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**E-learning: A case study of e-learning courses at  
the University of Athens**

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## E-learning: A case study of e-learning courses at the University of Athens

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### Abstract

Researchers are interested in gauging online learning. What might be influencing effectiveness of online courses is under the microscope. This study refers to an asynchronous online course offered by the University of Athens. A questionnaire consisting of two parts was used to collect the data.

In the first part, demographics were gathered while the second part examined student opinion about the activity considered to be the most effective, the biggest advantage and the biggest disadvantage of asynchronous learning. The results suggested that all activities e.g. social networking, tests, email, recorded video and exercises are significant. In addition, the findings revealed time as the biggest advantage and no face-to-face communication as the biggest disadvantage.

**Keywords:** *asynchronous learning, activities, advantages, disadvantages*

### Περίληψη

Οι ερευνητές ενδιαφέρονται για τη μέτρηση της αποτελεσματικότητας της ηλεκτρονικής μάθησης. Αυτό που μπορεί να επηρεάσει την αποτελεσματικότητα των ηλεκτρονικών μαθημάτων ερευνάται. Αυτή η μελέτη αναφέρεται σε ένα ασύγχρονο online μάθημα που προσφέρει το Πανεπιστήμιο Αθηνών. Ένα ερωτηματολόγιο αποτελείται από δύο μέρη χρησιμοποιήθηκε για τη συλλογή των δεδομένων. Στο πρώτο μέρος συγκεντρώθηκαν δημογραφικά στοιχεία ενώ το δεύτερο μέρος εξέτασε τις απόψεις των μαθητών σχετικά με τη δραστηριότητα που θεωρήθηκε πιο αποτελεσματική, το μεγαλύτερο πλεονέκτημα και το μεγαλύτερο μειονέκτημα της ασύγχρονης μάθησης. Τα αποτελέσματα υποδεικνύουν ότι όλες οι δραστηριότητες π.χ. η κοινωνική δικτύωση, τα τεστ, το ηλεκτρονικό ταχυδρομείο, το βίντεο και οι ασκήσεις ήταν σημαντικές. Επιπλέον, τα ευρήματα αποκάλυψαν τον χρόνο ως το μεγαλύτερο πλεονέκτημα και την μη επικοινωνία πρόσωπο με πρόσωπο το μεγαλύτερο μειονέκτημα.

**Λέξεις-κλειδιά:** *ασύγχρονη μάθηση, δραστηριότητες, πλεονεκτήματα, μειονεκτήματα*

### Introduction

E-learning can be synchronous -chat conversations and audio/video conferencing.-or asynchronous- email and discussion forums- using a web connection.

Asynchronous learning is computer based and occurs at any time. Students can complete modules, regardless of peer or instructor logout/login status. Thus, an asynchronous mode is a self-paced learning method depending on its delivery method

and content as is the case with all types of learning. Given that students engage with the material by themselves asynchronous learning is completely different from face-to-face (f2f) learning.

The purpose of this study was to examine the efficiency of Athens University's (UoA) e-learning course by measuring student opinion. For this reason, twenty eight students enrolled in an e-learning class completed a questionnaire consisting of two sections. The first section was composed of demographic information while the second section explored UoA's asynchronous e-learning course's biggest advantage, biggest disadvantage as well as the most effective activity.

The results indicated that communication amongst the students was a significant factor in an asynchronous learning mode. Although, the problem of 'getting a delayed response emerged, it was compensated with a high percentage of the answers 'no time bound' and 'time to reflect'. In conclusion, the asynchronous mode enhanced the learning outcome.

### **Asynchronous Mode**

Asynchronous e-learning is a delivery method which doesn't require learners' presence during instruction (Coogole & Floyd, 2015). Thus, the students can go through the course material anytime and anywhere, though with a probable assignment or test deadline. Basically, it's a student's self-paced method.

According to Simonson, Smaldino, Albright and Zvacek (2012), an asynchronous learning environment allows students to learn at their own pace, provide more reflection time (Neumeier & Small, 2014), and support interactions (Oztok, Zingaro, Brett & Hewitt, 2013).

An asynchronous mode environment provides course material such as recorded audio/video lectures, text, graphics, tests and assignments accessible anytime and anywhere via a platform called Learning Management System (LMS). The LMS when enriched with multimedia tools engage students and provide many ways to learn important concepts (Bledsoe & Simmerok, 2013).

