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Introduction

Computer Systems 1 is a common module for 1st year students in the Department of Electronics and informatics in AIT on Level 7 courses. The core teaching material for this module comes from the 'IT Essentials PC Hardware and Software' course which is part of a suite of ICT modules that the Cisco Networking Academy (Cisco, 2016) offers. Thus, the material is proprietary in nature, hence the acronym PER (Proprietary Educational Resource). The courseware is delivered online in lessons via the Cisco VLE that the student must enrol on. This material is supported by OERs (Open Educational Resources) in the form of videos that are freely available online. Examples of these OERs come from the Professor Messer (Messer, 2016) and Eli The Computer Guy (Etherton, 2016) websites.

The concept is that the student reads the material and watches the videos outside of the lecture time. The student class contact time is used to discuss and summarise the content of the lesson, watch some relevant videos and undertake lesson assessments online. The remainder of the student contact time is used for practical work associated with the module.

Key features of the project

- Online courseware provided by Cisco.
- Online assessment through the Cisco VLE.
- PowerPoint lesson summaries.
- Engagement analytics provided by the Cisco VLE.
- OERs provided by Professor Messer and Eli The Computer Guy websites.
- Moodle VLE used for additional support to bind student resources together e.g. PowerPoint presentations and videos.
- 50% of the class contact time is laboratory work (1.5 hours).
- Small class sizes; 20 students maximum at Year 1.
- 3 hours total class contact time per week (2 x 1.5 hours)

Aims and objectives of the project

- To determine if this teaching and learning approach is a success or failure.
- To measure/evaluate student satisfaction with the concept.
- To attain greater student engagement by encouraging students to work and study outside of class contact hours.
- To illustrate that a blended and flipped approach can be a viable alternative to the traditional lecture approach for students.

Results

The students were surveyed using an online survey, created in SurveyMonkey, embedded in their Moodle website for their module, Computer Systems 1. This survey was undertaken towards the end of the delivery of the module. A total of 40 responses were received from the students. This represented a return rate of 80% approximately. They were asked two questions about time spent reading web material and watching video resources. Refer to Figure 1 and Figure 2.

