Analis@: a video learning analytics tool for Present@ and other video platforms

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Short abstract

Analis@ is a project to analyse the behaviour of students when using videos at Universitat Oberta de Catalunya (UOC), which is a 100% virtual university. It works over several tools developed by UOC like Present@ or LangBlog, but also with videos uploaded in other webplaces, such as YouTube or Vimeo. With Analis@ it is possible to analyse behaviour of a single student while watching a video, but also to analyze aggregated data to find out how a group of students watcha single video. It is important to note that Present@ supports hypervideo features like comments, audios, links, , quizzes, etc. that can be added by students as well as by teachers. Analis@ can also give feedback about these extra hyper-video items. Analis@ answers questions like: how many times a video has been seen? How many comments added by students has a single video? Which points of a video have more comments? At which speed have students watched a video? etc.

Summary

UOC is a 100% virtual university. Since the very beginning of the university, in 1994, e-mail (and forums) has been the main communication tool between students, and students and teachers. However, every day video is taking a more important role in classrooms and is becoming not only a one direction tool, from teachers to students, but also a symmetric communication mechanism between teachers and students.

Present@[1] is a tool developed by UOC where students and teachers can add videos, with a discussion tool associated to every single video. But Present@ goes a step further and allows also to add hypervideo features to a video: quizzes, images, audios, etc. Thus, it is a tool that can help teachers to create a complete set of pedagogic materials based on videos, but also, to students to add comments and questions just in the appropriate point within the video, or even to mark the most important part of the video for him or her, just like marking a document.

Nevertheless, although Present@ is a powerful tool that is being used by thousands of students at UOC, it still does not have learning analytics tools that help teachers to understand how students behave when using videos, or to analyse which are the more critical points of every single video.

[1] https://www.youtube.com/watch?v=gAaP9jqfciM

To include these learning features, project Analis@ is being developed. This project will answer questions about how and when students use videos. The project will analyse not only the videos uploaded to Present@, but also videos created with a videoconference tool also created by the UOC called SpeakApps, and in future steps even videos uploaded to Vimeo or YouTube and the embedded on a web page.

Analis@ has two important steps:

1. Definition of indicators: video has become a common teaching tool, mainly since the popularization of MOOC's. MOOC platforms have many analytics tools about how people use video, as well as YouTube or Vimeo. Nevertheless, there are no common and standardized learning analytics indicators, and in the case of hypervideo, finding these indicators is still an important field of research. Therefore, the first goal of the project is to answer questions like:
    a. Which information needs to be stored and analysed?
    b. How should this information be stored and shown to be useful?
    c. How many times and where does the viewer stop the video?
    d. How many times has a video been viewed?
    e. Which points of a video have been more viewed?
    f. Which points of a video have more comments added from students?
    g. What do students do when a comment or a hypercontent from the teacher appears?
    h. What do students answer to quizzes introduced within the video?
2. Definition of a control panel: another shortage of video analysis is which the best way of showing information is. Therefore, Analis@ includes the definition of a control panel in order to facilitate visualization and analysis of data.

Present@ represents a further step in the use of video in virtual classrooms since it can be used as the axis of communication because: 1) teachers and students can add videos; 2) videos can be enriched with comments, quizzes, etc.; and 3) discussion tools can be added to a video.

Analis@ makes it possible to get information about videos and student behaviour. Thus, teachers will be able to know which videos are more useful, which parts are more difficult to students or which parts are more interesting to them, to get feedback about student comprehension of contents, etc. With all this information teachers will be able to prepare the kind of videos that are perceived as more useful for students. Since creating video contents is very time consuming, teachers will be able to be more pedagogically efficient.

As a summary, the main contributions of Analis@ are: 1) to define the indicators to analyse hypervideos; 2) to create a control panel and define how to show the information related with the indicators defined; and 3) to define indicators and to create the control panel from the teacher point of view.