Courseware is housed on a Web server, allowing instructors to upload material, tests, assignments as well as links that students can access anytime, anywhere, which is a self paced type of learning (Murphy, Rodríguez-Manzanares & Barbour, 2011), although there may be a specific time frame for assignments or tests.

Researchers Draus, Curran, and Trempus (2014) reported that asynchronous learning material positively influences student engagement. Additionally, many acknowledge the asynchronous environment as rigorous and engaging similar to the f2f environment (Riggs & Linder, 2016). The findings of Northey, Bucic, Chylinski and Govind (2015) are in alignment showing that the asynchronous media tools –e.g. Facebook- facilitate learning opportunities. These positive findings supported the notion that asynchronous learning incorporates student-centered pedagogies. Moreover, the student interaction that focuses on social-networking – written questions and responses e.g., on blogs etc. - better supports reflection (Woo & Reeves, 2008). Overall, social media tools have a positive impact on distance education (Brady, Holcomb, & Smith, 2010).

Moreover, studies suggest that exercises and video enhance learning and result in better learning outcomes (MacKenzie & Ballard, 2015).

Asynchronous learning courses are becoming more frequent in online education (Renn, & Reason, 2012). Students, in an asynchronous mode, experienced benefits such as elaborating on a problem, having additional time to compose thoughts, to react, and to reflect; thus they don't rush to give a spontaneous answer (Neumeier, &

Small, 2014). Therefore, the delayed response comes from more constructive thinking. As a result, asynchronous learning facilitates students' past retrieval and future thinking (Lin, Hong & Lawrenz, 2012).

However, delayed feedback in an asynchronous mode can negatively affect the students (Huang & Hsiao, 2012). In addition, the research of Taylor, Jowi, Schreier and Bertelsen (2011) has revealed that the students preferred the traditional approach of f2f communication with instructors instead of computer communication.

Even with positive evidence that distance learning environments support quality learning, there is still skepticism from scholars about the quality of online classes (Allen, Seaman, Poulin, & Straut, 2016).

### **Instruction/Course procedures**

The educational material of the program is available gradually, per module, through specially designed online classes. During each course module instruction, the necessary announcements concerning the educational process are posted in a relevant link, such as: 1. the exercise schedule of submission, 2. the deadlines for submitting the tests, 3. a study guide for each module that aims at facilitating the learner's study, and 4. a final paper topic which is due at the official course end date and concerns the entire curriculum.

After completing the study of each module, the student submits the corresponding test. The test includes matching, multiple choice, True/False and short answer/essay questions.

Meanwhile, during instruction time, educational support is provided as the student can address (for the duration of each lesson) his instructor for immediate answers related to the assessment exercises via a built-in communication platform. Finally, the educational material can also be found electronically in the form of an e-book, while the instruction-modules can be found under "My lessons" in the platform.

The test score scale ranges from 0 to 100%. Overall, the final grade for the course is calculated by adding 60% of the test average grades to 40% of the final paper grade, thus the Final course grade = 60% \* Average Test grades + 40% \* final paper grade.

### **Method**

The number of students participating in the research was N=23 and they all took the same e-class.

Staff members within the e-learning courses of UoA were contacted regarding having the students from their e-courses participate in the research.

Three instructors, from the contacted staff responded positively, but just one was chosen for the research. The course lasted four months, from September to December 2016.

To gain maximum insight about the effectiveness of UoA's asynchronous e-learning mode, the study collected data from different sources. The data collected via a structured questionnaire related to student opinion for the asynchronous environment and student - instructor communication via emails. Finally, the course grade was used to support the assessment.

The questionnaire consisted of two parts. Part A requested general information, about age, gender, academic status while the three questions in Part B collected information about asynchronous mode's biggest advantage, biggest disadvantage and most effective activity.

