

# What our learning platforms know about the activity of our students

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**Abstract**— In addition to the typical learning management systems commonly introduced in the universities, specific tools and services have been made available to instructors, in order to facilitate their teaching tasks. In this work, the students’ usage of some educational resources posted in a course site has been investigated. To this end, the *Statistics* tool offered by our institutional platform *Poliformat*, has been used. This preliminary work showed how specific reports could be created to analyse what resources were accessed, when and by whom. Therefore, these analyses may provide instructors with information about which educational resources are actually useful in the students’ learning process.

**Keywords**—learning analytics; learning management systems; Sakai; student activity;

## I. INTRODUCTION

Some years ago many universities decided to incorporate online learning platforms (also referred to as learning management systems or LMS) to support face-to-face teaching models. Moreover, in some cases, such as the Universitat Politècnica de València (UPV), specific tools and services have been made available to instructors, in order to facilitate their teaching tasks. In this particular case, and just to highlight a few examples, there is a service to record and produce educational videos called *Polimedias* [1]; a service which makes possible the automatic video recording of lectures called *Videoapuntes* [2]; or a specific web tool integrated in our institutional learning platform called *Alce* [3], that allows instructors to generate templates for multiple choice quizzes, as well as the corresponding automatic review, through scanning and image processing.

Many teachers make an important effort to create educational videos and other multimedia materials, which are posted in the course site. In some cases, they also prepare different quizzes throughout the term, aiming at providing students with timely feedback. Then, they often upload the corresponding results in the course site. But, are we aware of the actual use that our students make of all this information?

According to Long and Siemens [4], a byproduct of the Internet, digital devices and learning management systems “is the transition from ephemeral to captured, explicit data”, as in the digital world, every event can leave a digital footprint. Thus, the main goal of this work is to use data captured by the

institutional LMS to answer the former question. This learner-produced information will inform about what is actually happening in the learning process and hopefully, it would help instructors to tailor responses.

## II. CASE STUDY

Computer Technology (CT) is a compulsory first-year course belonging to the Bachelor’s Degree in Informatics Engineering. In this work, the students’ usage of the educational resources posted in the course site has been investigated. To this end, the *Statistics* tool offered by *Poliformat*, the UPV institutional platform based on *Sakai*, has been used. Thus, specific reports can be designed to obtain access data to a particular resource (what), during a selected time period (when) and for a group of students (who), as shown in Figure 1.

The screenshot shows the 'Report' configuration page in Poliformat. It is divided into three main sections: 'What?', 'When?', and 'Who?'.  
- **What? Select activity to report:** The 'Activity' dropdown is set to 'Resources'. Under 'Selection', 'Limit to resources:' is checked. A list of resources is shown with checkboxes: 'Material Adicional', 'Exámenes cursos anteriores', 'English', 'Exámenes del curso', 'Objetos de Aprendizaje Polimedia', 'Generador de Funciones', 'Osciloscopio', 'Sonda del Osciloscopio', 'Polarización del Transistor Bipolar' (checked), and 'Puesto de trabajo de laboratorio de...'.  
- **When? Select time period to report:** The 'Period' dropdown is set to 'Last 30 days'.  
- **Who? Select users to report:** The 'Users' dropdown is set to 'Group' and the 'Group' dropdown is set to 'TA-1D'.

Figure 1. Defining a new report in *Poliformat*.

In particular, different reports were created to analyse the accesses to the educational resources related to the first course test. What follows are the most remarkable results:

1. Only two out of 53 taking the test had previously accessed the educational video on the topic under

assessment, although the corresponding URL was included in the slides.

2. Only 66% of students taking the test had previously accessed the document containing the solutions to the proposed exercises for that unit. This fact becomes more relevant when is related to the percentage of students passing the test (less than 40%).
- 10 days after posting the test detailed solutions document, it can be noticed from the reports that:
3. Only 52% of students taking the test accessed the resource. Moreover, only 56% of the students failing the test accessed it.
4. Only 38% of students taking the test, accessed to the reviewed test (Figure 2) in their *drop box*, from which just 55% had passed the test. Only 28% of students failing the test accessed their *drop box*.

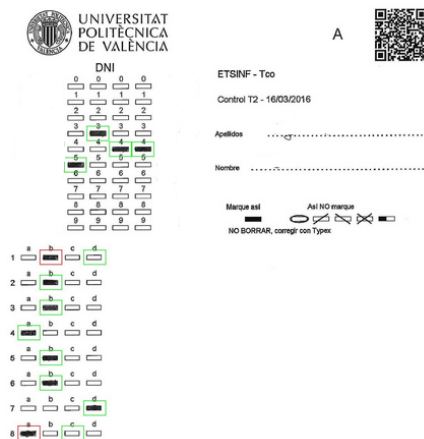


Figure 2. Reviewed test as provided by the *Alce* tool.

In summary, this case study shows that an important number of students do not watch the educational videos specifically produced to reinforce critical concepts, do not consult the exercise solutions, or even do not enter their drop box to check which answers were wrong. Therefore, what about formative assessment planned by instructors? Are we wasting our limited time?

### III. CONCLUSIONS

This preliminary work has shown the affordances of the *Statistics* tool offered by *Poliformat*. In particular, how specific reports could be created to analyse what resources were accessed, when and by whom. It has also demonstrated that data collected by the platform could be used to know the online activity of the students and somehow, their attitudes in a quite objective manner. Furthermore, by combining this kind of information with academic performance, good resource usage patterns could be generated. Finally, these analyses can provide instructors with information about which educational resources are actually useful in the students' learning process.

### Acknowledgments

This work has been developed with the support of Escuela Técnica Superior de Ingeniería Informática (ETSINF) at UPV.

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