

Evaluating the Quality and the Success of Online Courses

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Abstract

Measuring the quality of a b-learning environment is critical to determine the success of a b-learning course. There are a lot of materials related to the quality process, namely different approaches and perspectives but none of them is specific of the product of a b-learning context. In this paper we identify the indicators that should be analyzed in order to determine the quality of a b-learning course, since its success reflect not only the student's perception, but also what should be taken into account. B-Learning environments are relatively new and combine educational characteristics with technological elements that support the learning process and the training delivery. Our main objective is to know what a high quality b-learning environment is in students' perception and what are the main quality dimensions of these courses, in the perspective of the products and services offered. After a literature review concerning the quality process and in particular the b-learning quality field, a structure that provides the main elements that should be evaluated by students when we are measuring the quality and the success of b-learning product/services was created. The structure obtained was applied to a case study of the Polytechnic Institute of Oporto. Results presented will help institutions to deliver services with more quality and improve their long-term competitiveness.

Keywords: e-learning, b-learning, quality measure, case study, personal learning environment.

Introduction

E-learning has become widely used in all kinds of education (traditional and formal education, continuous education and corporate training) because of its characteristics such as flexibility, richness, resource-sharing and cost-effectiveness. In this work we paid more attention to the blended-learning (b-learning) systems, which combines "face-to-face instruction with computer-mediated instruction" (Bonk & Graham, 2005). E/b-learning has been largely used in the context of higher education. It includes a wide range of learning formats including self-study and instructor-led in an asynchronous and synchronous mode. The e/b-learning systems always represented an alternative to traditional teaching/learning and training and, therefore, has had to battle for recognition, which lead to the development of procedures in order to demonstrate its quality (Rekkedal, 2006). Evaluating the quality of a b-learning environment is not an easy task since this concept is not an objective one. The analysis of the quality of such a system depends also on the perceptions of students. A series of several multi-dimensional variables also needs to be taken into account. Furthermore, b-learning may be viewed as an educational service that is influenced by many external factors such as the technologies used and the students' experience on the field.

According to the ISO (International Organization for Standardization), quality is defined as a set of products and services features that matches the client's demands. Client is considered anyone who uses the system. According to the American Society for Quality¹ in technical usage, can have two meanings:

- “1. The characteristics of a product or service that rely on its ability to satisfy stated or implied needs.
2. A product or service free of deficiencies. The totality of features and characteristics of a product or service that relies on its ability to satisfy given needs.

Besides the different approaches to the concept of quality, it is consensual that quality is a subjective term for which each person has her own definition”.

As the number of b-learning courses is increasing, it is important to evaluate the quality offered in order to help the potential users to choose the best course. The problem is, therefore, what does a b-learning service with quality mean? What are the most important dimensions of quality that should be analyzed/evaluated? And how can the institutions measure the quality and the success of their b-learning services in order to improve them? We believe that if we answer these questions we will be able to help institutions to deliver services with more quality and improve their long-term competitiveness.

There are some management models to support the development of an e-learning environment but there is a lack of knowledge when we try to evaluate them. So, how can we measure the quality of a b-learning service? To bring some light into this question, we gathered and analyzed different perspectives and added some issues specially related to b-learning environments that emerged from our previous experience.

In this paper we describe the research carried out in order to develop a framework that can help institutions to measure the successful of their b-learning services. Thus, in the next section we provide the background information concerning the quality of the b-learning system that was used in this research.

General Models for Quality

The EFQM excellence model (EFQM, 2012) is a general no-prescriptive quality process model that includes good practices for quality in an organization. They consider that excellent organizations measure their work in a broader way and give high levels of client satisfaction. This model is based on nine elements: leadership (10%); procedure and strategies (8%); people (9%); partnership and resources (9%); process (14%); client results (20%); people results (9%); society results (6%); strategy performance (15%). The higher value is set to the client result. In the same perspective (general quality process approaches) the ISO (ISO, 2012) refers that it is important to consider eight quality management principles: customer focus; leadership; involvement of the people; process approach; system approach to management; continuing