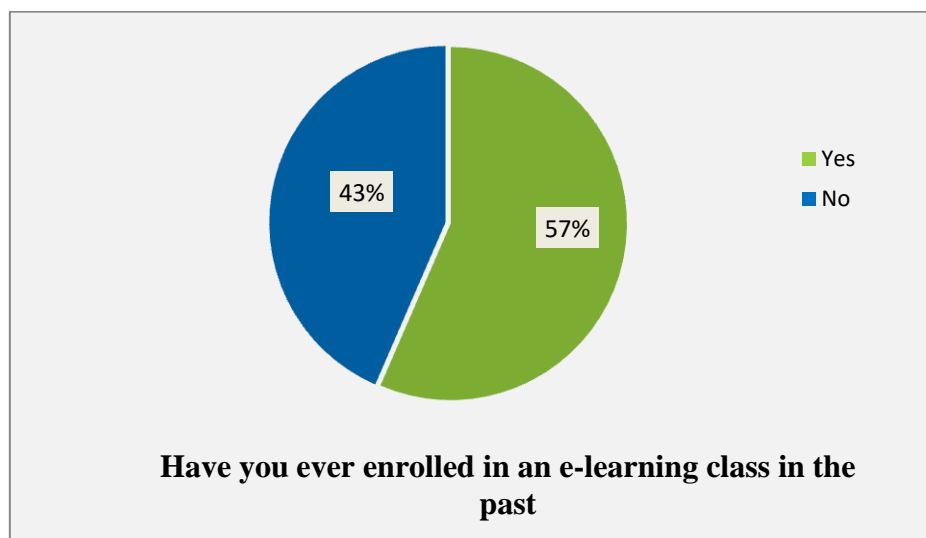
## Results

Primarily, the questionnaire was designed to provide information about the effectiveness of UoA asynchronous mode. The responses that were collected from the questionnaire revealed interesting evidence addressing this question.

The most important results are found hereafter:

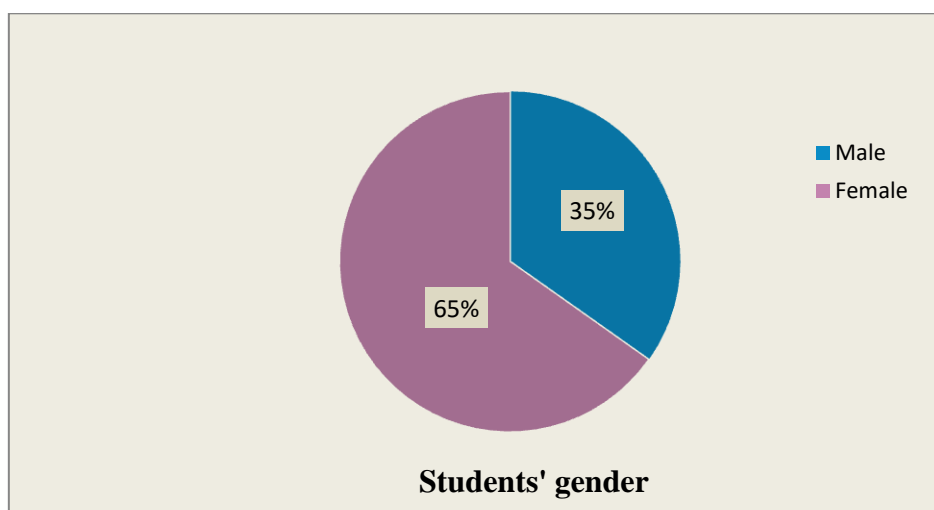
The first question of Part A, is a close-ended question (answered with a Yes or No).

The pie chart in Figure 1, shows the percentage of students who had or had not previously attended an asynchronous learning course. The graphics show that 13 students -57%- participated in an e-learning course prior to enrolling in this course, while 10 students -43%- had never had an asynchronous experience before. Therefore, there was a balance between those students who were aware of asynchronous learning and those who were not aware.



