Evaluation of the Archival, Library and Information Studies Department eClass at University of West Attica

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Abstract:

Purpose - *This paper presents and discusses the main results of a survey concerning students and faculty (academic staff) evaluation of the eClass of the Department of Archival, Library & Information Studies, University of West Attica, with the use of online questionnaire. The survey was conducted in October 2019 and it is a comparative study of a previous research-survey (about the eClass) of 2012.*

Design/methodology/approach - *The questionnaire, consisted of open and closed-ended questions, and were sent respectively to the undergraduate and postgraduate students and the faculty's staff (or professors) of the Department. As a result, 275 valid answers (233 undergraduates and 42 postgraduates' valid responses) translated to a net response rate of 39%, while the faculty survey returned 29 valid answers with a 100% participation rate.*

Findings - *The findings demonstrate that the students and the faculty agree that the eClass is essential for the Department's courses and program (undergraduate and postgraduate). The communication and the interactions between the eClass platform and the users (faculty and students) has been very well established. Finally, the more interesting result that revealed from the regression analysis that was conducted, is that the more recent registration by the users (student and faculty), the more they visit the platform (eClass) and the higher they appreciated the system's functionalities aspect.*

Originality/value – *Useful findings were extracted regarding the evaluation of ALIS Dept eClass, after (almost) ten years of implementation. Useful comparison was made with the previous evaluation in 2012 and joined results extracted. The opinions gathered from the undergraduate and postgraduates' students, and the faculty, reveal that the strategic goal of the ALIS Dept to use the eClass as a centralized component for the studies in the Dept, is a sophisticated choice.*

Index Terms — **eClass, e-class, moodle, evaluation, teaching, distance learning, e-learning, surveys, limesurvey, higher education, users' access policy, information policy, information management, students, faculty.**

I. INTRODUCTION

Information and communication technology (ICT), a game changer for the education sector [1] has shifted over the last few years educational practice from a closed, teacher-controlled pedagogical approach to an open, transparent, integrated society that supports the student's initiative, facilitating collaboration, personal skills, and lifelong learning.

This technology supported smart learning environment enriched with digital resources, context-aware and adaptive devices, and can provide appropriate support to meet the learning style and abilities of diverse students [2] marking a clear convergence between Knowledge Management strategy and technology [3] is putting the student at the heart of a new training paradigm [4]. In order to address their expectations and perspectives built around multidimensional and interactive media sources, educational innovators under the pressing need for convincing learning scenarios and designs [5] and the implementation of alternative learning strategies [6] have started to establish the VLEs as fixtures of the higher education landscape [7]; and teachers as coordinators and organizers of independent, informative activities [5].

According to several studies, delivering information via the web is gaining popularity among both students and staff and LMS (*Learning Management Systems*) are currently supporting an entire university's teaching and learning programs providing many benefits including an increased accessibility to information, better content delivery, personalized instruction, content standardization, accountability, on-demand availability, self-pacing, interactivity, confidence, and increased convenience [5], [8], [9]. They have already become the default starting point of technology-enabled learning [10], in Cavus [11] offering integrated support over the six different dimensions of creation, organization, delivery, communication, collaboration and assessment [12].

The implementation of this nevertheless complex environment usually referred to as learning platform, course management system, content management system, e-learning portal, or instructional management system [13] requires

- The development of new skills and sets of pedagogies **[14], [15], [16], [17]**
- The reconsideration of the format and effectiveness of student assessment **[17]**
- The reevaluation of the importance of teaching styles, student motivation, infrastructure reliability and university support **[18]**
- The role of instructor confidence and imagination to encouraging the students to participate in e-leaning or blended learning activities **[19]**
- The evaluation of the impact of institutional ethos, culture structure and administration **[20], [21]**
- The rethinking of all the cognitive and behavioral components as well as social factors that potentially affect stakeholders buy-in and long-term benefits **[22], [23], [21]**

The Department of Archival, Library and Information Studies (ALIS), based at the University of West Attica (UNIWA) (formerly known as Technological Educational Institute of Athens abbreviated *TEI of Athens*) is using a Moodle installation as its eClass platform from 2010. Moodle is a freely distributed open source software, and has been one of the most popular Course Management Systems (CMS). The faculty (professors) has invested a significant amount of time and effort and has created more than 50 online courses in undergraduate, postgraduate (master), PhD and Erasmus level, which provide students with all the necessary course material (multiple bibliographies, presentations, e-books and other text and multimedia resources). The online resources also include activity modules, assignments and quizzes that utilize the interactive and collaborative environment of Moodle.