¹ <http://asq.org/index.aspx>

improvement; fact based decision-making and mutually beneficial supplier relationships - supply approach. These models constitute two sides of the same quality process and improvement coin, both referring the importance of analyzing the client satisfaction but any of them considers the scenarios of eLearning. In this work, we are especially concerned with this issue in a prescriptive approach in order to better implement it. Still about this topic, there are some institutions that provide a set of recommendations and good practices oriented to the quality of the process such as IHEP ,ODLQC, EFQUEL etc. These recommendations are mainly related to the learning programs and continuous improvement, institutional aspects, delivery of course design and programs, teacher and students support, pedagogical aspects and evaluation. These recommendations are very important when we are designing an e-learning solution and may have effects on the successful of an e-learning service reflected on the costumers' satisfaction.

Related to the product orientation we can refer some generic models as Quality Function Development ² or Kano Model³. The QFD suggests using customers' necessity as input to the creation of a product while in the Kano model the customers satisfaction is measured using three approaches – Basic quality, quality of performance and enthusiasm quality. These approaches uses customers' expectations and try to overcome them by a high quality of products and services.

Still oriented to the product, we can refer some specifications from the industry of learning objects such as ADL, IMS, IEEE, ARIADNE , AICC, DCMI, etc. This kind of specification conducts the process based on the concept of re-use and interoperability of the learning objects. They focus on the specification of the internal structure of the learning objects (metadata, XML, etc.). They do not include pedagogical issues (objectives, evaluation, feedbacks, etc.).

In summary, the approaches oriented to the process lead to the e-learning process and continuous evaluation, institutional aspects, features related to the design and how the course and progress work; support to the teacher and learners, pedagogical and evaluation aspects. The orientation to the product leads to the quality in the services and product and is related to the client's expectation and requirements.

In this work we will pay more attention to the specific product approach instead of the process approach (general or specific) as we want to evaluate if the learning results and students' satisfaction were reached, which means the b-learning service success. Thus, we will need to combine element from different perspectives.

Main Dimensions of quality in a b-learning environment (product and services)

According to the Khan's model (Khan, 2005), institutions should consider students as education customers and training in a competitive market. Khan's model (2005), called "e-learning platform", was developed from the critical factors of the development of an e-

² <http://www.qfdi.org/>

³ <http://asq.org/learn-about-quality/qfd-quality-function-deployment/overview/kano-model.html>

learning experience and is based on eight dimensions: institutional, pedagogical, technological, interface design, evaluation, management, student support, and ethics. The combination of positive responses to all these dimensions, according to the author, provides sustainable paths to success.

Peres et. al (Peres, Ribeiro, Tavares, Oliveira, & Silva, 2011) presented a structure that integrates, consolidates and lists the elements identified by Khan, as well as other elements prompted by b-learning contextual practice in higher education and that have been validated in successive evaluation cycles. According to Peres et. al (Peres, Ribeiro, Tavares, Oliveira, & Silva, 2011) services and products offered in a e-learning context may be grouped in three categories: Institutional, Technical and Pedagogical. According to these authors the success of technology-enhanced learning relies deeply in the harmonious combination of the correct technologies with the most efficient pedagogies, allowing the implementation of innovative, authentic and diversified teaching and learning opportunities, requiring the need to work on three levels: institutional, technical and pedagogical. The basic level considers the institutional aspects and supports the progress of the project. This level includes the aspects related to management and ethics in Khan model (Khan, 2005). Without the clear support of the school's Board and a Management team, it is difficult to be successful in a b-learning institutional project and reach the school's full dimension. This means that any evaluation of a b-learning service must take into consideration its institutional and technical environment, besides its pedagogical perspective. This analysis includes the identification of the technological structure offered by the institution. The quality of all these dimensions will be reflected on the success obtained.

Related to the b-learning product/services, it is important to determine the elements that should be analyzed in each group. This analysis will contribute to prevent any problem that might arise. The Garvin's Quality Dimensions (Garvin, 1987) provide some light into this discussion since they offer eight categories for the quality of a product or a service. These are: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality. In the next paragraphs we briefly explain the meaning of each of these categories.

