ENGAGING USERS IN DISTANCE EDUCATION - THE CASE OF THE OPEN UNIVERSITY OF CYPRUS

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Abstract

The evolution of technology during the last decades gave a new impetus to education. Distance Education started to grow to something noticeable, but it was the Internet in the mid-1990s that broadened Distance Education's horizons. Academic institutions transformed their programs to match the demands of the new global economy of lifelong learning for adult learners. The Open University of Cyprus (OUC), established in 2002, is a public University dedicated to Distance Education, offering accredited distance learning degrees at all levels (undergraduate, master and doctoral). In this paper, we focus on the methods and technologies OUC is using for engaging its students and tutors in Distance Education. Authors present their personal experiences, aiming to help other professionals involved in the development and support of Distance Education tools and technologies. First, a short introduction and history of OUC is presented to the reader followed by a description of the educational methodology used. Next, we provide a detailed description of the tools used for synchronous and asynchronous learning, delivery of educational material, lecture capture and student assessment. Then, we present the methodology, the tools and the support we provide to the users for increasing their engagement in Distance Education. We conclude with a case study for asynchronous services deployed at the OUC followed by usage statistics.

Keywords: Distance Education tools, user engagement, experiences in supporting eLearning tools.

1   INTRODUCTION

"Distance Education is defined as institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors" [1]. Going through this definition, someone can identify the elements of Distance Education that Keegan [2] proposed: education organizations, separation of teacher and learner, provision of two-way communication and use of technical media for the educational content.

Distance Education evolved through the last decades from education by correspondence, taking advantage primarily the evolution of technology such as the radio and the satellite television, but it was the Internet in the mid-1990s that broadened Distance Education's horizons. Academic institutions like the Open University and Athabasca University, founded to give a second chance to adults, transformed their programs by adapting the new technologies offered by the Internet [3]. Conventional Universities, watching this evolution, also tried to match the demands of the new global economy of lifelong learning for adult learners.

2   OPEN UNIVERSITY OF CYPRUS

2.1   History

The Open University of Cyprus (OUC), established in 2002, is a public University dedicated to Open and Distance Education, providing accredited undergraduate and postgraduate learning degrees. OUC's mission is to promote life-long learning, providing everyone with an equal opportunity to study without any constraints like age, place or time [4]. In 2006, the OUC opened its doors with two programmes of study and has enrolled its first 162 students. Today the OUC has approximately 4.800 students enrolled in 21 programmes of study making it the largest University in Cyprus in terms of postgraduate students.

2.2 Educational Methodology

2.2.1 Thematic unit

A thematic unit is the main operational unit of OUC studies and covers a particular cognitive subject while it is accredited via the European Credit Transfer and Accumulation System (ECTS). A programme of study consists of several thematic units and can be of two different structures: (a) Year based system where each thematic unit has a duration of 10 months, from September until June and (b) Semester based system where the thematic units have a duration of 5 months.

2.2.2 Student group

Each thematic unit has several student groups that usually consist of 25 students coming from the same geographical area. The majority of students at the OUC are located in Greece and in Cyprus as most of the programmes of study have Greek as their primary teaching language. Each group has a tutor for monitoring it, who is also located either in Greece or in Cyprus. Tutors are responsible for providing all the necessary support to students in the form of clarifying the learning outcomes, providing feedback to assignments and encouraging them to overcome any difficulties they face during their studies.

2.2.3 Group advisory meetings

Students study from their premises but throughout the academic year, they have the opportunity to attend to scheduled (not mandatory) face-to-face meetings. During the first years of the University's existence, these meetings where taking place in classes and required the physical presence of the students. Participation was difficult for some students due to the distance from their home and other personal obligations. After the deployment of the synchronous platform, the group advisory meetings can also be organised completely through the web conferencing service or by applying a hybrid model combining both face-to-face and web conferencing forms.

2.2.4 Educational tool

The eClass eLearning platform (eClass) is the only educational tool used at the OUC to facilitate the educational methodology. For a user to have access to eClass he or she must have a role in the educational process, like the Academic Officer of each programme of study, the Coordinator of each thematic unit, the Tutor of each student group and the Student. EClass is a combination of different systems and services, designed to operate as a unified learning environment. Students in eClass can access their educational content, discuss in forums, evaluate themselves through quizzes and questionnaires, participate in live web conference meetings or watch the recorded ones.