This paper, is a study which presents the evaluation of the department's eClass in October 2019, which has been based on an online questionnaire, part of it addressed to the faculty and part of it to the students. The questionnaire attempted to collect data concerning the users' attitudes and profiles (visiting frequency, favorite activities) and their opinions about the functionality and usefulness of the eClass in enhancing the teaching and learning experience. The results fully confirm the faculty's view that the eClass is an indispensable addition to the departments teaching tools and demonstrate that it is extensively used and highly appreciated by both faculty and students. The results of the current study (in 2019), are compared with the results of a previous study that evaluated the eClass and was conducted in 2012 by Zervos et al. **[24]**.

After (almost) ten years of using eClass (and Moodle) in ALIS Dept, a current and further research was necessary (according to author's opinion) to reveal the evolvement and the experience of the eClass use among the students and faculty (professors).

II. LITERATURE REVIEW

The literature review, it examines the learning management systems (LMS), and especially Moodle, which is used in *ALIS* (*UNIWA*).

LMS Research

The corpus of literature dedicated to understanding how the use of Course Management Systems (CMS), Web-Based Course Environment (WBCE), Virtual Learning Environments (VLES) or Learning Management Systems (LMS) **[25],** impacts on pedagogical practices in higher education. Beetham & Sharpe [7], and Holmes & Prieto-Rodriguez (2018) **[26]**, believe that this is still under development and according to Sánchez et al. **[27]**, and Duygu et al. [9], there still is a dearth of research regarding the factors that influence students and staff's acceptance of LMS.

The very little evaluation, if any, carried out on the use of the system or what impact it may be having on learning and teaching on the one hand and criticism for its instructor-centric nature and limited impact on pedagogy on the other **[28]** have contributed to the meagre use of the LMS to a large extent.

As a result, universities confronted with these challenges have being modifying and blending its capabilities with more traditional methods and new technological tools **[29]**.

Despite the fact that many experts within the higher education sector herald LMS and information and communication technology (ICT) in general to add new dimensions of richness and complexity to the student learning experience and promising results are already being reported on the international record, there are voices warning that many of these technology-based systems are never used to their full potential [28], [8].

The blended learning construct that has attracted much attention within the higher education sector in recent times, an evolving phenomenon in higher education that has been debated about its definition, purpose and impact **[30], [28], [31]**, is a solution by combining several different delivery methods, such as collaboration software, Web-based courses, and knowledge management practices, maximizes its effectiveness **[32]**.

Higher Education administrations are taking into consideration LMS's implementation obstacles such as cultural problems and conventional mindsets, literacy problems on the usage of CMS, from both sides (faculty and students). The availability of funding as identified by Saputra et al. **[33]** consider "expedient to apply a mixed training model combining the elements of distance education with the traditional learning process in different proportions" also commonly referred to as web-enhancement **[34], [35]**, especially in the case of Greece Technological Educational Institutes that only recently upgraded their roles and functions in the higher education (HE) realm.

The Greek higher education blended learning model oscillating between, according to Graham's taxonomy **[14],** «Face-to-Face Driver» model, where electronic training is

used as addition to the main program and the «Rotation». model where school hours are distributed between individual electronic training and training in class together with the teacher. The teacher is working on-site in class also carries out remote support at electronic training. The teacher has the freedom to organize course resources in multiple ways for various classes. An acute lack of standardization is however gaining traction within student populations according to the study by Kyrgios **[36]**, where the majority (74,5%) of students were in favor of a combination of traditional and online course and content delivery that is blended learning.

Although the official LMS in most Greek universities is Open eClass, there are many institutions that judged the flexibility of Moodle most suitable for the multimodal delivery approach in their attempt to involve the strengths of each type of learning environment and none of the weaknesses [28].

Moodle Advantages

The fact that Moodle is open source and is configured around social constructionist pedagogy combining aspects of constructivism (knowledge is generated through mediation and interaction with the environment) and constructionism (learning by doing) **[27]** was the basis of the rationale for its adoption by a large number of institutions between 2003 and 2012 **[7]**.

According to Walker et al. **[37]** "Moodle is a fine example of how and why open source works". Developed by Martin Dougiamas and headquartered in Perth, Australia, and first released in 2002 it has since grown both in its robust, cutting-edge feature set **[6]** challenging traditional preconceptions and fears concerning core OSS adoption **[37]** by enabling among others interaction, customization, social presence and a sense of community **[25]**.