The **performance** is the primary characteristic of a product or service. In the b-learning system, it can be included in the three dimensions, namely in the pedagogical, technical and institutional one. To measure the performance means to evaluate the ability to give a quick reply to students concerning the technical, pedagogical or institutional system (Merisotis & Phipps, 2000)(EFQUEL, 2011)(ODLQC, 2005). The performance is also referred in the e-learning success model by Lee-Post (Lee-Post, 2009). The analysis of the quality of a system should include the ability to be fast and responsive related to the technical and institutional dimensions (Lee-Post, 2009) (ODLQC, 2005). In the perspective of Zhang and Wang (Zhang & Wang, 2005) in general, the performance concerns the technical support, but if we are referring to the learning support, it relates to the b-learning teaching process (pedagogical dimension). The EFQM (EFQM, 2012)excellence model of quality refers this learning support as tutor support that should be in time and useful (Merisotis & Phipps, 2000) (EFQUEL, 2011) (ODLQC, 2005).

The **features** in the Garvin's Quality Dimensions (Garvin, 1987) refer to the add-ons, supplements or secondary characteristics that increase the product's basic functioning. Related to this, the MELSS model (Hassanzadeh, Kanaani, & Elahi, 2012) refers the importance of adding tools to include more interactivity to the technical system with appropriated functions and menus. This system should also offer the possibility to be personalized (Hassanzadeh et al., 2012) (ODLQC, 2005) and to have some security issues (Merisotis & Phipps, 2000) (Hassanzadeh et al., 2012).

Related to the pedagogical dimension, according to the MELSS model, the system should offer facilities such as chat, forum, etc., tools for communicating with others, providing a social collaborative and active learning. To ensure the quality of pedagogical features besides the exploration of the communication tools, it is important also to define clear objectives, offer contents adjusted to the different learning styles, promote active learning and give organized contents (EFQUEL, 2011) (Merisotis & Phipps, 2000) (Hassanzadeh et al., 2012). It is also important to provide different learning paths (Hassanzadeh et al., 2012), clear evaluation (EFQUEL, 2011), single units for contents (Merisotis & Phipps, 2000), accurate, update and clear contents (ODLQC, 2005) (Hassanzadeh et al., 2012), give sufficient number of contents (Merisotis & Phipps, 2000)(ODLQC, 2005) and useful contents (EFQUEL, 2011) (ODLQC, 2005). Our experience in the field demonstrated that more and more we should include the informal learning in the formal contexts.

The features related to the institutional dimension include the incentives given by the institution for innovation (Merisotis & Phipps, 2000), the ability to offer a variety of ways to communicate with students, to have a good management of the course and complains (Merisotis & Phipps, 2000) (EFQUEL, 2011) to provide information about the course (Merisotis & Phipps, 2000) (ODLQC, 2005)(EFQUEL, 2011) and the global evaluation of the course (EFQUEL, 2011).

The **Reliability** in the Garvin's Quality Dimensions (Garvin, 1987) refers to the probability of malfunctioning or failing within a specified period of time. This element is more related to the physical structure of the system, the technical dimension identified by Peres et. al (Peres, et. al, 2005) but can also be applied to the pedagogical and institutional dimension, considering the probability of their services to fail. The e-learning success model (Lee-Post, 2009) also refers, in the group "service quality", to the importance of maintaining the availability of the system. Donabedian (1980, quoted in (Ehlers & Pawlowski, 2006) mentions this aspect as the availability or capability of the technological infrastructure.

The conformance relates to the degree to which the design and operating characteristics of a product meet specifications and establish standards.

Related to the technical dimension it is important to evaluate if the digital environment follows the rules of Interface and if it is user friendly. Constantine (Constantine, 1994) presented a summary of the main principles related to the usability: structure (objectively organize the interface, with significance and utility); simplicity (communicate in a simply way); visibility (maintain all options visible when they are necessary); feedback (keep the users informed with the tasks); tolerance (make available the option to "undo" an operation; re-use (reduce the necessity to memorizing information) (Constantine, 1994). It is important to guarantee that

the system is easy to use, easy to access, user friendly (EFQUEL, 2011) (Hassanzadeh et al., 2012) and adequate to the target group (EFQUEL, 2011).

