The role of screencasts in virtual accounting education

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Abstract. Despite the rapid growth of new technologies in universities, there is still little empirical evidence on the incidence of certain e-learnings mechanisms on students' success or failure, particularly among accounting students. According to the cognitive theory of multimedia learning, screencasts are an effective and efficient tool for enhancing students learning, particularly in online accounting education where face-to-face interactions between instructor and students are limited.

Keywords: Screencasts, accounting education, online education

1 Introduction and objective

According to McPherson and Nunes (2008), most universities are being compelled to adopt technology to support learning. Thus, according to previous authors' reasoning even when academic staff is not wholly convinced by pedagogical arguments on the real virtues of these new technologies, institutions are still turning to them, either for reasons of social pressure or in order to look modern and progressive. But e-learning is not only a process where professors transfer some material to webpages (Cornford & Pollock, 2002). In this context, some institutions have seriously committed with the new technologies and have launched massive campaigns to incorporate podcasting into the curriculum with demonstrated success (Fernandez et al., 2009).

According to Lloyd and Robertson (2012) screencasting (conceived as capturing what you do on the computer or tablet screen with synched audio commentary) is a real-time format that can be disseminated as enhanced podcasts and might provide a medium for demonstrating algorithms for problem solving, software instructions, and

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errors while also providing interpretation-based conceptual understanding in an active learning format. Screencasting encourages meaningful learning according to the cognitive theory of multimedia learning, which suggests that multimodal information presented as combinations of narration and animation, when appropriately temporally and spatially sequenced, self-paced, coherently communicated, and stated in a conversational manner, leads to problem-solving transfer in novel situations and encourages active cognitive processing and cognitive load reduction to promote deeper learning (Mayer et al., 2004; Mayer & Moreno, 2003).

In this setting, the growth experimented by online education and the associated limited face-to-face interactions between instructor and students provides an interesting field to test the virtues of screencasts. In this sense, in the particular case of online education where contents are delivered through a learning material on a predefined schedule and instructors' ability to expose students to wider scenarios for decisions taking is severely constrained in time and scope, the use of screencasts might be relevant. Particularly, screencasts might help to break the distance between instructor and students, improving students' motivation and engagement and providing flexibility to busy students and consequently creating a more appropriate learning environment. According to Pelz (2004) three principles are essential for the success of online teaching: (1) engage students in content, (2) promote student-teacher and student-student interaction, and (3) strive for presence.

In this sense, in the particular case of online education where contents are delivered through a learning material on a pre-defined schedule and instructors' ability to expose students to wider scenarios for decisions taking is severely constrained in time and scope, the use of screencasts might be relevant. Particularly, screencasts might help to break the distance between instructor and students, improving students' motivation and engagement and providing flexibility to busy students and consequently creating a more appropriate learning environment. According to Pelz (2004) three principles are essential for the success of online teaching: (1) engage students in content, (2) promote student-teacher and student-student interaction, and (3) strive for presence. In this sense, according to the Hanover Research Council Report (2009) the online classroom differs from the traditional classroom in that text largely replaces in-person, face-to-face, verbal communication. This different dynamic makes it easier for students to feel as if the instructor is not participating in learning, thus making more likely that students take a passive role as well. A lack of visibility may lead to students' critical attitudes of the instructor‘s effectiveness and lower levels of affective learning.

Some previous studies have considered screencasts as an effective form of feedback (Marriot and Teoh, 2012; Vincelette and Bostic, 2013). Others have analysed the use of screencasts in different fields (statistics, maths, etc.). But, to the best of our knowledge, no previous study has focused in the use of screencasts in the active teaching of accounting, particularly, in the distance-education context, despite the potential benefits of this particular teaching tool in the referred scenario. Thus, the aim of our work is to present the results of an experimental study where we include screencasts supporting learning for the 50% of the material available to students in one of the courses of a virtual university degree.

