Technologies to support methodological and management processes of video posters and/or video papers on technical-scientific events

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ABSTRACT: This work aims to deal with the need for renewal of the formats related to scientific conference products, scientific technical sessions and the pursuit of awareness of researchers on the importance of socialization of scientific knowledge. As well as improve the quality and depth of acquired knowledge not only for those who produce, but also for the participants. In this sense, the goal is to show and discuss methodological and management processes of video posters and/or video papers in technical and scientific events. Methodological actions begin by using different technologies that give support in the evaluation process (CoRubric) of the videos proposed by the participants. Next, it is followed by the use of Open Video Annotation (OVA) to be able to view, annotate and reply to the video of participants before, during and after the event. It is expected from the use of technologies to improve and contribute to the sustainability of knowledge by giving new ideas of the changes in audiovisual building processes and information products applied to scientific conferences.

Keywords *Video Poster, Video Paper, Evaluation, Video Annotation, Sustainability*

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1. INTRODUCTION

The new technologies has changed the way to build, validate, share and see the scientific content by the use of videos, 3D models, augmented reality... It is observed the necessity of renew the reality of new scientific generation and the technology contexts. The video has been used in the education practicum since long time ago. The pre-service teacher watched their own mistake during its practise and can improve the learning-teaching processes in their classes. But it is unusual to see a scientific product shown in a conference by a video.

In this work, we discuss a new method of sharing a scientific product in order to motivate, spread, collaborate and improve easily the visualization of researching that is made by the scientific community. We encourage the using of the video poster to spread the scientific content. This is a new way to share in a short video the essential research information that is enough to understand the research (objectives, methodology, results...). The first experiment that used the video poster as a way to communicate in a conference was made by the conference "Encontro Latino Americano de Edificações e Comunidades Sustentáveis" – ELECS2013 –. This conference was located in Curitiba, Brasil. Freitas, Schmid e Tavares (2014) said the meaning of a video poster is "A video of a work with possibilities of capture and store audio, static images or in movement that are translated in a easy language of scientific results of a research". The rules to film this video was to have as most 3 minutes using sentences and a easy language to be understandable and reused as an open and educational resource. The video had changed the format of a presentation in a conference in order to increase the time of the discussion after the visualization. The sessions were moderated by researches that highlight the new discovered things in a specific area of knowledge that is updated so far., to prospect the knowledge gaps yet to be filled in the field of science on the perspective of sustainability. To stimulate debate, the digital team, released and published proceedings of the previous events for the community knew what had already been discussed on the topic in the congress.

Every innovation has its price! There were 150 video posters and a lot of work for a small team. It was necessary to organize a session (abstract or full article), set the metadata for video retrieval, as well as the necessary infrastructure for the storage and presentation. After the three years of ELECS2013, the result is seen by the increasing number of channel access on YouTube® (all videos are subtitled in English and Spanish). The proposal provides an opportunity to create strategies for the digital marketing that has published the results of research and expanded the visibility of the groups and institutions which are linked research (FREITAS et al., 2015).

Against the backdrop, the objective of the research is to systematize the scientific video evaluation with rubrics to eliminate subjectivity and discuss a methodology of peer collaborative work by the use of CoRubric that allow annotating the scientific video poster evaluation. After the validation of the rubric for the new conference we want to give the participants the chance to use Open Video Annotation - OVA - to analyze every video poster and share their opinions.

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2. THE VIDEO POSTER

The scientific video (poster and/or paper) is a multimodal text that is produced by teachers and students. The documents generate the sequence of didactic teaching-learning process (KRUMSVIK and Smith, 2009). As a manufactured product, the video serves as a means to illustrate a set of events. So, when working with videos, the scientifics and the people in the conference are placed in a situation where they are active actors in relation the presentation content in various aspects such as the video recording, the selection of a content stream, motivating your choices and commenting on what is done by collaboration, projection and spread process of the information. Thus, a video (poster and/or paper) is a resource for documentation, potentially producing a reflective perspective on the scientific research process of a particular content; where scientific community are involved with something that is of interest in the sustainable flow of the preserving and spreading of the knowledge.

2.1 CoRubric - corubric.com

On the Internet there are different tools that allow building online rubrics quickly and freeing as RubricStar, others that generate checklists to use evaluation templates as a rubric such as PBL Checklist. However, others specialize in self-evaluation and peer evaluation as SPARK. In addition, we can find plugins that integrate rubrics in educational platforms as Moodle virtual-EvalCOMIX (Saiz, 2011). However, we present and use CoRubric as a tool that besides being free and have all these advantages, born from the experience of a group of educators and various projects R & D + i [EDU2010-15432 and EDU2013-41952-P].

