validity was verified by calculating the facial validity index, the contents validity index and the interjudge reliability index for all the indicators composing the model. The qualitative validation of the model was verified by collecting all the comments made by the experts to justify their answers, as well as their suggestions for the improvement of the model.

In general terms, the results of the quantitative validity show that the model is a tool with good psychometric properties, that is, that it is valid and reliable when it comes to the assessment of the quality of online programmes, given that E:

- Its facial validity with experts is high with an acceptability index of 0.91;
- The validity of the contents of the model based on the Lawshed Method modified by Tristán shows that, in general, the indicators are typical of theoretical domain as their Global Validity Index is of 0.92.
- The reliability determined by the Kappa de Fleiss (k) index shows a global index of k=0,73, which shows a good concordance among the experts, according to the Altman classification, under the five criteria assessed by them.

The results of the qualitative validation of the model carried out by a group of experts show that all the proposed indicators were assessed as univocal or appropriate to the dimensions under which they were included and relevant to assess higher education online programmes, with the exception of the indicator "Variety of Teaching Materials and Resources" which, according to the experts, does not affect the quality of the assessed programme.

As for the assessment criteria "Suitability of the calculation formula", even though all the formula were considered appropriate by the experts, according to their comments, some of them should be modified in order to improve them. According to the said comments, the required evidences for some of the indicators should be reformulated, even though all of them were considered relevant or highly relevant.

Once the qualitative validation was completed, the results were triangulated with the results of the quantitative validation and specialized literature, which allowed us to make decisions regarding the maintenance, modification or removal of an indicator and, as a result, to create the provisional model II (second draft) for the self-assessment of higher education e-learning programmes. According to the results of the carried out triangulation, the number of indicators was reduced to a total of 118 (two indicators less than the total number of indicators of the provisional model I).

The second draft of the model was validated by two discussion groups: one composed by seven experts from the Universidad Virtual de la Universidad de Guadalajara (México), and another one composed by five Spanish users (students) of online education. The validation carried out by the persons participating in the two discussion groups has allowed us to adjust and improve the model according to the comments made by them. These comments, which were incorporated in the model, were applied to draft the definitive model for the self-assessment of higher online education programmes are presented in Table 2.

Table 2: The structure of the definitive Model for the Self-assessment of Higher Online Education Programmes.

Variable 1: The assessment of the quality of the online education program itself	
Dimensions and sub-dimensions	Nr of indicators
1. Justification of the online programme	3
2. Educational objectives of the online programme	5

Table 2: The structure of the definitive Model for the Self-assessment of Higher Online Education Programmes (Cont.).

Variable 1: The assessment of the quality of the online education program itself	
Dimensions and sub-dimensions	Nr of indicators
3. Student profile	7
3.1. Access profile	3
3.2. Graduation profile	4
4. Thematic contents/Syllabus of the online programme	5
5. Learning activities	8
6. Online teacher profile	3
7. Teaching materials and resources	38
7.1. Teaching unit	23
7.1.1. Name of the teaching unit	2
7.1.2. Index of the teaching unit	2
7.1.3. Introduction to the teaching unit	3
7.1.4. Educational objectives of the teaching unit	2
7.1.5. Development of the contents of the teaching unit	7
7.1.6. Bibliography of the teaching unit	3
7.1.7. Other elements of the learning support	4
7.2: Teaching Guide	11
7.3: Other teaching materials and resources	4
8. Teaching strategies	3
9. Tutoring	7
10. Assessment of the learning progress	4
11. Quality of the virtual classroom of the programme	9
Variable 2: Ongoing assessment of the online programme	
12. Assessment of the initial stage of the programme	4
13. Assessment of the development stage of the programme	7
14. Assessment of the final stage of the programme	8
Total indicators	111

6 STAGE OF THE RESEARCH

The definitive model for self-assessment of higher online education programmes was designed. It was validated by different audiences and analytical proceedings. It was also applied in the self-assessment of four online programmes. However, it is still necessary to carry out the following activities in order to increase the utility of the model and facilitate its implementation at the universities in different countries:

- To apply the model to a selected sample of online education programmes offered by universities in different countries in order to identify their stable elements and the elements that can be adjusted to the specific context of each university.
- To design a "Guide" for the correct understanding and use of the model by the persons interested in its use. The "Guide" should include the self-assessment methodology, the vocabulary and various illustrative annexes of the self-assessment process.
- To design and apply the online self-assessment protocol which would facilitate the said process.
- To design and validate a questionnaire in order to obtain knowledge regarding the students' satisfaction with the online program in its processual and final stages.

7 CONCLUSIONS

It is too early to make final conclusions. It is necessary to complete the planned research, but the pilot application of the model in the self-assessment of four virtual programmes allowed to verify its potential while assessing the quality of the said programmes through the detection of their strengths and weaknesses in order to design an action plan for their improvement.

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