Concerning the pedagogical dimension it is important to guarantee that it has followed a pedagogical design (EFQUEL, 2011)(ODLQC, 2005) (Hassanzadeh et al., 2012), that there is an adjusted evaluation (Merisotis & Phipps, 2000) (Hassanzadeh et al., 2012) and adequate evaluation (Merisotis & Phipps, 2000) methods (Merisotis & Phipps, 2000) (EFQUEL, 2011). It is also important to measure if the blended online methods are adequate and meet the needs of learning (EFQUEL, 2011) and if the workload and schedule are consistent with curriculum of the learning objectives (EFQUEL, 2011) (Merisotis & Phipps, 2000) (Hassanzadeh et al., 2012). It is also important to guarantee that all tasks and activities are coherent with learning objectives (EFQUEL, 2011) and the assessment is aligned with learning objectives as well (EFQUEL, 2011) (ODLQC, 2005). Peres et. al. (2005) underline the importance of the alignment between learning objectives, learning strategies and the evaluation process. In the same perspective Ghalayini & El-Khalili (El-Ghalayini & El-Khalili, 2011) suggest the alignment between the objectives, the contents and the level of interactions. Both authors recommend a specific type of technologies in order to get this alignment. Donabedian (1980, quoted in (Ehlers & Pawlowski, 2006)) refers the learning process (process quality), which includes the interaction of learners and desired training goals. Ehlers adds to the quality field the aspect of collaboration. Collaboration can take many forms and its value can vary a lot. According to Peres and Pimenta (ref) the highest objective level the more important is the inclusion of collaboration elements. These concerns are closely related to the pedagogical dimension. In order to get this alignment, it is important to clearly define the learning objectives. Differences in learning outcomes for online education, in comparison to face-to-face traditional education have been subject of attention. According to Cação (Cação, 2009), the literature has pacifically accepted that the learning outcomes for online education are equal or superior to those of face-to-face instruction. It is important to classify all the learning objectives using a specific model or taxonomy. Still related to conformance (El-Ghalayini & El-Khalili, 2011) underline the importance of evaluating the format used to present information, the interaction level and the collaboration type. Redeker's taxonomy classifies learning objects into three types: (1) Receptive: where the learner is consuming information, mainly reading texts, graphics and multi-media; (2) Internally interactive: where the learner interacts with the learning objects using text based, multi-modal and immersive environments; (3) Cooperative: where the learner is required to perform communicative activities with other learners – Asynchronous and assynchronous (Redeker 2003).

Concerning the institutional dimension it is important to guarantee that all pre-requisites are defined for those who want to enroll in the course and follow the ethical rules (ODL).

The Durability refers to the measure of a product's life. Technically, durability is the amount of use that one gets from a product before it physically deteriorates. It refers to the durability of the version of the LMS, the number of times we need to install a new version. The price of constantly changing a LMS is high and sometimes it requires new hardware. Moreover, one needs to produce new manuals and to prepare tutorials to train tutors and professors, etc. The feature is also referred in the MELSS model (Hassanzadeh et al., 2012).

The serviceability is related to the speed, competence and time of repairing eventual crash (technical dimension). It is important to react quickly when a service or product is broken in order to restore the system. A quick response can become critical in certain circumstances. As it refers to the ability to restore the system, it is more related to the technical dimension. This feature is referred in the MELSS model by maintenance.

The aesthetics feature refers to a more personal opinion about a product or service such as the look, the feel, the sound, the taste or the smell. It is a matter of personal judgment and a reflection of individual preferences. It is related to personal learning environment and here we evaluate the flexibility of students to personalize their learning environment. Zhang and Wang (Zhang & Wang, 2005) refer to these elements considering the web site utilization and flexibility offered. The reflection on the personalization of the learning environment leads us to the learning styles concepts. It is also important to offer different kinds of material on the same subject and different learning paths in order to get a more diversified and adaptive learning environment. This feature is referred in the MELSS model by attractiveness.