The Community Perspectives

Studies by Xu and Mahenthiran **[17]**, Zervos et al. **[24]**, Gower and Barr **[26]** and Santamaria, Ramos and Antolin **[27]** reveal a student appreciation of the eClass usefulness, user friendliness, navigational and system quality aspects. Palmer & Holt **[38]**, and Holmes and Prieto-Rodriguez in 2018 **[26]**, claim that there is evidence that students generally have a more positive view of the platform than staff while they also seem more positive towards the accessibility of course resources afforded by LMS and student to student interactivity features **[26]**. Their perceptions around procedural efficiencies, such as assignment submission and access to gradebooks, is equally positive according to Mestan **[39]**.

On the contrary, students had expressed dissatisfaction with support and communications, instructor quality and the lack of content and course layout standardized approach **[40]**. In detail, students were more concerned with the quality of the online teaching, which was reflected in their perception that their teachers were neither engaged enough with them in what they believed ought to have been an interactive learning environment nor spent enough time using the platform. They were also dissatisfied with poorly designed and maintained sites rather than the lack of a site **[41]**, **[35]**. Among their most common concerns were those related to the inability to interact with the faculty and inability to seek help if it is needed **[34]**.

Teachers overestimate slightly the educational impact of all the activities as compared to students **[24]** while seem more concerned with technical aspects and workload issues **[41]**. They ask for more support in using the software **[24]** and agree with the suggestion that some kind of standardization would be useful for students **[40]**. One of the problems identified by the teachers regarding the use of Moodle is the lack of training in using Moodle **[27]**. Fidalgo et al. **[23]**, found that staff were generally less positive about the interactive features of LMS than students. Finally, the results showed that most teachers, by a narrow margin, had not changed their pedagogical practice as a consequence of using Moodle **[23]**.

Overall, international research repeatedly reports faculty and student fewer positive comments about the frequency of the use of the platform's interactive aspects that apart from quizzes and discussion boards are considered underutilize. Results suggest that Moodle despite its great potential, is mainly used as a repository for exchanging files and a platform to publicize assessment without nevertheless incorporating elements of feedback **[12]**, **[25]**, **[13]**. According to Morgan **[42]** and Malikowski et al. [43], the most-used functional features are document downloads, asynchronous communications, quizzes, drop box and gradebooks/class management.

Moodle Research

Numerous studies from developed countries during the last decade analyze the effectiveness of Moodle as a b-learning tool in higher education. Escobar-Rodriguez and Mongo-Lozano **[22]**, Martín-Blas and Serrano-Fernández **[44]**, and Damnjanovic et al. **[21]**, report improvements in the learning process, higher motivation and higher student retention.

After years of use of the asynchronous University eLearning platform at the Department of Archival, Library & Information Studies of the University of West Attica (former Technological Educational Institute of Athens), the administration was urged to search for an alternative due to content and funding issues. Although higher education institutions are usually known for their reluctance towards change and empirical research on Moodle is relatively small in number according to Chunlin **[13]**, its adoption had been validated in 2010 based on educational and operational criteria that indicated Moodle (the current eClass installation in the ALIS Dept) as the most viable solution **[24]** offering a plethora of configured modules and external tools ranging from assignments, workshops, chats, forums and quizzes to blogs, questionnaires and wikis **[13]**.

III. AIMS AND OBJECTIVES

The incorporation of LMS into higher education institutions is a complex process. As the number of universities that enter the domain increases, considerations in the international research record today keep mounting.

- The mismatch between the potential of technologies and the actual use that on the one hand questions the return on the e-learning investment **[28]** while on the other seeks to mitigate the resistance to e-learning by faculty members worldwide partly due to their perceptions of the limitations of e-learning and the insufficient maturity of the available tools and the lack of time or motivation to carry out what is basically an additional task **[35]**.

- Issues caused by and resulting in the inappropriate translation of traditional delivery models into the digital realm can make an online library presence clumsy and boring **[45]**.

- The exploration of correlations between perceived usefulness, behavior intention to use the system, satisfaction, and instructor's attitude toward and control of the technology, instructor's teaching style, student motivation and technical competency, student–student interaction, course content and structure, ease of Internet access, infrastructure reliability and university support **[46]**.

- E-assessment and the importance of alternative assessment methods that aim to improve higher-order thinking skills and educational objectives (i.e., deeper understanding of the material through the active use of the knowledge in more realistic and complex contexts) **[47]**.

