LEARNING MANAGEMENT SYSTEMS: AN APPLICATION FOR COST ACCOUNTING TEACHING

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Abstract

Learning Management Systems (LMS) offer interesting opportunities as e-learning software when different types of teaching activities are developed. Nowadays, masterclasses share space with other technics that enable the student a better understanding about the studied subject. Financial economy and accounting, as a teaching field, requires new technics that allow the student a better knowledge about his/her environment and profession. For this reason, the participation of external speakers or professionals through seminars is an interesting resource. However, this participation needs time, effort and economic resources for both the speaker and the students.

This experience took place in the subject Cost Accounting in the Public University of Navarre. In this case, we chose students belonged to the degree in Business Administration. This subject is taught in the third year. We decided to introduce the ZOOM tool in the development of the third lesson related to the development of the business budget.

Business budget has a different structure depending on the analysed entity. We opted to explain the case of a manufacturing company following the traditional scheme of a masterclass and we introduced the new technic in relation to a company oriented to the provision of a service. This second structure was explained by a professional. This professional was contacted by the teaching staff and expressed her will to participate in this subject, although she had not availability in terms of time and she was working in a different location. As a consequence, we planned the possibility of using this tool as a way to solve this limitation.

The obtained results show an intense potential of this tool for both students and external speakers. The new technologies offer opportunities for development in Financial Economy and Accounting. In this sense, the results obtained in this experience give a good account of the transversal competences developed and the interest in the research career aroused in the students.

Keywords: Learning management systems, SAKAI, ZOOM, Cost accounting.

1 INTRODUCTION

Learning Management Systems (LMS) offer interesting opportunities as e-learning software when different types of teaching activities are developed. Nowadays, masterclasses share space with other technics that enable the student a better understanding about the studied subject. Financial economy and accounting, as a teaching field, requires new technics that allow the student a better knowledge about his/her environment and profession. For this reason, the participation of external speakers or professionals through seminars is an interesting resource. However, this participation needs time, effort and economic resources for both the speaker and the students.

E-learning can contribute to solve this problem, providing complementary resources to mitigate these limitations. Consequently, our aim is to analyse the role of the application ZOOM, as a complement in the system SAKAI, to promote the participation of an external speaker. The experience took place in the subject Cost Accounting in the Public University of Navarre. In this case, we chose students belonged to the degree in Business Administration. This subject is taught in the third year. We decided to introduce the ZOOM tool in the development of the third lesson related to the business budget. The obtained results show an intense potential of this tool for both students and external speakers. The new technologies offer opportunities for teaching in Financial Economy and Accounting. In this sense, the results obtained in this experience give a good account of the transversal competences developed and the interest in the research career aroused in the students.

The remainder of this paper is structured as follows. The following section contains the context and previous e-learning experiences related to cost accounting teaching. In the third section, the case of
study is introduced. The fourth section presents the main results. The fifth section provides some conclusions about the usefulness of the proposed application.

2 COST ACCOUNTING TEACHING

2.1 Context

Financial economy and accounting is considered a teaching field characterized by the homogeneity of its object, the historic tradition and the existence of a consolidated group or researchers at national and international level [1]. This area is structured by two subareas: Financial Economy and Accounting.

Accounting is oriented to new challenges both from the point of view of internal and external users. At internal level, the adoption of new management system together with the new methods in the estimation of costs in different organizations open a new horizon. In this sense, the recent change in the decider-shareholder approach to the decider-stakeholder approach is a change that we need to take into account. So, the orientation of organizations and informational systems towards a variety of potential stakeholders is a pending questions that accounting teaching must answer.

Internal accounting is a key subject in different degrees, such as Economy, Business Administration, Law and Human resources, among others. This field is usually divided in three aspects: a) Cost accounting, b) Management accounting and, c) Management monitoring. These subjects are usually taught in third and fourth year, cost accounting being the first subject that students need to understand. This subject aims to introduce the student in the estimation of the cost of a product or services and to provide some monitoring tools to improve the organizational management.