2.2.5 Student assessment

For each thematic unit, students must submit a number of written assignments with the specified closing dates announced in the academic calendar. EClass facilitates the whole lifecycle of student assessment regarding the assignments. Students must sent their assignments through eClass and tutors must grade them and provide the necessary feedback in the form of comments and track changes in the actual document the student had sent. All the submitted assignments are checked by the plagiarism detection service that informs tutors with potential plagiarism, providing them also with details of the sources found.

3 DISTANCE EDUCATION TOOLS IN THE OPEN UNIVERSITY OF CYPRUS

3.1 Asynchronous

EClass's main component is the Learning Management System (LMS) that facilitates the asynchronous learning service. It offers a plethora of tools ranging from educational content tools (files, folders, links, webpages) to communication and collaborative tools (forums, calendars, wikis, blogs). It also includes student assessment tools (assignments, questionnaires, quizzes).

3.2 Synchronous

Synchronous learning service is fully integrated with the LMS and our users access their live or recorded meetings from their thematic unit having the feeling that synchronous learning service is just

another feature of the LMS. The Synchronous platform offers a wide range of features like audio, video, whiteboard, presentation and chat in a successful effort to simulate the experience a student would have in a class having a face-to-face lesson.

3.3 Plagiarism detection

The whole process of assignment submission and assessment is facilitated through the LMS with the enhancement of a plagiarism detection service integrated with it. At this time, the OUC has a database of around 120.000 assignments and dissertations. This database was constructed through the years by indexing each assignment or dissertation a student submitted. Tutors have feedback for each submitted assignment and they can check the percentage of possible plagiarism from all detected sources.

3.4 Video service and lecture capture

Currently, we allow our users to have access to streaming content, video and audio, through eClass. This functionality is provided using the video services that are designed to enrich educational content of the organization and provide our users with a more familiar and easy way to reach the information and the learning outcomes. From the start, we have used different media streaming services having the videos playing embedded in the courses. Our main goal, is to offer a service fully integrated with eClass that will operate both as a video portal and a lecture capture system.

3.5 Elearning and multimedia auditoriums

The OUC has at its premises two auditoriums equipped with the latest high-end hardware of the market, designed to service not only the needs of its employees, but also the needs of the students enrolled in thematic units. All the hardware (interactive board, large display, microphones, speakers, document camera, HD cameras, video conference and computer) is controllable via an iPad, taking advantage of a control and signal routing system. These two auditoriums are used for several purposes: conducting hybrid group advisory meetings, when tutors want to prepare educational content in the form of video and lecture capture, events taking place in OUC premises when organizers want to be live streamed or when a student has to present his or hers dissertation to their supervisors.

4 ENGAGING USERS

"Technology is neither good nor bad in itself but it is the way that it is used that matters" [5]. A definition of engagement that is appropriate for our case is that "Engagement is a category of user experience characterized by attributes of challenge, positive affect, endurability, aesthetic and sensory appeal, attention, feedback, variety/novelty, interactivity, and perceived user control." [12]

Our aim is to make every technology service that is deployed, a successful one. We do this by following our methodology for engaging users, which relies on our knowledge of the technology and the needs of our users (students and tutors). The University, since 2006, has gradually introduced a number of software tools to assist the educational process. We believe that quality software solutions are an essential component of Distance Education, because they define the possibilities that are available for both students and tutors and they affect the overall productivity as well as the user experience in studying or teaching at OUC.

Distance Education services are for OUC the analogous of what a campus with its classes and the hardware equipment is for every conventional University. In this context, each Distance Education solution is designed for accessibility and usability [9]. By giving priority to high quality and usability, the investment for the implementation and maintenance costs of such services are expected to increase. For these reasons, the OUC needed to design a methodology that would ensure that new Distance Education services would have increased possibility of being accepted and used by their users.