- The extent to which academic library's presence in LMS is desirable or necessary so that it strengthens its relevance to students and faculty **[1]**.

Indeed, university leaders are required to investigate several plans and parameters to insure the successful adoption of LMS. Despite the increasing use of smart learning environment in higher education, there is no well-defined model with a set of educational requirements for developing and evaluating it **[2]**. Notwithstanding, several models have been proposed and tested over the years including the Technology Acceptance Model (TAM), one of the most widely used and validated models for investigating the adoption of new technologies. Although of limited application in the education realm **[28]**, its extended version with the integration of other external variables such as Computer Self-efficacy, System Quality, Information Quality and Technical Support or even the combination of the Diffusion of Innovation Theory (DIT) and TAM **[48]** and the model proposed by Duygu et al. **[9]** based on the belief factors of the technology acceptance model; namely perceived usefulness, perceived ease-of-use and external factors including self-efficacy, enjoyment, subjective norm, satisfaction, and interactivity and control.

Under the influence of the general requirements defined by the "Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)", adopted at the Bergen Summit (2005) and subsequently presented at the Erevan Summit, covering dimensions that are vital to the quality in higher education through the definition of a common framework for quality assurance systems in terms of learning and teaching at European, national and institutional levels **[4]**. In the absence of a Good Practice Guide, at the example of universities in countries that have developed distance learning or blended-education courses or the lack of a LMS evaluation standardization method education, decision makers are taking into consideration the challenges associated with quality assurance systems in a blended learning HE context due to the conflict between quality for accountability and quality of teaching due to the perceptions of different stakeholders. As a result, they are encouraging research and experimentation to help understand the role of LMS in higher education in general and the development of innovative monitoring and tailor-made evaluation practices to:

1. detect whether there is a mismatch between the potential of technologies and actual use begs the question of how to return on investment, given one of the major rationales for such an investment is to maximize the quality of the student learning experience and outcomes **[28]**

2. assess the quality of the e-learning system implementation

3. identify focal points when providing professional development to faculty

4. identify main barriers to e-learning effective implementation

5. measure how well the system delivers on key functions and supports the online learning environment to serve the academic mission

6. check if the platform's potential is fully developed and to know what is the relative maturity use of this technology at the university

Within this realm and given the fact that the ALIS Dept relies heavily on the use of the eClass, a survey was developed as part of the formal evaluation cycle that sought on a regular basis to measure the impact on the learning procedure. The extent of both faculty and student utilization of the various learning activities and features should be dully measured and evaluated [24] and subsequently, by verifying changes in performance and attendance, set the foundation for a more organized effort.

This descriptive exploratory study following a positivist approach aimed to obtain first-hand inputs of the real eClass use in the Department. Items were adapted from the prior study of 2012 which was based on the existing literature with modifications; however, in 2019 the expanded and new research was aimed to meet the current research objectives and the department's organizational goals. The questionnaire tool was Lime Survey. The survey instrument

investigating the collaborative, individual and instructor-led Moodle dimensions targeted the collection of input around both the social cognitive and information system success variables. For that purpose, it was composed of three sections. In the first section, the participants were asked to provide information related to study program, program admission year and preferred mode of access to eClass.

In more detail, in the second section the participants were asked to provide information related to the frequency regarding the usage of the e-learning services and their favorite components of the Moodle platform. The last section of the questionnaire, sought a characterization of the use of Moodle, the degree of importance assigned to the use of each tool and the educational impacts of the platform use over several dimensions asking participants to rate their overall experience in terms of ease of use and usefulness.

The completed student survey returned 275 valid answers (233 undergraduates and 42 postgraduates' valid responses) translated to a net response rate of 39%, while the faculty (professors) survey returned 29 valid answers with a 100% participation rate. Only complete questionnaire results will be reported and analyzed.

IV. DISCUSSION AND FINDINGS

The surveys comprises of quantitative and qualitative items seeking student perceptions of features that need to be implemented to extend eClass as a learning tool.

