DESIGN OF A PROPOSAL FOR EVALUATION OF OPEN EDUCATIONAL RESOURCES IN VIRTUAL COMMUNITIES

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Abstract

In recent years with the impact of Information and Communication Technologies (ICT) in universities, technological platforms are developed to guarantee the availability of a large volume of open educational resources. However, this does not guarantee the selection of materials for its use in virtual communities. The given need to provide quality in educational open resources, leads to an establishment of set of indicators for the evaluation of open textbooks for its use in virtual communities to support the teaching activity of these technological environments. The aim of this paper it is to establish quality indicators and design corubrics to evaluate open textbooks, in order to propose improved materials based on the feedback resulting from this evaluation.

Keywords: Open Educational Resources, Virtual Communities, Corubrics, Open Textbooks.

1 INTRODUCTION

Open educational resources (OER) are defined by Atkins, Brown & Hammond [1] as teaching, learning and research resources based on the public domain or have been released under an intellectual property license that allows their free or reused use others. These materials include complete courses, course materials, modulus, textbooks, streaming videos, tests, software and any other tools, materials or techniques to support the access to knowledge.

According to Johnstone [2] the open educational resources can be:

- Learning resources: complete courses, content modulus, learning objects, evaluation tools, virtual communities, etc.
- Resources to support teachers: tools for teachers, aid materials to enable them to create, adapt and use OER.
- Resources to ensure the quality of education and educational practices.

From the review of the literature, the characteristics of these materials leads to the promotion of extraordinary opportunities. Students will involve with professors in editing, reviewing, improving and managing the OERs [3]. According with the content quality, pedagogical components and the technological support materials can be used for a greater or lesser extent in the educational communities. Raposo-Rivas & Gallego-Arrufat [4], “demand open educational resources of quality, that can be freely used and adapted to the diversity of circumstances and needs of students”.

On the other hand, virtual communities rely on a computer-mediated communication (CMC), where ICTs are the support for interaction between members around a common purpose or goal and where the evaluation of the quality of the REA is an important action to take in these communities. Rheingold [5] defines virtual communities as “... social aggregations that emerge from the network when a number of people engaged in public discussions for a long time, involving human feelings to form networks of personal relationships in cyberspace”. Although the term is not accurate or consensual, Rheingold [6] presents certain characteristics that identify them; a) they are organized around affinities and encompass people who do not know each other before the online encounter; b) a wide variety of resources are shared and used; c) communication is developed based on technologies, using both the text and the communication based on graphics and, d) this communication occurs in a regular way. In any case, for Sinclair, Joy, Yau & Hagan [7] the basic difficulties in these contexts focus on the limitations of the current mechanisms for the search for quality OER, from the increase of these materials [8].

It is not just a matter of developing rubrics and corubrics to help guide the evaluation of the quality of OER. Studies made by Yuan & Recker [9] on 14 of these instruments reveal the widespread lack of
scales, scoring guides, empirical evidence and interactive reviews of many of these rubrics. The previous showed problems of reliability and validity affecting general usability and educational utility.

The aim of this work is double: on one hand, to analyse the demand of potential users of REA and, on the other hand, to propose a corubric for the evaluation of open textbooks (LTAs), which can be used in a virtual community. These are illustrated into two specific objectives:

− To review recent literature on quality evaluation of open educational resources.
− To design a corubric to evaluate the quality of open textbooks in virtual communities.

Moreover, the achievement of the above objectives will contribute to improve the selection and use of open textbooks by teachers in virtual communities and will allow the evaluation of these materials by teachers and students as users of the community.

2 METHODOLOGY

In this paper a review of literature on the evaluation of open educational resources and the instruments for their evaluation were done. We searched WOS, SCOPUS and Google Scholar. The following descriptors were used: open educational resources, evaluation, quality, rubrics and corubrics. In addition, advanced searches were carried out for the review study published in the last five years and authors of great experience in the subject of quality in virtual environments were identified. The work is structured in three parts:

− Study on the evaluation of the quality of open educational resources.
− Design of a proposal to evaluate the quality of open textbooks in virtual communities.
− Weighting of the corubric to evaluate the quality of open textbooks in virtual communities.

3 RESULTS

3.1 Study on the evaluation of the quality of open educational resources

The review of the literature reveals the absence of a standardized quality model for OER. It is common for each organization to define how it evaluates the quality of its resources. This lack of standardization in the evaluation makes it difficult to select these materials adequately, which in some cases may lead to their use in inappropriate contexts, thus reducing quality and effectiveness in teaching-learning processes [10].