CoRubric is the evolution of the previous eRubric (https://gteavirutal.org/rubric) tool that it had been improved thanks to a usability and satisfaction survey (Serrano-Angulo & Cebrián-Robles, 2014). This tool was created in the [EDU2013-41952-P] project, which is creating a repository of items which are intended to facilitate understanding of secondary teachers and future teachers. This tool is born of the teaching need and concerns that have been collected over the years and is constantly changing due to the contribution of suggestions for improvements not only usability but also functionality. However, it fits to the video poster idea because has the chance to evaluate object.

Among the advantages that differentiate the tool of others on the web is highlighted the flexibility to allow the use of not only rubric square format. Breaking the squaring of the classic rubrics, it facilitates and improves the design and it is possible to define different levels of achievement for different competencies, indicators or evidence, thereby giving more realism, sense and ease when constructing rubrics and apply (Cebrian-de-la-Serna & Monedero-Moya, 2014).

One of the drawbacks with the rubrics is that they are an instrument to evaluate everyone equally when it would have to see the progress and dealing with diversity, not only in education but also in an industrial process, in a paper presented or object. In CoRubric it is possible to make evaluations in time to allow tracking how the object is being evaluated in the process, and thus do evaluations not only to people but also to objects defined in the member's area of the tool.

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Like other tools allows peer evaluations, self-evaluations, anonymous, group evaluations, all through a system of roles. Combining the role of evaluator and evaluated can work the online rubric as a peer evaluation, self-evaluation, or the classical evaluation in one direction. It also has the administrator role that allows giving a set of privileges to individual users in the member area. Finally, these results can be exported to spreadsheet format to be processed later. With this, we can also export the annotations generated in the tool and serve as feedback to the evaluator and evaluated. For the conference, we can analyze all the video poster content to have a decision whether to approve or not the video by the exportation of the peer evaluation results.

As conclusion, CoRubric is used for evaluating the video poster because it allows placing each video within a rubric as assessable objects. A set of experts can simultaneously evaluate a video and comment between them to further enrich the evaluation to be done before being accepted for presentation at a conference.

In the end, it is possible to know the average of peer evaluations with their annotations/comments made by experts that allow deciding whether accept, improve or refuse the work presented in the video poster from two points of view, more technical view content and format and a more scientific view.

2.2 Open Video Annotation – https://gteavirtual.org/ova

There are few tools that allow annotations online video and we decided to use a tool made by the team named Open Video Annotation - OVA. It allows freely and explicitly make embedded annotations within the video and comment on these annotations, allowing enrich among the scientific community and the congress assistants and make questions and argue the different researches not only by experts from the different themes but also by attendees of the conference, see Figure 1 knowledge.

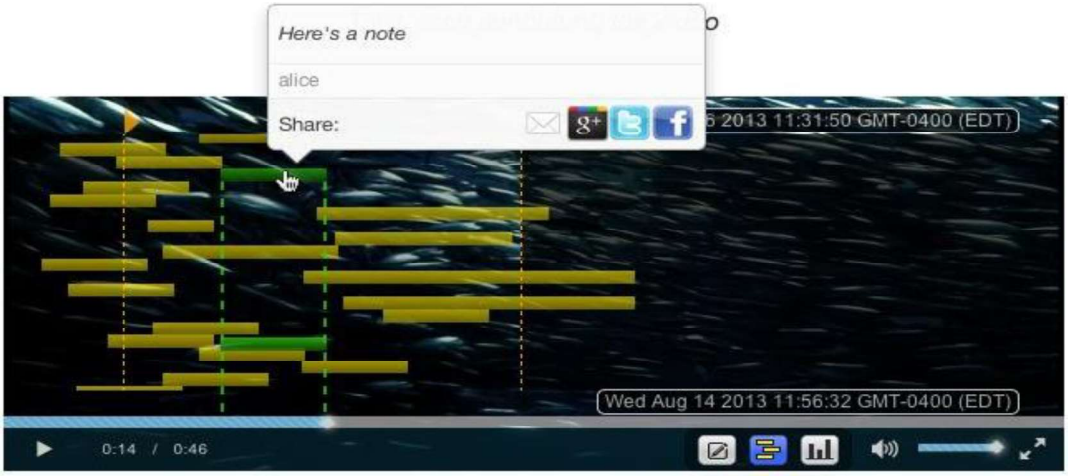

Figure 1. Annotations on a scientific video shown in OVA

Furthermore, it is possible to see a statistic of the annotations concentration where the author will know the interest parts of the video for the audience, Figure 2.

A communications system by annotations and comments on the video let you ask questions and answers to further enhance online communication. In this way allows having congress attendees around the world without displaying the video poster in situ.

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Figure 2. Statistics that lets you see where the video interest is concentrated.