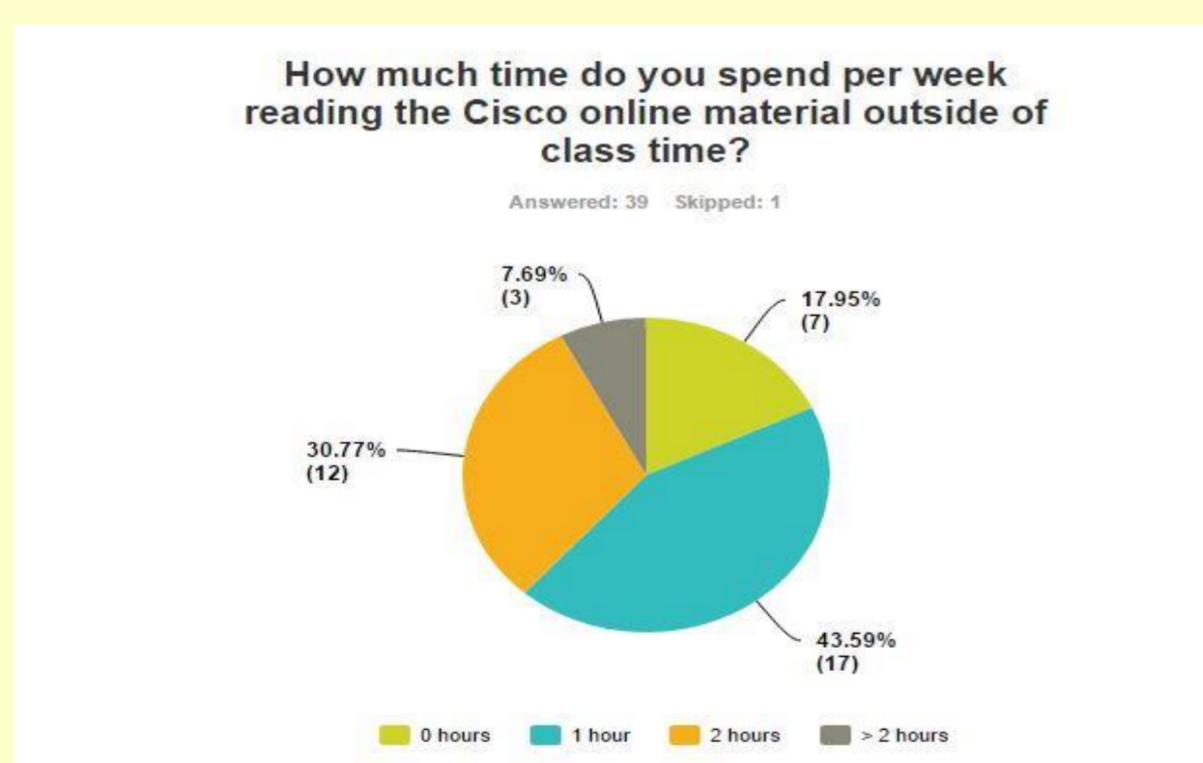


Figure 1: Time spent reading Cisco material in hours per week

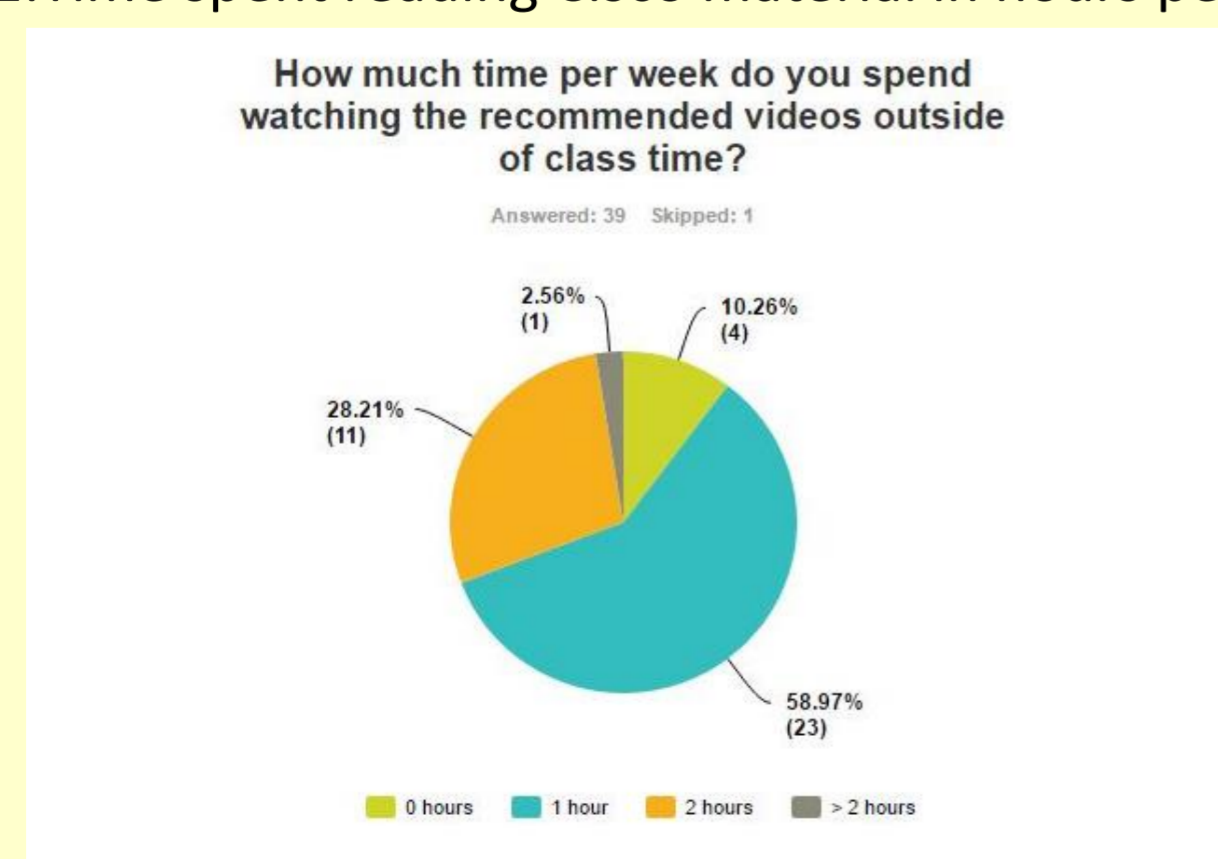


Figure 2: Time spent watching recommended video in hours per week

Results (continued)

The students were then asked to rate various statements about the module using a five-level Likert scale from 'strongly disagree' to 'strongly agree'. Refer to Figure 3 for the statements and student responses.

	strongly disagree	disagree	neither agree or disagree	agree	strongly agree
I like watching the lessons on video.	0.00% 0	10.00% 4	2.50% 1	67.50% 27	20.00% 8
I like reading the Cisco online material.	0.00% 0	22.50% 9	15.00% 6	52.50% 21	10.00% 4
I like taking my assessments online using Moodle and Cisco Netacad.	0.00% 0	2.50% 1	5.00% 2	77.50% 31	15.00% 6
I feel that my understanding of the module material has improved as a result of using this method of delivery of the module.	0.00% 0	0.00% 0	10.00% 4	67.50% 27	22.50% 9
I prefer the traditional lecture approach where I listen and take notes.	17.50% 7	35.00% 14	22.50% 9	17.50% 7	7.50% 3
I would like this teaching and learning approach used on other modules on my course where possible.	0.00% 0	5.00% 2	35.00% 14	50.00% 20	10.00% 4
I prefer the traditional lecture approach where I listen and take notes.	17.50% 7	35.00% 14	22.50% 9	17.50% 7	7.50% 3
I would like this teaching and learning approach used on other modules on my course where possible.	0.00% 0	5.00% 2	35.00% 14	50.00% 20	10.00% 4
I am more motivated to learn using this teaching and learning approach.	0.00% 0	2.50% 1	12.50% 5	72.50% 29	12.50% 5
I find the instant feedback after taking an online assessment helpful.	0.00% 0	0.00% 0	2.50% 1	77.50% 31	20.00% 8
I find it easy to pace my study of this module	0.00% 0	2.56% 1	7.69% 3	79.49% 31	10.26% 4