Overall, quality in OER is usually addressed from a product and development perspective [11]. In this way, from a product perspective, quality can be measured directly or indirectly through a set of characteristics related to the content of the REA. The quality of content is taken into account in the LORI (Learning Object Review Instrument) [12] and those who have followed it [13]. In this sense, it is reviewed if the material does not have typography and writing mistakes, the statements of the content are based on evidences or logical arguments, the sources used are mentioned, it is elaborated of collaborative form, they appear tables, graphs, images, video, Slides, etc., sources are cited, and the information emphasizes the key points and the most significant ideas with an appropriate level of detail. The formation of values in the use of didactic strategies, such as cooperation, solidarity, tolerance, equality and the content of metadata, is appreciated. At the same time, it can be observed that a great number of researches have the tendency to establish pedagogical and technological dimensions to define quality indicators. These two dimensions are observed indistinctly in the models studied:

• Reeves [14] points out fourteen pedagogical dimensions based on learning theories and concepts.
• LORI [12] and MERLOT [13] provide a list with the ranking of evaluated objects.

The pedagogical dimension in the previous models takes into account the role of the teacher in the management of OER, including: correspondence with learning objectives, didactic value, characteristics of students, design, presentation, motivation and, Usability among others.

Sanz, Dodero & Sánchez [15], analyse the relationships between the different quality indicators available to verify that there are numerous correlations between them and propose a measure of relevance that integrates all existing quality indicators. This will use the explicit evaluations made by
users or experts, the descriptive information from the metadata and the data that comes from the use of these, to increase the reliability of the recommendations by integrating different perspectives of quality.

The rubrics used in this instrument are the result of an adaptation based on evaluation criteria of the instrument [12], which has been tested to evaluate learning objects in other Web-based systems.

The Achieve organization [16] developed the Open Educational Resources Object Assessment (RIB) in 2011 and the EQuIP rubric in 2014, which provides extensive training materials for users of these two rubrics and can be applied to through of objects.

The EQuIP rubric requested teachers to submit teaching resources for evaluation using the rubric designed by providing feedback with the use of this.

The Achieve organization provides training materials in PDF, PowerPoint and video format for the OER and EQuIP headings. Also it presents a manual where it specifies the steps to use the rubric.

Headings for the evaluation of OER quality are not always developed. In the study by Yuan & Recker [9], they point out that Achieve [16], EQuIP de Achieve (2014) and LORI de Nesbit et al. [12], provide detailed scoring guides. These scoring guides list the steps for carrying out the assessment, identify different requirements, and provide examples to help users provide more accurate ratings.

This review highlights in particular: a) the need to take into account in some pedagogical guidelines the alignment with established quality standards; b) identification of appropriate students; c) the involvement of students in the evaluation process; d) the selection of rubrics whose content, development processes and application contexts are more aligned with the purpose of their evaluation; e) the future development of the rubrics, clarifying what is common and what is missing in the existing rubrics; f) interactive review of the headings; g) development of a rating scale, scoring guide and other training material.

However, according to Ehlers [17], there is no reference to the competence to apply the quality rubrics with a certain intention. This is covered through the dimension of the quality experience. This author tells us that dimension describes the ability to use quality strategies with a certain intention. It is based on the experiences that the actors have with the development of the quality and in the application of measures and strategies of quality to the educational scenarios. The dimension of the quality experience for this author can be distinguished from the dimension of instrumental knowledge. It refers not only to pure application of quality rubrics, but also covers analysis of feedback and initiation of improvement processes. This means that in addition to knowledge about the use of quality rubrics, this dimension also has an intention and a goal with it.

For Ehlers [17], quality experience refers to the ability to use existing quality strategies (eg, guidance and consulting concepts) to generate data on educational processes in order to improve them. Answer questions such as: How can I use quality strategies in a certain way to improve the educational process?

3.2 Design of a corubric proposal to evaluate the quality of open textbooks in virtual communities

In this paper a corubric is elaborated contextualized to the virtual environment where open textbooks predominate. The corubric, based on the establishment of pedagogical and technological dimensions, provides 12 quality indicators to evaluate open textbooks in virtual communities: content quality, correspondence with the learning objectives of the disciplines, didactic value, characteristics of the students, design and presentation, motivation, granularity, interactivity, accessibility, usability and reusability; with a total of 32 attributes. Each of the quality indicators are approved.