After the exposure of the video poster, the author can export all entries to a spreadsheet format as a good feedback and save them for analysis and improve their research with this repository.

3. METHODOLOGICAL PROCEDURE

Descriptive and qualitative methodological study for evaluation of the video poster is performed in five stages:

1. Build an instrument to evaluate the video poster based in (Cebrian-de-la-Serna & Monedero-Moya, 2014)
2. instrument validation thanks to three rubric experts
3. Add the rubric to CoRubric platform and setting with the criteria and numerical indicators (Serrano-Angulo & Cebrián Robles, 2014),
4. instrument validation by 23 experts - Brazil, Spain and Portugal
5. Final design of the instrument.

The construction of scientific video evaluation tool is based on other educational video evaluation and the scientific viewpoint of criteria used in papers and events with "double review" for publication and/or presentation of research results.

The second and third stage was held in Spain with three rubric experts with discussion and review of each question. There was a reduction in the number of questions, reordering and suitability of alternatives.

In the fourth stage, 23 experts (Spain, Portugal and Brazil) have been consulted in order to validate the questions using the CoRubric platform. The instrument of approval process simulated the evaluation of three scientific video posters of the two previous events. The verification strategy was by “collecting and analyzing data concurrently forms a mutual interaction between what is known and what one needs to know. This pacing and the iterative interaction between data and analysis (as discussed earlier) is the essence of attaining reliability and validity.” (Morse, Barret, Mayan, Olson, & Spiers, 2002).

Finally, the feedback from researchers allowed making necessary changes and providing a rubric for the scientific video evaluation tool in three languages (Portuguese, Spanish and English).

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The next steps will be to have the congress and display the video poster in order to have a collection of annotations in Open Video Annotation platform.

All videos will be added to a group in the tool for having quickly access. The assistants to the congress will create their annotations and we will see the new way to collect and share information in a congress.

4. SCIENTIFIC VIDEO EVALUATION TOOL

On the context and the lack of a validated instrument with evaluation criteria for scientific videos, it is used for this work the experience of ELECS2013 and Euro ELECS2015 that used as an evaluation strategy of the video poster a set of recommendations sent to the authors. The recommendations were technical in nature and directed on how to make the video and the care with use of image, music, text, content and authorship hierarchy of both the video, as the use and citation of third party materials (Table 1).

Table 1. Technical recommendations for video poster as sources: FREITAS, SCHIMD E TAVARES (2014).

Evidences	Recommendations
Opening	Start with the opening credits: title, authors, affiliation and the event; send the logo of ELECS to allow standardization; do not put sound on the opening screen.
Opening image	After the title, show image (static or dynamic), but not a text (with exceptions to the explanatory captions used sparingly in the video either with year or as "Once upon a time ...").
Music	Use musical compositions in the public domain (published for at least 50 years ago) and the musical interpretation is not protected by copyright. See the public domain resource sites such as: http://freemusicarchive.org and http://freestockmusic.com. Mac users can use the iLife and GarageBand for free, not subject to copyright.
Image	Do not use minors or people from the community of images without obtaining authorization to use it in written by involved person.
Author's face	At some point, especially at the beginning, introduce the speaker talking to the video. Frame it closely, avoiding combining author, furniture, logo etc. You can also use the photograph of the author with the speech in the background.
Text	Avoid text, in particular in the range of 20% below the screen, it will add subtitles in Spanish or English. (If you wish can already do it).
Language	Avoid technical jargon and explain it before essential concepts. The purpose of the video has to be understood by anyone (Bringing science to the community).
Synthesis	Limit the extent of the text; if the speaker is bound to speak fast and can hardly breathe, there is much content.
Interest	Avoid displaying text; It is better than you or someone talk about a picture; even less, read the text that appears on the screen.
Minimum video length	The viewer must have enough time to understand each situation, image of speech; therefore, do not cut before 3 seconds
Image dynamic	It is appropriate that every three seconds (maximum of five seconds) there is an image of change (even if only change the frame).
Sound dynamic	The speech must have a good intonation. Do not talk from beginning to end of the video. It is useful to toggle speech and music, speech and silence or speech of different speakers (especially male and female).
Music	If you use music, choose music consequently; add dynamism that emphasizes emotions that want to cause; but remember that it is not the priority, so avoid exposing continuously music on a silent movie; do not hesitate to cut the music and switch to voice.
Graphics/Image	Show simple, without letters or small or illegible characters in graphics. Details with minimum size.
Hierarchy	It highlights what matter; take care of the background image does not distort your main message; avoid flashy background; static image on moving background.