The last feature referred by Garvin (Garvin, 1987) is the Perceived quality. The perceived quality refers how quality is viewed by a customer, client or student. As stated by Hassanzadeh, 2012 (Hassanzadeh et al., 2012) a higher user satisfaction leads to an increasing success of e-learning systems. All features referred above influence the student's perception of the quality system. As stated by XX in the D&M model, the technical, pedagogical and institutional systems quality influence the intention to use the learning environment, through the indirect effect on user satisfaction. According to Hassanzadeh (Hassanzadeh et al., 2012) user satisfaction leads to achieve users' personal and educational goals. When a user of an e-learning system is more satisfied, the loyalty to the system will increase. In addition to the possibility of him/her intention to use the system for the future periods, he/she might suggest it to others. Product evaluation measures the learners' degree of satisfaction, teaching effectiveness, learning effectiveness, and any other possible additional outcomes.

Peres and Pimenta (Peres & Pimenta, 2009) refer the motivation as an important feature in order to get students involved in the system. In a training situation, motivation can be seen as a force that influences enthusiasm about the program, a stimulus that leads participants to learn, attempt to follow the program and a strength that influences the use of newly acquired knowledge and skills (Noe & Schmitt, 1986). In order to know the behavior of a student after a course we can use the Kirkpatrick mode (Kirkpatrick & Kirkpatrick, 2006) that tries to determine the answer to the following questions: Reaction or satisfaction: Did the learners like the training? Learning: Did the learners learn the contents? Impact: Did the learners apply the learning in their work contexts? Results: Did the training have impact in the learners business? We can also include the Phillips and Stone (2002) and consider the evaluation of the ROI (return of investment) looking for the answer to the question: "Was the investment worth it?" According to the e-learning success model (Lee-Post, 2009), in order to measure the user satisfaction, it is important to evaluate the overall satisfaction, enjoyable experience, overall success, the probability to recommend to others. It is also important to measure the level of time saving, academic success, isolation and technology dependence. According to our experience in a specific b-learning context it is also important to determine

the perception of students related to the workload and the number of face to face and synchronous sessions.

The MELLs model refers the importance of determining the user satisfaction, its perception of usefulness, its satisfaction with the system. They underline the importance of keeping the user pleased with the system and providing education needs to users, achieving education and personal goals. The users should benefit from the system (effect in learning, increase knowledge, self-confidence, cost-saving, time saving) in order to get a system loyalty (Hassanzadeh et al., 2012).

Evaluation of the quality and success of a b-learning environment

Taking into account the categories identified (Garvin, 1987), as well as the topics for each category and the indicators of measurement, we were able to develop a framework and adapt it to the specific context of the b-learning environment. Our experience in teaching/learning in this kind of context facilitated a better analysis and the selection of the main elements that should be considered when measuring a b-learning environment. We use the eight Garvin's elements to identify the main issues to evaluate and crossed them with the technical, pedagogical and institutional categories forming a matrix (see table 1). Then, for each element crossed with a factor, we identified indicators related to the b-learning system. Some resulted from our research work while others derived from our experience in the field. As we believe that a quality product results in a success product we use the elements identified in quality models and the elements identified in success models that fit a b-learning environment. We took special attention to the elements related to the products instead of to the process. Table 1 and 2 summarizes the result obtained.

Table 1 Objective Elements to measure the success of a b-learning environment

Quality Indicator	Technical	Pedagogical	Institutional
Performance	System speed Speed of provide support	Timely Tutoring Useful Tutoring	Provide guidance service Speed of provide service
Feature	Interactivity Personalization Security Functions and menus Support	Communication features Clear learning objectives Contents Adjusted to Learning Styles Active Learning Different learning path Accurate of contents Updated contents Clear contents Useful contents Organized contents Single units of contents Sufficient number of contents Clear evaluation Informal Learning	Incentive for innovation Variety of ways to communicate with students Management Course and complaints Course Information Evaluation of the course
Reliability	Probability to fail	Probability to fail	Probability to fail
Conformance	Easy access	Pedagogical design	Pre-requisites

	Easy use User friendly Adequate to the target group	Blended Methodology is adequate Workload and Schedule Course Evaluation Method Learning Activities are coherent with Learning Objectives Assessment is aligned with LO Tools are based on Learning Outcomes Adjusted Evaluation	Ethic
Durability	Durability		
Serviceability	Maintenance		