4.1 User engagement methodology at OUC

Before the introduction of the first Distance Education service in early 2007, OUC's eLearning Team needed to identify the important reasons and factors that determine and affect the adoption and engagement levels of a technological solution. For that reason, the prevalent theories for user engagement were examined; Theory of Reasoned Action (TRA) [10], Theory of Planned Behaviour
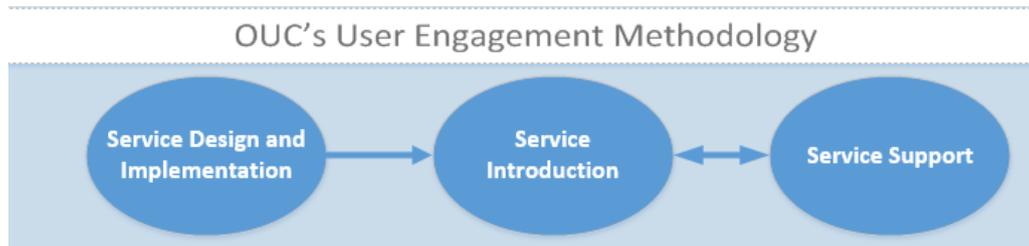
(TPB) [11], Technology Acceptance Model (TAM) [7], Unified Theory of Acceptance and Use of Technology (UTAUT) [12] are only a few of them. According to Michael D. "Prior to the existence of the UTAUT, TAM was the most widely utilised theory to study IS/IT adoption within the IS discipline" [8]. TAM and UTAUT were the two models that we found most helpful in our context:

- The TAM model, proposed by Davis in 1989, suggests that there are some basic factors that are directly influencing the possibility of a user to adopt or not a new technology. These factors are: (a) perceived usefulness (PU): "the degree to which a person believes that using a particular system would enhance his or her job performance" and (b) perceived ease-of-use (PEOU): "the degree to which a person believes that using a particular system would be free from effort".

- The UTAUT model, proposed by Venkatesh in 2003, is considered to be one of the most important theories of the area. The UTAUT theory describes its four core constructs as: (a) performance expectancy, (b) effort expectancy, (c) social influence and (d) facilitating conditions. The four core constructs effect is moderated by the gender, age, experience, and voluntariness of use.

While the two models described and the majority of the other models of this area differ on the definition of the factors, they agree on their basis, which is that certain factors exist that decisively affect the adoption of a new technological service.

The findings from the study of the theoretical models were very useful, since these could form the basis of the OUC's methodology for user engagement. At the same time, it was clear that we needed our own model to address the phases of a service introduction. These phases are: (a) service design and implementation, (b) service introduction and (c) service support. User engagement is applicable on all three phases of a service life cycle. Our model for user engagement is presented in Fig. 1. Our methodology emphasises on the following key aspects of the user engagement process on every new service:

- Maximise the positive factors and advantages that a user recognises towards using the service

- Minimise a user's perceived and actual effort to use the service

- Positively influence the OUC's environment towards the use of the service

- Address special requirements and needs of the service target users

Figure 1: OUC's user engagement methodology

4.1.1   Service design and implementation

User engagement is an essential part for each new project that involves Distance Education service design and implementation at the OUC. Our effort is to address the challenges that each user will come across in the process of using a service. In the following paragraph, we present some key areas that are affecting this process:

- **Compatibility with educational methodology and study rules**: the various roles included in the educational process need to conform to the rules and regulations. The degree at which a software solution can assist a user in meeting these obligations is the degree of usefulness a user sees to that service.

- **User groups**: understanding and addressing the specific needs and requirements of the potential user groups of a service is an essential part of our methodology. Age, education level, gender, country of origin and native language are some of the factors that may affect the new service design and implementation.

- **Stakeholders' involvement**: management of the OUC, faculty members and specific members of administrative personnel are usually actively involved in all phases of the service development process. This ensures that the service will be implemented based on their actual needs and they will later support the service adoption.

- **Management support and commitment**: management plays an important role towards the usage of a service; our experience showed that management support of new services greatly affects user engagement especially at the early stages of adoption.

- **User support**: the mean time that is required to support a user greatly influences the decision whether a service is suitable for introduction. We believe that this type of user support should be minimised and if needed, the response should be as fast as possible.

- **User training**: training is an essential part of user engagement so every service implementation project has provision for face-to-face and online presentations, self-training sessions using webcasts and user's manuals concentrated on every user group or role needs.

- **Service customization**: our experiences showed that the degree that a service is customized and adjusted to the needs of its users directly affects the user adoption process.

- **Service usability and reliability:** both factors are essential for increasing service quality as perceived by the users. Great emphasis and effort is given in order to include these qualities to the service.

4.1.2 Service introduction

Following the design and implementation process, the service is ready for introduction to the OUC's academic community. Before the actual introduction of the service, which is usually at the beginning of a new academic year or semester, the planned promotional strategy involves:

- **Meetings with key users**: permanent faculty members, Academic Officers of programmes of study and Coordinators of thematic units. Decisions are taken for important aspects of the service introduction to the academic community, like training requirements, timetables and pilot groups.