Figure 3: Student responses (Likert scale) to statements about the module.

Summary and conclusions

The results were largely positive for this mode of delivery of the module. 74% of students spent 1 to 2 hours per week reading the Cisco courseware material. 87% of students spent 1 to 2 hours per week watching the recommended video material. Equally, the Likert scale responses were quite positive. 67.5% of students agreed with the statement that their 'understanding of the module material has improved as a result of using this method of delivery of the module'. 72.5% of students agreed with the statement that they 'are more motivated to learn using this teaching and learning approach'. 50% agreed with the statement that they 'would like this teaching and learning approach used on other modules on my course where possible'. 52.5% of the students disagreed or strongly disagreed with the statement that they 'prefer the traditional lecture approach where I listen and take notes'.

It can be concluded that, while the sample size is small (40 students), it demonstrates that using OERs, PERs, blending and flipping to deliver a module to higher education students can be successfully achieved. The key to success is having high quality interactive courseware and video content. This appears to motivate students, as interacting with web content and watching video is second nature to them.

References:

- Cisco. (2016, February 15). Networking Academy Home. Retrieved from Cisco Networking Academy: <https://www.netacad.com/>
- Etherton, E. (2016, March 16). Eli The Computer Guy Free Computer Training and Advice. Retrieved from Eli The Computer Guy: <https://www.youtube.com/user/elithecomputerguy>
- Messer, J. (2016, March 16). Professor Messer IT Certification Training Courses. Retrieved from Professor Messer: <http://www.professormesser.com/>