Table 2 Subjective elements to evaluate the success of a b-learning environment

Indicator	Technical	Pedagogical	Institutional
Aesthetic	Attractiveness		
Perceived of quality	User satisfaction Use the system	Achieving Goals Perceive usefulness Improving performance Effective learning Workload demanded Number of face to face sessions Number of synchronous sessions	User satisfaction Use the system
General	Cost-saving Time-saving Suggest use the system Tendency to use the system		

Case Study

In order to test and validate the framework developed, we applied it to the post-graduation in communication technology and business innovation that is offered in a b-learning environment at the School of Accountancy and Administration of Porto, which belongs to the Polytechnic Institute of Porto (Portugal). The main objectives of the course are: Use the web technologies in internal and external communication processes of an organization; Plan and implement e-learning and e-commerce systems; Plan and implement a communication system and technology project;

This course is supported in the moodle platform. The structure of the course is as follows: The course takes one academic year and has 10 units. Every unit runs for 6 weeks. After the 1st curricular unit starts, 3 weeks later, the 2nd one starts. This means that there are always 2 curricular units running together but at different stages. According to this structure, the student only has to concentrate and dedicate his / her time to 2 units at the same time. This allows him / her to better control his / her time, concentration and effort. Also during these 6 weeks the students have 3 face to face contacts with the teacher and other colleagues: one at the beginning of the unit, the 2nd one in the middle of the 6 weeks and the last one at the end. Usually in the 2nd face to face contact, teachers invite speakers to talk about new topics /

ideas. The last face to face contact is used for evaluation. Throughout the course, in each unit, there are at least 8 synchronous sessions with technology such as BigBlueButton, Skype, AnyMeeting or Hangout. The platform common to all teachers is the Moodle. Then, each teacher can additionally use other tools, usually freely available in the internet. This course has already had 4 editions, there are now about 50 students that have already concluded the course.

Survey

In order to assess the success of the course taking into consideration the subjective elements of the framework developed (table 2), a questionnaire was prepared and delivered to students. This tool had 2 parts: the first part contained biographical questions while the second one comprised questions encompassing aspects related to the technical, pedagogical and institutional dimensions. The questionnaire ended with a question about the student' overall opinion about the course. The questions for each dimension were:

Technical dimension	Pedagogical dimension	Institutional dimension	Overall opinion
Did you like the interface of the technical structure? Were you satisfied with the technical infrastructure? Did you really use the technical system?	Did you get your personal and professional goals with the course? Do you think that the competences that you got were useful? Did you improve your performance in your workplace? Did you learn effectively with the course?	Were you satisfied with the institutional support? Did you ask for institutional help with the system?	Were you satisfied on what you got related to the cost-saving? Were you satisfied on what you got related to the Time-saving? Would you suggest the use of the system/course to others? Would you have the tendency to use a b-learning system again? Was the workload demanded appropriated? Was the number of face to face sessions appropriated? Was the number of synchronous sessions appropriated

For the second part of the questionnaire we used a 5 points scale. It was administered at the middle of 2014. Below we present results.

Results Obtained

For the technical dimension, generally speaking students like the interface of the technical structure. Their answers were distributed between the "I like it very much" and "I totally like it". Just one student says he likes moderately the interface. When asked about the satisfaction concerning the technical structure, answers were distributed between "I like it very much" and "I totally like it". These answers show us that students were generally satisfied with the

technical infrastructure. There were no major problems or concerns about it. These opinions reflect the real experience students had with the system. According to the results, students did use the system very often. This is not a surprise since the course was offered at distance and there were at least 8 synchronous sessions for every unit. Although not all students attended those sessions synchronously, teachers always used tools allowing the record of the session so those that could not attend it would have the dialogue and access to all the materials presented during the session later.

As for the pedagogical dimension, the figure below synthetizes the most important results.