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2 Methodology

2.1 Context of the research

A subject on financial statement analysis offered in the virtual degree in Tourism at the University of Las Palmas de Gran Canaria (Spain) during the academic years 2012-2013 and 2013–2014 was selected for the research. The University of Las Palmas de Gran Canaria is one of the two public universities of the Canary Islands. It was created in 1989 as part of a reorganization of the university system from the islands. With more than 25,000 students in six campuses, it is a medium-sized university compared to other higher education institutions in Spain. Since tourism is the most important economic strength of the islands, the university has regarded tourism studies as strategic in its development. Besides virtual degrees, in the field of tourism, the university currently offers two onsite degrees (one in the island of Gran Canaria and another one in the island of Lanzarote) two Master programmes and two PhD programmes in Tourism.

The programme where the research was conducted requires the student to take compulsory courses on management, marketing, economics, accounting and finance, foreign languages, law, and geography applied to the tourism and hospitality industry. The subject Financial Statement Analysis is currently offered in the third academic year of the 4-years programme and is an optional subject. It is mandatory for instructors to upload to the web page of the course the manual containing 6 learnings units and a minimum of 3 activities representing 50% of the final mark. The final exam represents the remaining 50% of the final mark. In the particular case of the subject under analysis, 3 activities were included for evaluation in each of the two academic years considered in the study.

2.2 Research design

In order to test the effect of screencast on students' success, two screencasts were recorded using an ipad and the app Educreations (www.educreations.com). The app allows us to share a single link for each screencast. The first screencast included explanations about 5th and 6th learning units and was 50 minutes length. This screencast addressed all the concepts needed to solve the third activity included in the subject. The second screencast included a complete explanation about the format and procedures for the final exam and was 12 minutes length. Both screencasts were available online for all the students enrolled in the subject during the whole academic year 2013-2014. Our results are analysed from different perspectives.

First, we compare the results obtained by students in the third activity during the academic year 2013/2014 (supported by the first screencast) with the results from the same activity in 2012/2013 where screencast was not available for students.

Second, we compare the results obtained from the questions included in the final exam regarding 5 and 6 learning units in 2013/2014 (units widely explained in the

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first screencast) with the results obtained from the same questions in the final exam in 2012/2013 where screencast was not available for students.

Third, we compare the tutorial activities required by students along the third activity in 2013/2014 and 2012/2013.

Fourth, we compare the results of the final mark from the exam in 2013/2014 (related to the second screencast) with students' final mark from the final exam in 2012/2013.

As explained, the four previous comparisons are made on the basis of students enrolling in the subject in different academic years and using the same available learning resources with the exception of screencasts. For the analyses explained below, the comparisons are made considering the same students along the same academic year, too. Thus, we complete the previous analysis with the following comparisons.

Fifth, we compare the results of the third activity (related to the learnings units explained in the first screencast) with the rest of learning activities in 2013/2014 (not supported by any screencast).

Sixth, we compare the results of the questions included in the final exam regarding 5 and 6 learning units with the results from questions related to the rest of the learning units not supported by screencasts.

Seventh, we compare the tutorial activities required by students for the third activity with students' tutorial needs for the rest of activities included in the course.

3 Results

Table 1 presents the results obtained for all the students in the third activity in the two academic years (2012-2013 and 2013-2014). We can appreciate that all students passed the third activity, although the average mark was higher in the academic year where previous activity contents were supported by screencast (9.3 in 2013-2014 and 8.2 in 2012-2013).

Table 1. Results of the third activity

	Pass	**Fail**	**Average Mark**
No Screencast (2012-2013)	100%	0	8.2
Screencast (2013-2014)	100%	0	9.3

Since students were not the same in the two academic years considered in the study, Table 2 shows the average mark of the different activities accomplished by students during the academic year 2013-2014. We can see that the average mark of the third activity (supported by screencast) was the highest (9.3).

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Table 2. Results of activities during 2013/2014 academic year

	Pass	Fail	Average Mark
Activity 1 (no screencast)	100%	0	8.2
Activity 2 (no screencast)	100%	0	8.77
Activity 3 (screencast)	100%	0	9.3

Table 3 presents the results from the questions included in the final exam that were related to the 5th and 6th learning units in the course 2013/2014 (units supported by screencast) with the results from the questions of the same learnings units in the final exam in 2012/2013. We can appreciate an improvement in the results. More exactly, the correct answers were on average 6 and 4.1 in 2013-2014 and 2012-2013, respectively.