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Video poster proposed in ELECS2011 and Euro ELECS2015 was not evaluated with scientific criteria, because they consider that it would be made from an approved summary. This proposed scientific video begins with the review of the literature on educational video assessment tools and technical recommendations for video poster (Table 1). The Scientific Video Evaluation (SVE) is formed by two dimensions (Figure 1): Scientific and technical respectively -

[http://corubric.com/index.php?r=public-rubric%2Fview&id=157];
[http://corubric.com/index.php?r=public-rubric%2Fview&id=158].

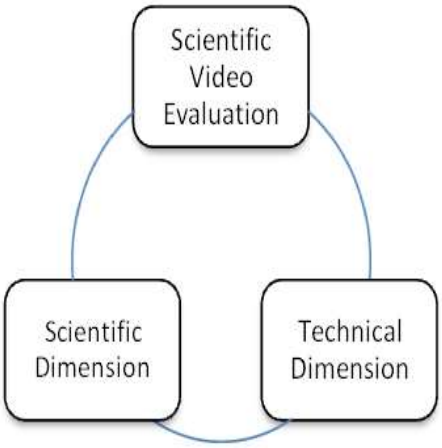

Figure 3. Dimensions of scientific video evaluation

The issues related to the scientific dimension arise from the mandatory elements of an investigation and that should also be present in an abstract, full paper, thesis or doctoral dissertation. Figure 4 has been an issue that is also present in the evaluation tools on educational video and exemplified in the form of rubric with their evidences.

1.5.Displaying the research RESULT.			
1 It is not presented or discussed.	2 It is presented and discussed superficially.	3 It is presented but it has lacks of discussion and argument in relation to theoretical basis and the state of the art.	4 It is presented, discussed and argued in relation to the aim, theoretical basis and results.

Figure 4. Example of scientific rubric that evaluates the result in the research

5. DISCUSSION AND CONCLUSIONS

The validation of the scientific video evaluation tool with experts tried to analyze the dimensions, criteria, questions, scales and weights defined using CoRubric to support evaluation in pairs and the annotations of the researchers. 69 feedbacks were made from experts in the dimensions: scientific and technical. The contributions were sent by email and annotated also on the platform. The data analysis allowed modifying scientific video evaluation tool and rubric in the view of experts. The main contributions are described below.

On the scientific dimension, among the proposals for adapting the rubric, it was excluded the issue dealt with in the "context of research" and inserted a question to characterize the

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"research problem". The criteria that analyze the theoretical framework and the state of art of the scientific video poster productions were added.

As technical dimension, the adjustments of the instrument were regarding the hierarchy of issues to ensure the granularity, sequencing and the degree of importance of analyzing the following criteria: communication skills, language used, use and compliance with the time, voiceover, text, image, music and sound effect and copyright requirements.

Table 2. Main changes done in the technical dimension

Criteria	Changes
Use of text	Use text and legend, so as to allow the inclusion of hearing impaired. Request the text of the phrase to be entered on YouTube to automate the legend and subsequent translation work.
Use and compliance with the time	Video have a maximum duration of three minutes
Use of image	Add a legend to reference the images in time and space, and ensure that the images with each other show consistency and to facilitate understanding of the scientific video.
Copyright requirements	Modify to address matters of affiliation of the authors, references and credits.

In addition, 23 experts participating in the process of validation/approval of the scientific video evaluation tool through CoRubric reported that the evaluation system is clear and objective, quick and easy to use.

The scientific video evaluation tool proposed makes use of criteria identified in the survey of related work (Table 2) and the characteristics present in product information: video design characteristics general provided introductory information, accurate, useful and motivating and stimulating, lining dimensions, criteria, scales, weights and system issues.

The instrument has a collaborative evaluation methodology supported by evaluation in pairs and the annotation system through CoRubric. Therefore, it lines up with the idea of the usual communication process where acceptances of “double review” give recognition and legitimization of the video generated by the researcher. The instrument of video evaluation seeks to eliminate the subjectivity of the evaluation process based on assessment tools for educational videos in the literature and the criteria, issues, scales and weights defined and approved by the researchers.

The final instrument and validation by experts offers an alternative methodology/tool for evaluating scientific videos to support events and conferences.

Finally, the ideas of scientific video production - paper or poster - are further enhanced by enabling reuse in activities of the research groups, institutions and support the teaching practices as an educational resource. Fact that allows the insertion of SVE in an educational dimension, as 10 of the 26 criteria were not used because they are specific to the teaching-learning process: the application in the learning, learning reflection, bias-free, know the objectives, learner interaction, integration into the environment learning, develop generic competences, develop disciplinary competences, time, special effects.

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The next work will be analyzing the result during the conference in order to have a conclusion of the use of Open Video Annotation tool. All the annotations are going to be discussed not only by authors but also for all the scientific community.

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