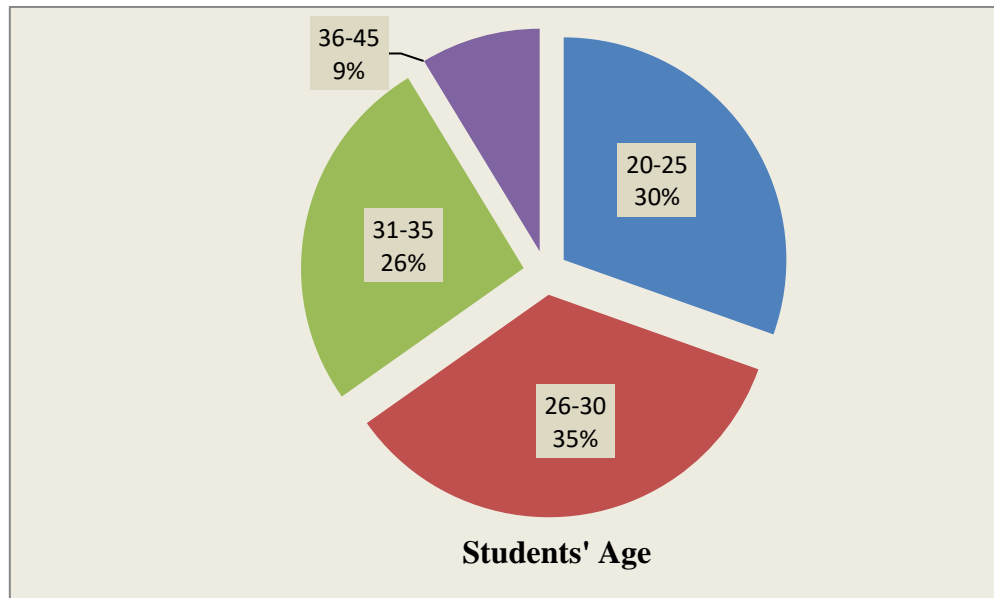
**Figure 1.** Previous knowledge of the asynchronous mode

The next circular diagram, in Figure 2, refers to student gender. It shows that 65% were female and 35% were male. Thus, females make up the majority of the students, with over 60% participation in the UoA e-learning course.



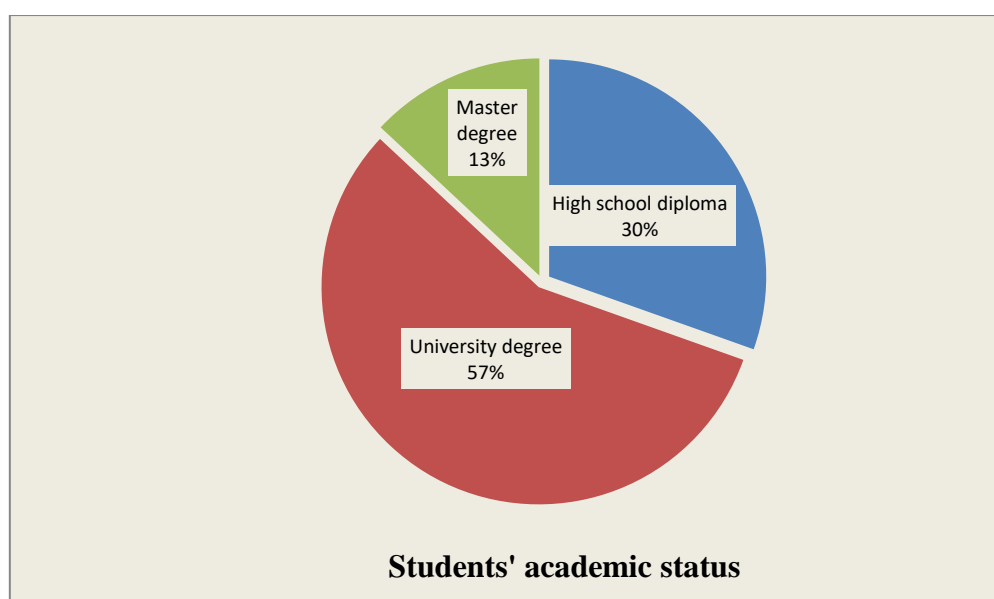
**Figure 2.** The student gender in the course

Figure 3 depicts the student ages. The following are the results: 30% of the students were between the ages of 20 and 25, 35% of the students were between the ages of 26 and 30, 26% of the students were between the ages of 31-35 and 9% of the students were over 35 years old.



**Figure 3.** The students' age percentage in the course

Figure 4 provides information on the academic status of the students participating in the course. As the pie-diagram depicts, 57 percent are Bachelor degree-holders, which is 27 percent more compared to the 30 per cent of high school diploma holders and 44 percent more than the 13 percent who have completed a master's degree. It seems that the nature of specific course (Future Decision Making) was more appealing to students who had attained a bachelor's degree.