Cost accounting teachers have to design mechanisms to develop their activity in an efficient way [2]. Three stages have been proposed to guide this activity: a) Project, b) Development and, c) Assessment [3]. The first stage is related to the curriculum design of a subject [4]. In this stage, it is necessary to define the general objectives, the logic content, the methodology and the assessment criteria [5]. The second stage is characterized by the set of technics implemented to develop the teaching activity. Finally, the third stage is guided to assess the knowledge achieved by the student about a specific subject [6]. This communication is focused on the second stage, related to the development of teaching activities.

Traditionally, cost accounting teaching has been based on the master class technic. [7] based this system on three steps. Firstly, the teacher provides the objective of the lesson. After that, he/she provides an explanation about the different objectives, highlighting those concepts with higher relevance and difficulty. This process ends with the exposition of a summary and conclusion about the studied topic.

However, the professional orientation of cost accounting students and the practical character of this subject require the implementation of other technics such as seminars, analysis of cases and teamwork [8]. Nevertheless, the development of these technics is not always easy as they need the participation of other teachers or professionals placed in different locations.

In this case, we have focused on the development of seminars as a tool to bring professional experiences to the classroom. This kind of activity usually implies time, money and an important effort that the speaker must face, thin being an important barrier to the development of these activities. However, new e-learning software can decrease these limitations, providing a better experience for both the speaker and the students.

2.2 Previous educational software experiences

Traditional e-learning software provide holistic environments for delivering and managing educational experiences [9]. [10] identify three possible uses for these new technics when they are combined with the traditional masterclass:

a) E-learning software as a complementary resource: In this case, citrus classroom is considered as an annex for the traditional teaching activity. Neither the physical space or the communication channels are changed, this only being a sort of board or a way to share complementary material.

b) E-learning software as a mixed resource: This proposal combines the physical space and the blende learning where the teacher can develop diverse educational processes and tasks.
c) E-learning software as a unique resource: In this mixture, the traditional masterclass is substituted by the blended learning, a new environment being created to develop the teaching activity.

The selection of one of these three options will depend on the learning objective, target audience, access (physical, virtual and/or both), and type of content [11]. [12] highlight Learning Management Systems (LMS), based on the use of e-learning software as a mixed resource, as a suitable tool when seminars are used. In this sense, these authors conclude that this software “include knowledge discovery and content annotation features for all user and media types and will support live streaming for seminars and conferences”.

There is different specific software that can be used by teachers. [13] cites Moodle, ATutor, Dokeos (Dokeos), dotLRN (dotLRN), ILIAS (Ilias), LON-CAPA (Lon-Capa), OpenUSS (OpenUSS), Sakai (Sakai) and Spaghettilearning (Spaghettilearning), among others. Sakai is highlighted as a service-oriented Java-based open source LMS developed in 2004 by the universities of Michigan, Indiana, Stanford and the Massachusetts Institute of Technology [14]. This software contains different applications that can be used by the instructor in the development of a seminar.

For instance, [15] show an experience based on the application polymedia. This app enables instructor to produce, storage and distribute e-learning content with a high quality. [16] expose the use of the app virtual room in Sakai, concluding that this tool can significantly improve the level of knowledge achieved by the students. [17] introduced the app ikamba as a tool to develop blended e-learning with positive results among students. Similar results have been found by other authors such as [18], [19] and [20]. However, the potential of these tools has not been tested in combination with the seminar technic. Moreover, we have introduced the app ZOOM (https://zoom.us/), not being detected previous experiences based on this application.

3 CASE OF STUDY

This experience took place in the subject Cost Accounting in the Public University of Navarre. In this case, we chose students belonged to the degree in Business Administration. This subject is taught in the third year. We decided to introduce the ZOOM tool in the development of the third lesson related to the development of the business budget.

Business budget has a different structure depending on the analysed entity. We opted to explain the case of a manufacturing company following the traditional scheme of a masterclass and we introduced the new technic in relation to a company oriented to the provision of a service. This second structure was explained by a professional.