- **Electronic newsletters**: sent to user groups for informing them about the service and providing them with help and support material.

- **Training sessions**: delivered face-to-face and by using the synchronous learning service, focusing on the key user groups. These trainings are customised to the specific needs of each user group.

By this point, every user of the service, is informed and knows how to use the service or how to learn to use it. Service rollout is the first step of actual user engagement but the actual results, can only be evaluated after a period of time, which is usually after a semester or an academic year

4.1.3 Service support

Service support is one of the longest and most critical phases in any technological project. It starts right after the service introduction to the end users. During this phase, all the design effort and decisions that were made are reviewed by the users while using the service. Service support at the OUC is not a static process. On the contrary, it is a highly active and interactive process aiming for the higher engagement results possible. The main activities during this phase are:

- **Monitoring of usage statistics**: usage statistics are a valuable tool for understanding the adoption rates of a service. These statistics are collected daily and reviewed very frequently at the early stages of adoption.

- **Seek for feedback**: early adopters of the service are one of the most valuable resources for feedback on the service as they provide the first impressions and their suggestions for improvement of the service and the help materials available.

- **Training sessions**: additional training sessions are provided to users that are interested in using the service and early adopters present their experiences to them. The majority of users will start using a new service when they feel comfortable enough with it and when they are adequately trained.

- **Continuous support**: all the support tickets and calls should receive the fastest possible feedback because (a) there may be problems and bugs that escaped the attention of the implementation team, and might be critical to user adoption (b) our experience shows that efficient support to user requests and problems enhances user confidence and the usage of the new services.

- **Management reporting**: the rate of adoption is increased with the positive reinforcement by management. We are regularly reporting to key members of the OUC about the usage and rate of adoption in their area of interest and in comparison with other areas of the University. Based on that, actions towards increasing user engagement are taken if needed.

4.2 Case study of user engagement – Asynchronous service

After the completion of the first academic year at the OUC, it was obvious to all stakeholders involved in the educational process, that more technological tools were needed to assist the Distance Education methodology of the University. Email was the only tool available at that time and inevitably, it could not adequately assist with the daily challenges of a tutor or a student. A number of issues required attention, like the educational content distribution, the group communication and discussion, and the assignment submission and assessment.

The newly formed eLearning Team was assigned the task of selecting an appropriate solution for implementation in order to facilitate the aforementioned challenges. This was the first project that user engagement emerged as an important aspect of a new service design and implementation and was used as a reference to the OUC's upcoming projects trying to formalise the procedure and overcoming the challenges faced. In the following subsection we present the steps taken for the user engagement during the implementation of the asynchronous learning service. The whole process at that time was managed as one phase, but the reader can identify the steps that now belong to the three distinct phases in the OUC's methodology for user engagement.

4.2.1 Steps taken for user engagement

- **Compatibility with educational methodology and study rules**: during this step, the majority of documents that described the educational process were reviewed and specific technical requirements where set and implemented, for the various educational roles and structures: thematic units, thematic unit groups, student assessment and grading, communication requirements.

- **User groups**: target group was the OUC's academic community members as a whole, current and future. The new service had to be equally usable by a student or a tutor leaving in Nicosia, Athens or any other place in the world.

- **Faculty involvement**: project team included a member of the faculty. Several demonstrations and proof of concept meetings were conducted with all the faculty members of the University and valuable feedback was collected.

- **Service support**: Moodle[1] was selected among other candidate solutions that met our requirements. The main reasons we have selected Moodle were: (a) the rapid evolution and improvement of the software was very promising for the fulfilment of current and future needs that were not available then, (b) its huge community support was a guaranty for the software support, (c) Moodle as an open source software, did not require licensing, (d) Moodle was very usable, efficient, reliable as well as customizable in areas that were very important to the needs of the OUC.