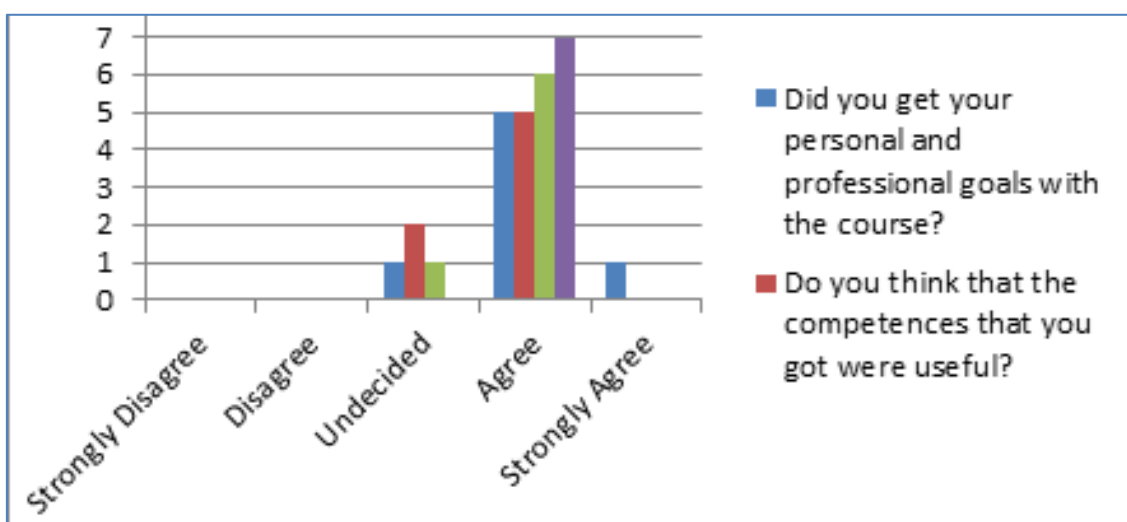


Figure 1 Pedagogical Dimension

Results show a positive attitude towards the learning process and outcomes. Generally speaking, the majority of students agree that their personal and professional goals were met and one of them even states there was a high impact (strongly agree). Just one student is not sure about having met his / her goals. As for the usefulness of the competences developed, the majority agrees that they are useful while 2 respondents are not sure yet. We also asked about the impact of the course in the workplace. Here, the majority answered they agree that there was some kind of improvement while one student state is not sure about it. Finally, all students agree that they effectively learn with this course and methodology used. These answers show that students were satisfied with the results. Learning at distance is a good solution. Results can be effective,

Finally, for the institutional dimension, we asked if students were satisfied with the institutional support. According to the results obtained, respondents are satisfied. Just one student says he / she is not satisfied with it. When inquired if they have asked for institutional support, none of them says “never”. These students have asked for support and they know how it works and what kind of answer and help they can get.

Finally we asked the overall opinion of students concerning the course.

As for the relation between cost-benefit, students are not sure about the result yet. The majority of the respondents opted for the answer in the middle. Concerning the time saving, answers are more positive. In fact, the majority of them say that this kind of solution helps to

save time. Just one student disagrees with this perspective. The majority of the respondents would recommend this course to others. As far as the workload is concerned, the majority of students agree that this was appropriate (whether some agree and some totally agree and one is undecided). Just one does not agree with the adequacy of the workload. Of course the workload varies according to the unit being delivered and there might be units demanding more work from each student than other units. Finally as for the number of face to face sessions and those synchronous, the reaction of students is positive, and sometimes very positive