This professional was contacted by the teaching staff and expressed her will to participate in this subject, although she had not availability in terms of time and she was working in a different location. As a consequence, we planned the possibility of using this tool as a way to solve this limitation.

Figure 1 shows the implementation of this application in the software Sakai. As we can observe, it is only necessary to add the app, a new icon being created on the right called streaming (videoconferencia).
After this step, the instructor must be registered before starting to use the app. Once this process has finished, the app can be used. In this case, the professional was contacted and been explained about the app and the platform SAKAI. Figure 2 shows the meeting ID created.

The speakers explained her professional experience about the development of a budget and, after the explanation; we used the app chatroom to create debate about the topic, being the possible questions answered through this mechanism.

This experience was developed on November 2018 and the duration was about two hours. There was a participation of 25 students.

4 RESULTS

The results obtained by the students were positive in terms of final marks. During the development of the activity, there were some questions related both the software and the content of the lesson (Table 1).

<table>
<thead>
<tr>
<th>Software</th>
<th>%</th>
<th>Content</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registering</td>
<td>20%</td>
<td>Income budget</td>
<td>40%</td>
</tr>
<tr>
<td>Accessibility</td>
<td>8%</td>
<td>Expense budget</td>
<td>60%</td>
</tr>
<tr>
<td>Interaction between the different apps (streaming and chat room)</td>
<td>40%</td>
<td>Workers</td>
<td>40%</td>
</tr>
<tr>
<td>Connectivity</td>
<td>20%</td>
<td>Net profit</td>
<td>80%</td>
</tr>
</tbody>
</table>

As we can observe, the most common problem in relation to the software was the interaction between different apps because they could not be simultaneously used. Moreover, we highlight problems related to the registering process and the connectivity. The development of a streaming session requires a high-speed connection. Anyway, if we compare these frequencies with the frequencies related to content questions, we can observe a low correlation, being the main questions related to the estimation of the net profit. This is a good point due to the student found difficulties in the development of the lesson but not in the mean used by the speaker.

Moreover, the results obtained by the students show a reasonable level. Table 2 shows the mean, standard deviation and maximum and minimum achieved in the final exam.
The mean mark obtained by the students was 7.8 (B grade) with a low standard deviation (0.81). Although no student achieved the maximum mark, all the students developed the most important aspects related to the studied topic. The experience was positive; a majority of students passed the exam with a high level of performance (100%) and a good mean. Moreover, the results also indicates a positive assessment in relation to the use of ZOOM app in the development of a seminar as a complementary activity. This same opinion was shared by the speaker.

5 SUSTAINABILITY AND TRANSFERIBILITY

This project started this year in order to have a line of continuity. Thus, given that the members of the team will continue to teach subjects to the same group of students in later courses of the degree, our goal is to continue deepening this development. In this way, students can continue using of LMS systems in a progressive manner in order to obtain the best possible performance.

Finally, it should be noted that the development of this activity enables the student to contact to a professional. This professional learnt her experience about budgeting and enriched the students. In this sense, this project has given students interest in cost accounting career and some have begun to consider the preparation for this aim. At the same time, the speaker can know this software that could be used in a future at her work.

6 CONCLUSIONS

This experience has tried to introduce the student to the preparation of a budget for a company oriented to the provision of a service. To this end, a line of action based on the use of Learning Management Systems has been proposed as a basic element of training and learning.

Particularly, we have analysed the potential of the app ZOOM (https://zoom.us/), as an available element in Sakai, to develop streaming activities when they involved an external speaker. This tool has been tested in combination with the seminar technic. The obtained results show an intense potential of this tool for both students and external speakers.

The new technologies offer opportunities for development in Financial Economy and Accounting. In this sense, the results obtained in this experience give a good account of the transversal competences developed and the interest in the research career aroused in the students.

Finally, it is necessary to highlight the transferability of this system to other subjects in the field of social sciences, as well as its continuity in future academic years.

REFERENCES

[1] Real Decreto 1888/1984, de 26 de septiembre, por el que se regulan los concursos para la provisión de plazas de los Cuerpos docentes universitarios.