- **Service customization**: great effort was given in order to adjust the user interface and hide from users the unnecessary functions that increased the complexity. This approach transformed the new service into a very simple software tool that worked as expected by the users. Students had a single system that they could access content, ask tutors questions, communicate with other students, get informed about their deadlines, submit their assignments and view their grading and feedback. Tutors tasks became much easier, and Academic Officers could monitor all the activity in the thematic units.
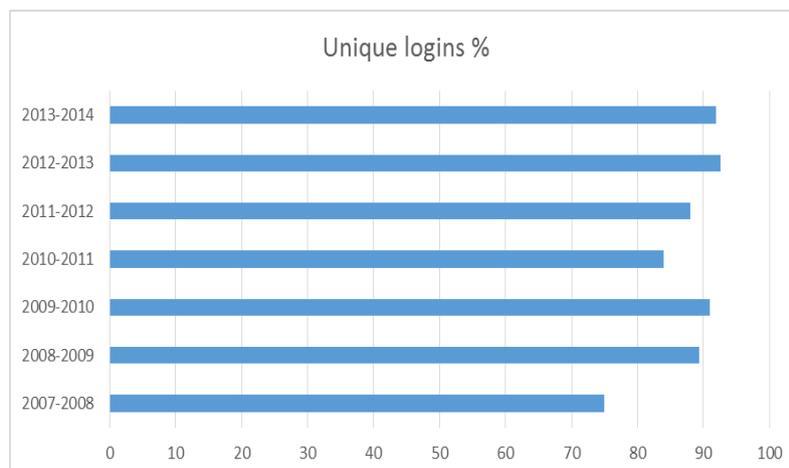
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[1] Retrieved from https://moodle.org/ on 20/01/2015

- **Management support and commitment**: this project had the necessary management commitment, because all stakeholders recognized the importance of the service. Management provided the required resources and funding; programmes of studies welcomed the new service and transformed their procedures to apply on eClass eLearning platform. Procedures like assignment submission and assessment, student questions, tutor and students' discussions and educational material distribution were transferred to eClass and users where obliged to used the available tools (forums, courses, activities). By the next academic year, eClass became the official educational medium of the OUC and its usage was mandatory for tutors and students.

- **User support**: phone and email support at office hours with the promise of answering every request within 24 hours, were the support scheme of the service. This policy was decisive to the positive service adoption by the OUC's user community because (a) it made users feel supported and felt that somebody was there for them, (b) problematic features, software misconfigurations were almost instantly detected and could be addressed immediately, (c) help material and documentation was continuously updated to address known user requests or complaints.

- **Service reliability**: the service was installed at OUC's data centre, in failover technical architecture running on a virtualization infrastructure.

- **User training**: electronic help material and documentation was prepared for all user roles. Training sessions were conducted a month before the beginning of the academic year. These training sessions took place both in Cyprus and Greece, where the vast majority of our tutors were situated

- **Monitoring of usage statistics**: usage statistics were continuously collected and analysed and customised reports were prepared for every programme of study informing the Academic Officers. These statistics greatly contributed in identifying strengths and weaknesses of the applied educational process.
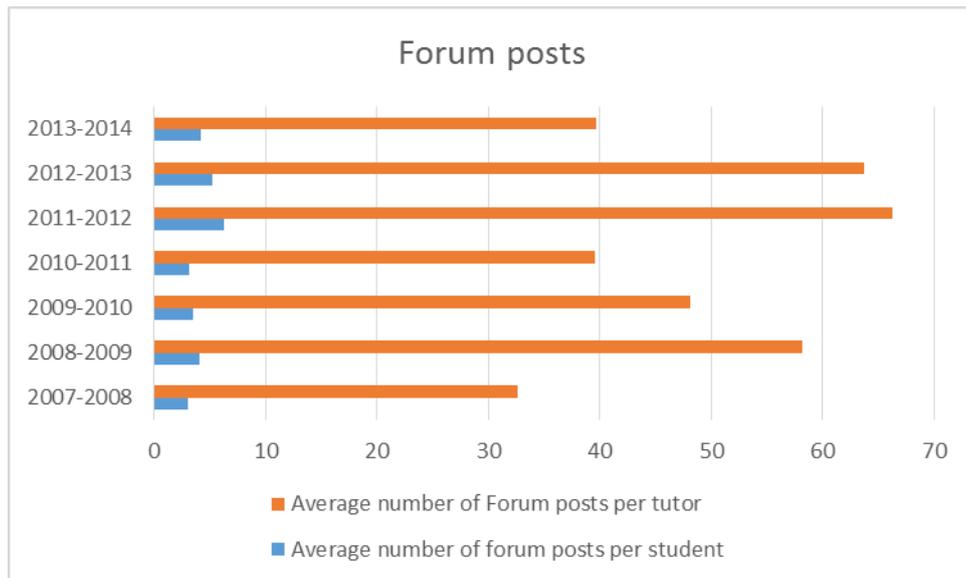
4.2.2 Statistics

At this section, we present statistical data for engaging users in Distance Education, using the asynchronous learning service. These data were gathered from eClass during the academic years 2007-2014. More specifically the following metrics were used: (a) number of unique logins, (b) average number of forum posts per tutor and student, (d) average number of assignment submissions per student.