It seems there is a decrease in the eClass visiting frequency on the student side between years 2012 and 2019 as the percentage of student access on a daily basis has dropped about 10%; while the slight increase of access to the platform on a weekly basis (3,5%) cannot compensate for the reduced traffic. On the other hand, the observed upward trend in the time that students interact with the system (increase of 23% for visit duration averages between 1 and more than 10 hours) accompanied by a decrease in the number of students that visit Moodle for less than 1 hour sends out a positive message in terms of the platform's effectiveness in keeping students engaged (figure 1). *The figures indicate the year 2020 (instead of 2019), because the survey was conducted in October 2019, however, it has data from the academic year 2019-2020.*
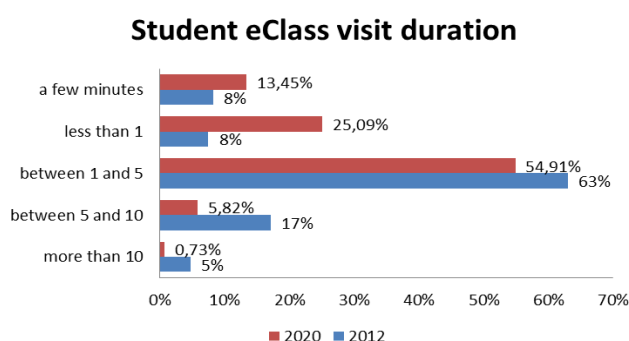
Student eClass visit duration

Figure 1. Students eClass visit duration

As to most frequented student activities recorded in the two surveys, figures regarding communications, quizzes and glossaries do not reveal any significant changes and still remain low, while the slight decrease in material downloads, lab registration and other procedural activities in combination to the 1% increase in using the LMS to keep up with latest news on educational and community topics raises a red caution flag to the emergent necessity of coming up with new strategies to increase the platform's attractiveness among the Department's stakeholders (figure 2).
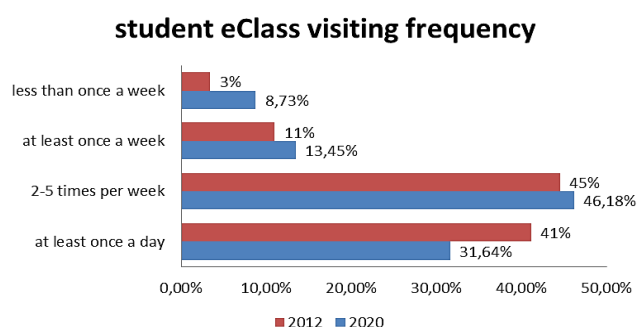
student eClass visiting frequency

Figure 2. Students eClass visiting frequency

The participants' verbatim comments are revelatory of the current situation, the quantification of which provides decision makers and LMS administrators with a blueprint of the most acute issues involving from procedural, attitudinal and technical problems to e-assessment, lesson layout, instruction quality, content quality and communications.

Several of these problems were also brought up by faculty members participating in the 2019 survey.

There is generally a high degree of convergence between both groups (faculty, students) participating in the 2019 survey about the eClass educational impact over all examined aspects. Except in the case of discussion groups where faculty seemed to overestimate their effectiveness compared to their restrained appreciation by students, while faculty underestimated the instructor feedback impact as traditionally faculty is more consumed in administrative efficiencies. In comparison to the educational impact acknowledged by participants in the 2012 survey, there seems to be little variation in the high impact of online study material and quizzes to the learning and teaching process. Participation in discussion groups is still less appreciated while instructor feedback is among higher rated aspects (figure 3).

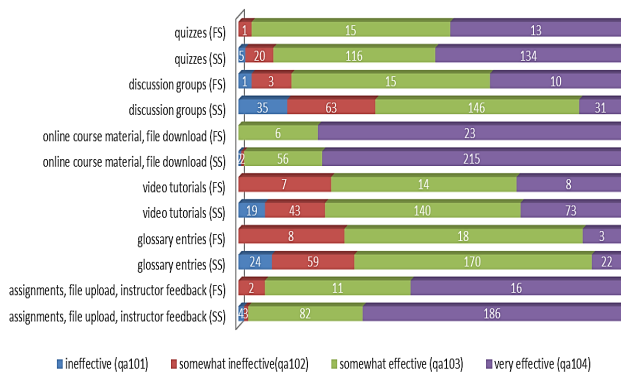### Perceptions about activities' educational impact -2020

Figure 3. Educational impact

As to the survey item Q11 on eClass usefulness, it may be interesting to note that the findings analysis revealed student problems with the system's learning curve and the system's contribution to foster the sense of community among participants. They were also less optimistic than faculty about the possibility of improving the system and its contribution to improving instruction quality (figure 4).