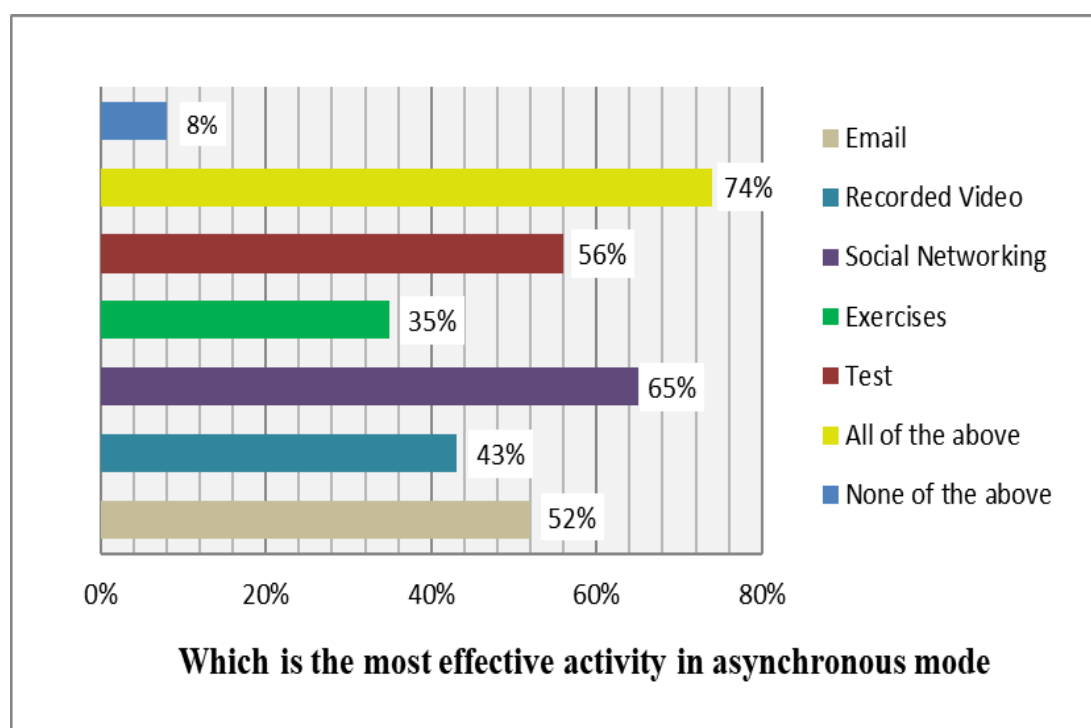


**Figure 4.** The students' age percentage in the course

Regarding Part B, each question was a multiple-choice question which gathered information related to specific aspects of the asynchronous delivering method. The first question explored which activity in the asynchronous had the most effective result on student learning. The following were the response options: Email, Recorded Video, Social Networking, Exercises, Test, All of the above, and None of the above. The results, demonstrated in the next bar chart (Figure 5), reveal that all the activities-Email, Recorded Video, Social Networking, Exercises, Test- had been helpful in the learning outcome.

More specifically, the following are the results: 'All of the above' 74%, 'Social Networking' 65%, 'Test' 56%, 'Email' 52%, 'Recorded Video' 43%, 'Exercises' 35%, and 'None of the Above', receiving 8%.

The results for the question 'Which is the most effective activity in asynchronous mode' appear on the bar chart below, in Figure 5.



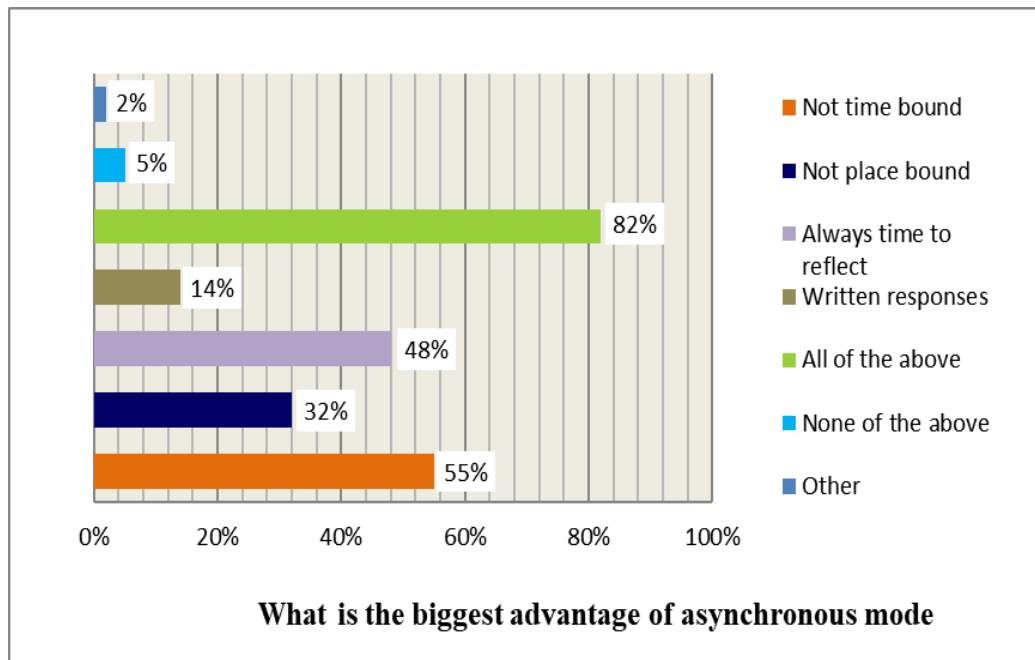
**Figure 5:** Activity effectiveness in asynchronous mode