The percentage of unique logins per academic year is the percentage of all students and tutors that have logged in at least once in the asynchronous learning service during the academic year. This metric also reveals the percentage of the users that have never logged in to the service. As shown in Fig. 2, the average percentage of logins for each academic year (except 2007-2008) is close to 90%. Academic year 2007-2008 was the pilot service introduction. The rest 10% who never logged in represents students that for various reasons decided to stop or postpone their studies.
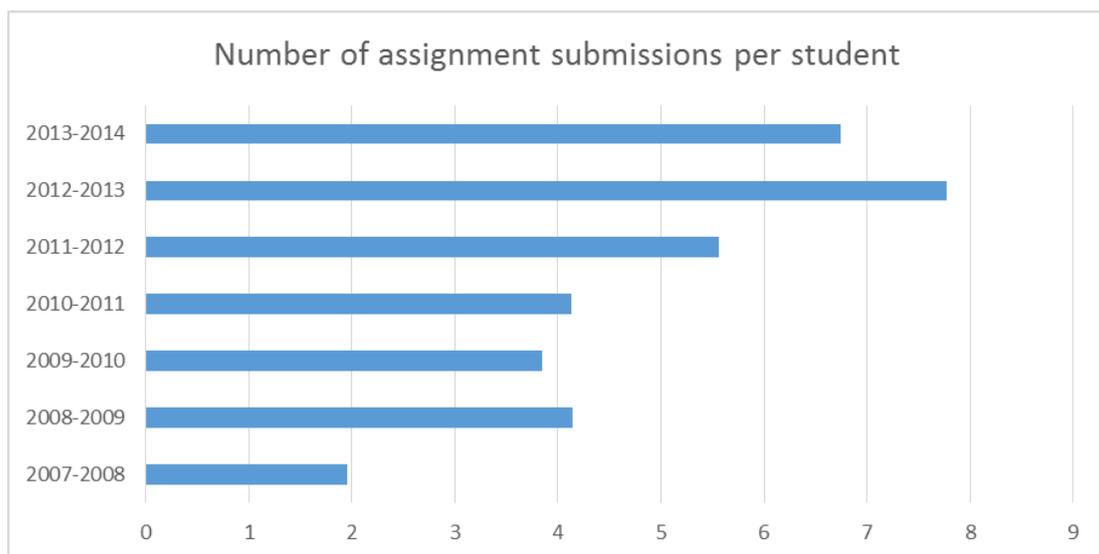

Figure 2: Unique logins

The next metric is the average number of forum posts per student and per tutor for each academic year. Fig. 3 presents these numbers for all seven academic years. Students and tutors continue to use the forum service over the years, despite the fact that new communication tools were introduced to facilitate the communication and interaction of students and tutors.
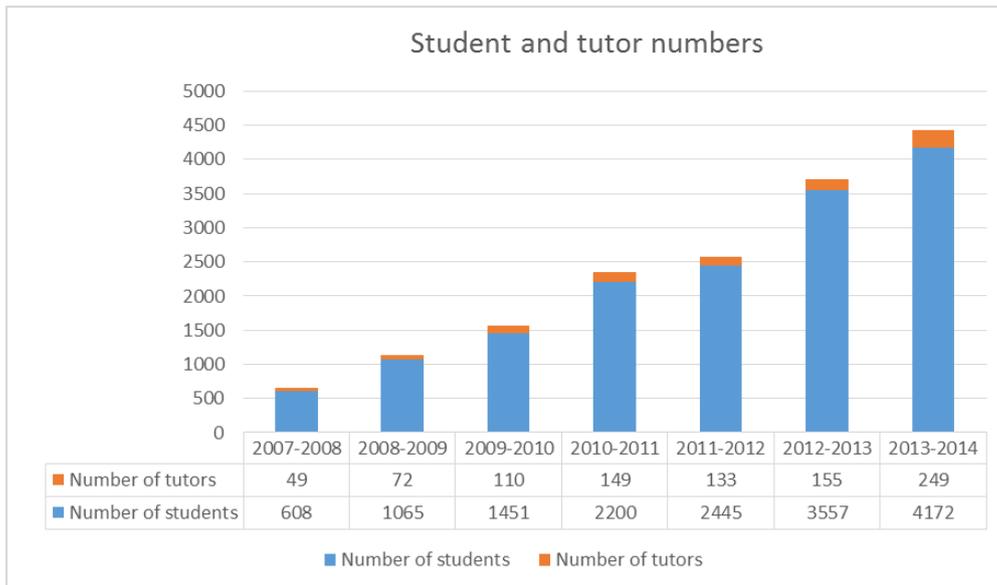