Participants' opinion of eClass usefulness - Q11, 2020
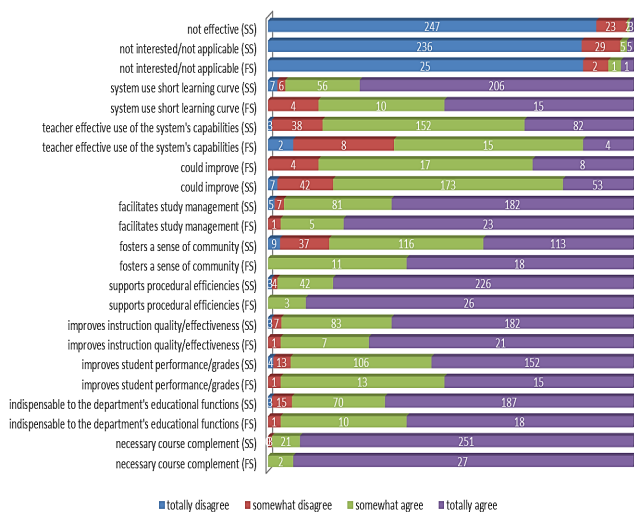
Figure 4. eClass usefulness

In regards to the platform's evaluation over the availability, support, speed and ease of use dimensions between the two different participant cohorts, there is a slight increase in student satisfaction with the system's availability, speed and easiness of use between 2012 and 2019. However, there is a drop where support is concerned while faculty seems more satisfied with support, availability and ease of use now than before. Nevertheless, faculty has manifested a disappointment about speed which may suggest the necessity to conduct an infrastructural capabilities evaluation to detect any potential technical issues resulting in the expressed frustration (figure 5).

Faculty attribute greater importance to content uploads, assignment feedback and announcements and less attention

to interactive/synchronous communications which explains to some extent the student disappointment and rising disinterest in the use of the system (figure 5).
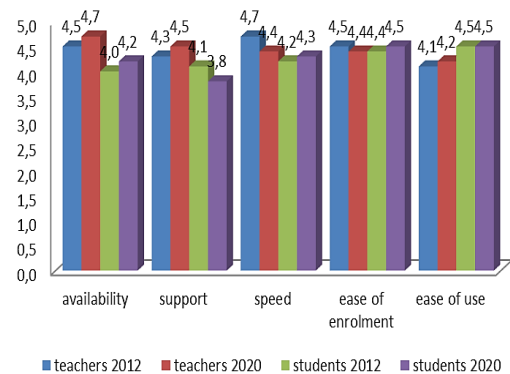

Figure 5. eClass overall evaluation

To statistically test whether there is a relationship between the explanatory variables related to students' appreciation of the system and student demographics such as study program, year of admission and frequency/duration of eClass use, a regression analysis was conducted. The regression showed a statistically significant relationship between admission year, availability and ease of use. There was also a correlation between the study program (undergraduate, postgraduate) visit frequency and the students' appreciation of the availability, speed and ease of use of the system. Therefore, the more recent their registration, the more they visit the platform and the higher they appreciated the system's functionalities aspect. This conclusion partly agrees with the findings in Xu and Mahenthiran's study [17], asserting that most recent cohorts, freshmen and sophomore students, are more comfortable with the assessment and access functionalities of Moodle as compared to juniors and seniors; a fact possibly explained by their greater familiarity with the technology and the lack of past experiences in face-to-face courses.

V. CONCLUSIONS

It seems from the comparison of the two researches (surveys), the two eClass evaluations in 2012 [24] and 2019, that there is acceptance of the eClass both from the faculty and the students. The current evaluation (in 2019), reveals more critical findings from the survey in 2012 [24], because there was a transmission from a Technological status, the TEI of Athens, to a University status, the University of West Attica. So, there are more opinions from postgraduate students (because the ALIS master program started in 2018) and more experience in undergraduate students, which is normal because the ALIS eClass installation and use is approximately 10 years. Both, faculty and students agree that the eClass is essential for the Department's courses and program (undergraduate and postgraduate). The communication and the interactions between the eClass platform and the users (faculty and students) has been very

well established. The Moodle installation is very convenient for the faculty and students. The eClass use has been increased since 2012.

The overall evaluation of the eClass reveals that the strategic goals of the ALIS Dept (administration), which is the enhancement of the eClass platform and its maintenance by faculty members is a fruitful choice.

However, the lack of resources (human and financial) reveals some problems and thoughts about the transmission from the ALIS eClass to the University eClass, which is also a Moodle installation. This needs further research (survey), because the ALIS eClass has a very well-established interaction with the faculty and students, something that is not guaranteed if there is a transmission and migrations to the UNIWA eClass.

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