The second question of Part B explored the biggest advantage of an asynchronous mode. The given options were 'Not time bound', 'Not space bound', 'Always time to reflect', 'Written responses', 'All of the above', 'None of the above' and 'Other'.

The results to the question concerning what the biggest advantage of an asynchronous mode are as follows: 'All of the above'-82%-, receiving the highest percentage ; 'Not time bound'-55%-; 'Always time to reflect' -48%-; 'Not place bound'-32%-; 'Written responses' -14%- . Finally, the options 'None of the above' and 'Other', had the lowest percentages of 5% and 2% respectively. Therefore, 'Not time bound' was the option which had the highest degree of acceptance as the biggest advantage of asynchronous mode amongst the students of the course.

Figure 6, illustrates the results for the question 'What is the biggest advantage of asynchronous mode' as described previously.





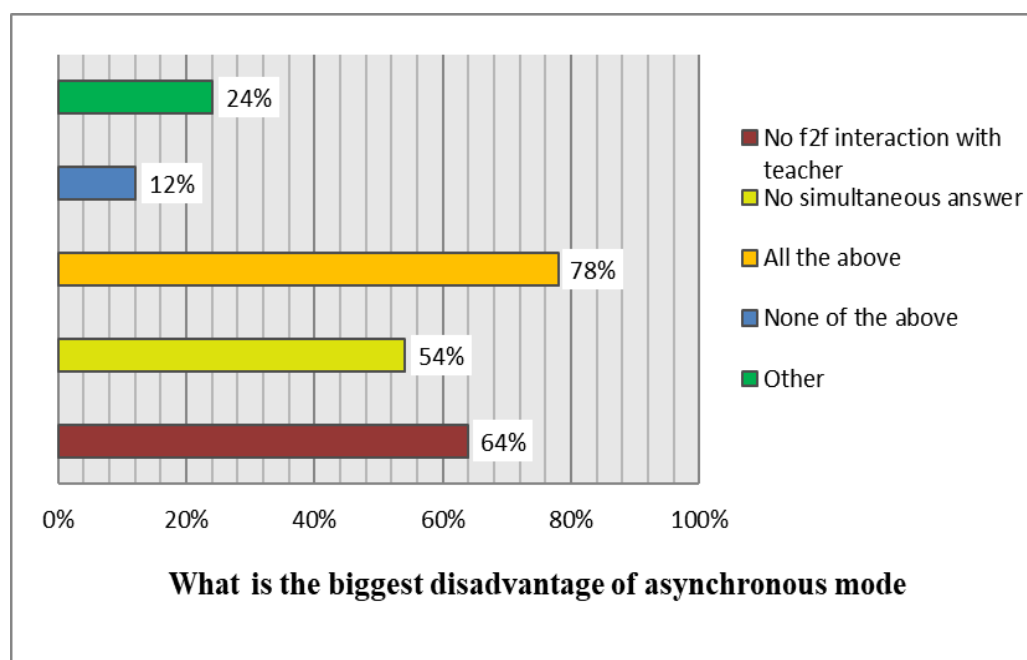
**Figure 6:** Advantages of Asynchronous mode

The last question explored the biggest disadvantage of asynchronous mode. Apart from the options 'All of the above', 'None of the above' and 'Other', the other options were 'No face to face interaction' and 'No simultaneous answer'.

The results pointed out that the option 'No face to face interaction with the instructor' is the biggest disadvantage for the asynchronous mode, even though the option 'No simultaneous answer' is also considered to be a strong disadvantage.