Figure 3: Average number of forum posts

The average number of assignment submissions per student for each academic year is shown in Fig. 4. This metric verifies the wide usage of this functionality.
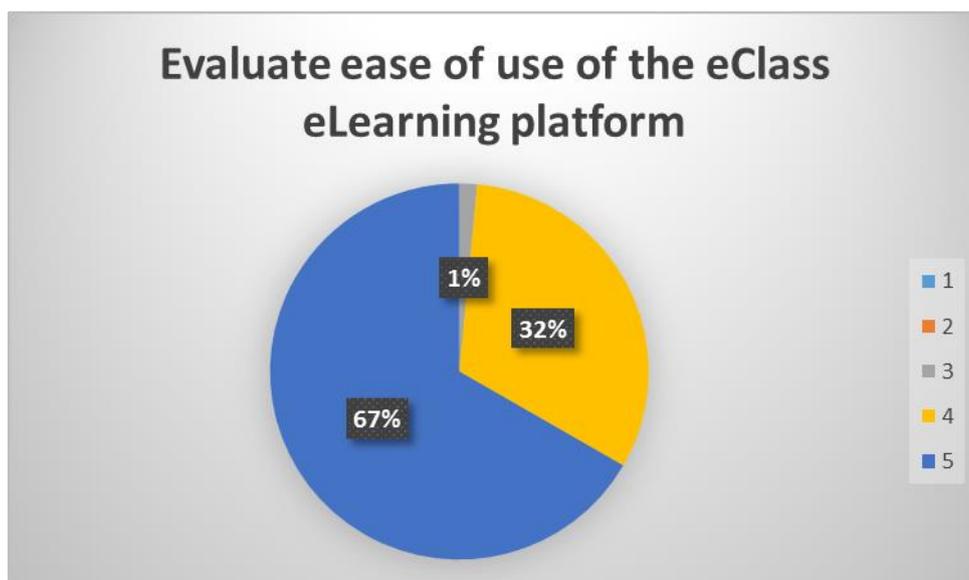

Figure 4: Assignment submissions

The four metrics presented demonstrate that students and tutors use frequently the asynchronous learning service. What is important though, is to review the increasing number of users during this period. Fig. 5 reveals that in academic year 2007-2008, users of this service were 657 and by the academic year 2013-2014 this number reached 4421 users. Despite the steady growth of the OUC's academic community, usage statistics were not negatively affected and the adoption of the service was retained and increased in some aspects.

Figure 5: OUC's Student and tutor numbers

The analysis of these results demonstrates that almost all of the members of the academic community have adopted the service during the first year of its introduction, and the same applies for the next six academic years of the service usage and adoption statistics.

User satisfaction from a service is the most important factor that affects user engagement in the long term. In Fig. 6 we present the results of a survey for evaluating the user satisfaction, for various services in OUC, which was answered in 2014 by 66 tutors, a sample of 26% of the total number of tutors. The scale was from 1 (not easy) to 5 (very easy). The results were very positive for the asynchronous learning service, since 99% chose 4 – 32% and 5 – 67% while only 1% chose 3.

Figure 6: Usability of eClass

5 CONCLUSIONS

In this paper, we presented OUC's methodology for engaging users in Distance Education. This methodology was based on our experiences we had gained operating and supporting the eClass

eLearning platform and the tutors and students using it. All these seven academic years, after the successful rollout of the asynchronous learning service, a number of other services were successfully introduced to the OUC's academic community using the same methodology for user engagement. The systematic approach that was used towards user adoption and engagement for the introduction of the first Distance Education service was very beneficial to the OUC, because it formed the basis for the introduction of other useful services and a methodology that aims in maximising the possibilities of positive user adoption.

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