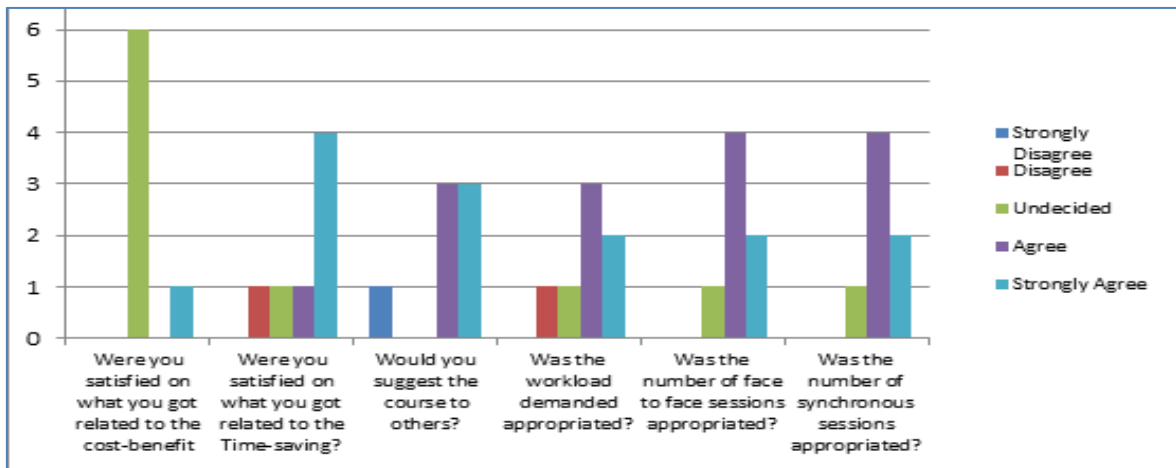


Figure 2 Overall opinion about the course

We also asked if they would use the b-learning system again and all of them said yes.

Additionally, we interviewed the coordinator of the course taking into consideration the indicators mentioned in table 1. According to her, the promotion of informal learning seems to be the major gap concerning the pedagogical dimension. As for the technical dimension it seems to be important to create service guidance in order to help students to interact with the institution. Concerning the institutional dimension, in order to improve the service and be excellent, the institution needs to promote mechanisms to increase the speed of the service offer and some kind of incentive to innovation. In order to reduce failure of services, the institution needs to provide specific training of staff, since this is a course that does not fit the same rule as the traditional ones. Related to the pre-requisites plus the existence of technical pre-requisites, the coordinator stated that the institution needs to spread the cognitive pre-requisites in order to support the decision of those who want to enroll in the course. As for the pedagogical dimension is it important to create a mechanism that makes sure that all teachers provide a timely tutoring. The coordinator also refers that sometimes students claim that the tutoring is not on time. To solve this, it is foreseen to offer training to teachers in the context of tutoring systems in order to make the tutorial really useful. As the most learning contents were adapted from the traditional classroom, they do not include the elements in order to meet the different learning styles, learning paths. Furthermore, some of them are not as accurate as desired. Additionally, the organization of contents is not all fitted for an online environment or / and are not in a sufficient number. She also refers that in this kind of environment the number of contents should be less, when compared to the number of a

traditional classroom. This scenario enhances the importance of preparing teachers on how to develop online contents (creation and organization) and the lack of pedagogical training for online environment. Concerning the technical dimension, the moodle revealed to be a good platform but it is also necessary to offer training on how to adapt the moodle platform to a specific learning context (interface and ad-ons).

Final Remarks and Future work

More and more institutions are offering courses at distance. This might be a good solution to overcome some difficulties (e.g. time and distance) but it is necessary to promote a reflection about the quality of these practices as well as of the b-learning product offered. Moreover, the success of a course also depends on the expectations of students and in the ability of the educational institution to meet them. These may concern the technical, pedagogical or institutional dimension. According to the students' point of view, they were satisfied with the technical infra-structure used. Concerning pedagogical aspects they considered that the return of investment in the course was worth it. Most of them were satisfied with the institutional support. In a global view, they were satisfied with the course and have tendency to use again a b-learning system. Nevertheless, the analysis of the questionnaires revealed the importance to reflect on the balance between the workload, the time saving and cost-benefit in order to make the course really worth it. Furthermore, it was also expressed by the coordinator, the need for specific training of those teachers that will work in this online environment. What teachers usually do is to adapt the content for face to face classes and place them online, which is obviously not enough or adequate. This is a not a finished project since results show that there are areas for improvement. However the framework developed helped to identify the areas to be analysed and reflected upon. Moreover, this is also a research in progress since the next step is to inquire teachers and then cross the information to identify other aspects for improvement. One cannot forget that teachers, in this particular situation also might operate as customers, especially of a system (technical aspect), although they are those providing the pedagogical dimension. Both student and teachers depend on the institutional aspect which sometimes none of them can change.

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