The following are the response percentages (in descending order) for the question 'Which is the biggest disadvantage of asynchronous mode': 'All of the above' -78%-, 'No face to face interaction' -64%-, 'No simultaneous answer' -54%-, 'Other' -24%-, and 'None of the above' -12%-.

Figure 7, depicts the above mentioned percentages from the student responses.



**Figure 7:** Disadvantages of Asynchronous mode



## Discussion

Asynchronous learning is acknowledged as a student-centered delivery method that uses the web.

Students can access resources online and communicate asynchronously using email and discussion boards.

Almost 50% of the students who enrolled in the e-learning course had previously taken an asynchronous course. Students not having a previous asynchronous learning experience did not find this as an obstacle.

On the contrary, this mode supported the learning process (Bledsoe & Simmerok, 2013 · Riggs & Linder, 2016). This is reflected from the student responses concerning which activity is most effective in an asynchronous mode. 'All of the above' was their favorable choice, meaning that the students, in order to learn, engaged in social networking (65%), tests (56%), emails (52%), recorded videos (43%), and exercises (35%). The results showed that, from a cognitive point of view, recorded videos, tests and exercises played a significant role in the learning outcome (MacKenzie & Ballard, 2015).

This study reinforces the results of prior research that the use social media tools positively impacts distance education (Woo & Reeves, 2008 · Brady et al., 2010).

The response 'social networking' concerning the activity most effective in an asynchronous mode had the highest percentage of 65%. For this reason, communication amongst the students is a very important factor in an asynchronous learning mode as well as during F2F communication. In addition, because the students in asynchronous learning can't have as much interaction with peers as is the case in F2F communication, they use the 'social networking' type of communication as a substitute. Furthermore, the percent value for the email option supports the research for high levels of interaction between students (Oztok, et al., 2013), helping each other. Moreover, an asynchronous mode enhances learning by providing students extra time for reflection (Neumeier & Small, 2014). The student responses implied that there is a deficit with non-simultaneity in an asynchronous mode that aligns with the studies (Huang & Hsiao, 2012). Yet, students highlighted 'no time bound' (Murphy, et al., 2011) and 'time to reflect' options (Neumeier & Small, 2014). Furthermore, while the students were engaged (Draus, et al., 2014) with the course material they were catching up with the learning objectives of the course and the contents of the curriculum. This conclusion has emerged from the high percentage of the option email (52%), watching recorded videos (43%) and the doing exercises (35%).

Sixteen students -57%- rated 'Not time bound' as the biggest advantage of the asynchronous mode (Skylar, 2009 · Simonson, et al, 2012) maybe because their jobs impeded studying in f2f environments. Regarding the advantage which ranked second, students argued that an asynchronous mode allowed more reflection time (Neumeier, & Small, 2014). The student responses indicated that the independent-time asynchronous mode enhanced the learning outcome because it gave them more preparation time for research and higher order thinking (Bledsoe & Simmerok, 2014). The student responses regarding the biggest disadvantage conclude that the students missed F2F communication with the instructor (No face to face interaction, 64%). The reason for this is that the students are used to f2f teaching-learning method and preferred traditional student-instructor communication (Taylor, et al., 2011). Thus, a blended model of asynchronous and synchronous learning methods can be a solution to that problem.

From the age and education response-charts the results showed that only 30% of the students were between the ages of 20 and 25 and 30% only have high school diplomas. Therefore, the professionals considered these courses as worth taking.

## Conclusion

An asynchronous method of learning enables students to engage with course material removing time and space constraints within a defined time frame.

The findings of the study give an overview of the current trends and areas of distance education. Specifically, the results show that the effectiveness of UoA's asynchronous mode is not different than that of other institutions based on previous research results.

The majority of student responses about the most effective activity in an asynchronous mode were in favor of all activities mentioned in the questionnaire. This means that the following -Social Networking, Tests, Email, Recorded Video, and Exercises- all play a significant role in the learning outcome.

Moreover, student perception about the biggest advantage of an asynchronous mode is in line with the literature that considers this mode independent of time and space thus allowing for time to reflect.

Lastly, both the face-to-face communication constraint and the delayed feedback emerged as disadvantages of an asynchronous mode.

For this reason, further research is needed for a combined type of an asynchronous and synchronous instruction design.

Furthermore, the results cannot be generalized due to the small sample size.

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