1 The quality of the content has 8 indicators:
   o The content is updated
   o The content includes references to sources of information respecting intellectual property rights
   o The sources used in graphs, tables, text of the resource, etc. are cited.
   o The content was collaboratively prepared (check if it was written by a collective of authors)
   o The text is readable and clearly written
   o Animations or videos include storytelling
- The colours, music, and design are aesthetic and do not interfere with the objectives proposed in the resource
- Integration or combination of various symbol systems

2 The correspondence with the learning objectives of the disciplines has 5 indicators:
- It is useful to generate learning with respect to the subject it addresses and to whom it is addressed
- It is Define the learning objectives
- Define the skills or competences to be developed
- There is a relationship between the objectives, the knowledge system, the skills and competences to be developed and the target audience
- They form values in the students

3 The didactic value has 5 indicators:
- The resource encourages independent work and research
- The resource encourages evaluation, self-evaluation and the value of learn
- The resource encourages evaluation, self-assessment and assessment of learning
- The resource provides learning strategies (including questions, problems and exercises that allow self-control of the study)
- Stimulates cognitive independence
- Stimulates collaborative work

4 The characteristics of the students have 1 indicator:
- If the resource takes into account the needs of the student

5 Motivation has three indicators:
- The resource has the capacity to motivate and generate interest in the subject that is presented (offers a representation of its contents based on the professional performance of the students)
- The resource maintains a simulated and permanent dialogue with the receiver (requires active student participation with attractive, interesting and contextualized approaches)
- The resource allows the retention of information more actively of the concepts and phenomena studied

6 The granularity has 1 indicator:
- Designed in blocks for generating new knowledge

7 Interactivity has two indicators:
- Allows the student to consider multiple perspectives in addressing certain issues and solving problems
- It has computer tools that enable navigation and active participation of the student with the resource

8 Usability has four indicators:
- The resource has a registration or metadata
- Ease of navigation of the contents presented in the resource
- Ease of use and installation
- Suits response time, portability, reliable performance and robustness

9 Reusability has 2 indicators:
- Can be used in different educational contexts and purposes, being able to adapt and combine within new training sequences
- Open licenses for the proper use of ethics in the use of the digital educational resource

10 Interoperability has 1 indicator:
3.3 Weighting of the corubric to evaluate the quality of books of open texts in virtual communities

The corubric has a value of 100%. Each of the 10 indicators is given a value depending on the importance of the indicator within the heading, whose total must be equal to 100.

The same occurs with each of the compliance attributes. Each of them is given a value depending on the importance of the attribute within the indicator. The total must be equal to the value of each indicator separately and whose total must be equal to 100.

- Each attribute is evaluated by a rating represented by YES, NO and NA (Not Approved).
- If YES is chosen, it is because the attribute is widely fulfilled and is “APPROVED”.
- If NO is selected, it is because the attribute is not visible or absent; so “REQUIRES CORRECTIONS AND A NEW EVALUATION”.
- If NA is chosen, it is because the attribute does not correspond to the type of material being evaluated and is not considered; so “DOES NOT APPROVE”.
- If all attributes have a YES is approved.
- If the majority have an YES that requires corrections.
- If the minority has a NO, then it is not approved.

After the use of the corubrics by the users (teachers and students) to evaluate the quality of the OER, the analysis of the feedback begins. Qualitative and quantitative analyses can be carried out through the corubrics. Depending on attributes values, you can make correlations between the value of the latter and the weight that has this in the indicator. The instrument allows comments to be made on each attribute, which will contribute to the collection of information in the qualitative analysis.

With this corubrics it is intended the following:

- Acquisition of digital competences with the use of these instruments by users / evaluators
- Analysis of the results of the quantitative and qualitative study.
- Obtaining improvement proposals

4 CONCLUSIONS

In the present work a study was carried out on the evaluation of the quality of open educational resources, with the objective of establishing the dimensions and indicators necessary to evaluate open textbooks in virtual communities. The study showed the lack of standardization of the models and the need to take into account in the evaluation process the dimension of the quality experience, which describes the ability to use quality strategies with a certain intention. It is not only taken into consideration the idea of evaluating the process of quality rubrics, but the analysis of feedback and the beginning of improvement processes. This means that, in addition to knowledge about the use of quality rubrics, actions should be taken to lead to the improvement of OERs, in order to support the teaching activity in any learning environment, once the model is clear Evaluation.

Content quality, pedagogical and technological dimension are necessary dimensions for evaluating open textbooks in virtual communities. The design of corubrics is a way to evaluate the quality of these materials.

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