Table 3. Answers in the final exam related to the 5th and 6th learning units

	Answers	Average
No Screencast 2012-2013	Correct	4.2
	Incorrect	4.1
	No answer	1.75
Screencast 2013-2014	Correct	6.75
	Incorrect	2
	No answer	1.25

If we analyse now the answers related to all units along the academic year 2014-2015 (same students) we can see that the higher correct answers were on average obtained in the units 5 and 6 (units supported by screencast). More exactly, the correct answers for these units were 6.75, while the correct answers were 6 for units 1 to 4.

Table 4. Answers in final exam related to all units

	Answers	Average
Units 1 and 2 (2012-2013). No Screencast	Correct	6
	Incorrect	2.75
	No answer	1.25
Units 3 and 4 (2013-2014). No screen-	Correct	6

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cast.	Incorrect	2.50
	No answer	1.50
Units 5 and 6 (2013-2014). Screencast	Correct	6.75
	Incorrect	2
	No answer	1.25

Table 5 shows the total tutorial activities required for the third activity (and the number of students requiring these tutorial activities). Thus, the number of tutorial activities for units including screencasts (units 5 and 6) was 9 (and 6 students required these tutorial activities). For the rest of units the average tutorial activities were 6 (and 3 students on average required these tutorial activities).

Table 5. Tutorial activities required for the third activity

	Tutorial Activities	**Students Requiring Tutorial Activities**
No Screencast 2012-2013	9	6
Screencast 2013-2014	6	3

If we analyse now the tutorial activities along the academic year 2013-2014, the high level of tutorial activities was 9 (for units 1 and 2) and the lower was 3 (for units 3 and 4). The tutorial activities for units 5 and 6 were 6. The number of students requiring tutorial activities was similar along the year.

Table 6. Tutorial activities required per learning unit along 2013/2014

	Tutorial Activities	**Students Requiring Tutorial Activities**
Units 1 and 2 (No screencast)	9	3
Units 3 and 4 (No screencast)	3	2
Units 5 and 6 (Screencast)	6	3

Finally, if we analyse the correct and incorrect answers in the final exam in the academic year 2013-2014, considering the questions affected by screencasts separately, we can see that the average percentage of correct answers for questions affected by

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screencasts was 50% (being 8.33% for the rest of questions). The average mark for questions affected by screencast was 5.4, while for the rest of answers was 2.8.

Table 7. Global final mark of the final exam

	Correct	Incorrect	Average Mark
No Screencast 2012-2013	8.33%	91.67%	2.8
Screencast 2013-2014	50%	50%	5.4

4 Conclusions

The growth in the number of students enrolled in online education and the need of many universities to enhance revenues to offset decreases in state funding has created the need to develop techniques to ensure that the quality of online accounting education is equivalent to that offered in a traditional face-to-face classroom (Myring et al.). However, to the best of our knowledge, research into new approaches to online accounting instruction is still lacking even though 69% of chief academic leaders at university feel than online education is a critical component of their long-term strategy (Allen and Seaman, 2013).

In this scenario, the use of screencasts in online accounting education might provide online accounting students with a personalized learning experience which is likely to impact the learning process and consequently its associated outcomes. Nevertheless, to the best of our knowledge, no previous work has addressed the role of screencasts in higher accounting education. In this sense, our study adds modestly to this field of knowledge by demonstrating positive learning gains for accounting online students using screencasts. Particularly, we show that screencasts are associated with improvements in marks and tutorial activities.

The results are particularly relevant in light of the different challenges accounting education has to face such as the ever-changing corporate world, the lack of skills on the part of the learners, the resistance to change by accounting educators, the requirement for continuous improvement and the new generation of learners (Fouché, 2006). According to our results, the use of screencast might constitute a strategy that enhances the effectiveness of online accounting education.

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