

# Conception of a formative distance service about modalities of payment in e-Commerce

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**Abstract** – The paper starts with an overview of the state of the art in technology mediated service in the e-learning field about payments in the e-Commerce market. With the fast grow of distance learning technologies it is important to think about some innovations in the pedagogic strategies to improve education. The students have different learning styles and the tutor needs to support those needs, to ensure the quality of learning and keep them motivated. As an answer to a lack of organized information in this field we create a module about different modalities of payment in e-Commerce as a formative mediated technology service using the platform BlackBoard coursesites to deliver and mediate the instruction, supported in different types of communication (synchronous and asynchronous).

**Keywords:** *higher education; technology mediated service; learning environment in b-learning; distance learning; gamification, e-Commerce payments.*

## I. INTRODUCTION

In the last decade the business community and the academics have struggled to understand the importance of the information systems and communication technology in the organizational context. We have seen that teachers have some reluctance to implement in the pedagogic strategies the opportunity to explore this field as an additional offer to universities programs.

The students have different styles of learning and capabilities, and the actual higher educational system needs a better configuration to address this challenge, through a technology mediated service capable for giving them the flexibility, cooperation, and support segmentation in the educational process. This reflection is described in section 2 through the comparison of the traditional learning and distance learning based on the Lisbon strategy and the Bologna Process, as well as in the analysis of corporate training practices through knowledge management. In the section 3 we present the methodological process and in section 4 the scope of the project developed. The project developed result in a b-learning module about the modalities of payment in the e-Commerce market. This module is a hybrid model based in the adaptation and adequation of two constructive distance learning models (Allessi & Trollip and the integration model by objectives of Peres & Piment). The subject addressed is divided in eight themes with different types of activities to explore and build interactions to develop reflections and contributions.

## II. STATE OF THE ART

In this section we clarify some directions that are implicit in the educational process as vectors for better understanding of a formative technology mediated service. The importance of guidelines strategy as an innovative educational process to deliver quality service is supported in some fields that we will describe here.

### *Changes in the higher education*

Higher educational process is changing the way we think about innovation, technologies and knowledge. The creation of a global Higher Education European Space has allowed the development of guidelines to ensure the flexibility and mobility in the traditional system. These goals were made at some commitment statements such as Bologna process and Lisbon strategy.

The society and economy are faced with different sceneries of competition. Nowadays the knowledge cannot be just storage of information that we recall whenever we need. This means we need to develop different types of knowledge in such way that are capable to make the organizational value more sustainable and efficient.

The creation of knowledge is another important vector to address education in its extent. To answer this, we need to understand the rules of the game based in three dimensions describe in the Nonka's Hypertext (1994) and SECI model (1995) which are human capital, organizational structure and interactions environment. These authors help us to understand how we collaborate and interact with the organizations to achieve shorter time and effective cycles of knowledge in a systemic changing vision. In other words people are diversified – by cultures or capabilities, the companies are not in a local/national scale – they explore the international market, the technology is more and more revolutionary – allowing optimization solutions, reduced costs and simplify processes, the information is greater – consequence of the technological improvements that create impact in the knowledge, and the customers are looking for an active role in the services.

The reflection of this evolution is the integration of the technology in the services sector. To understand this field we should consider some taxonomies - Fitzsimons & Fitzsimmons (2006) and Shuman (2011) - so that they

provide the outcome that the integration of technologies in services enable.

TABLE I. DIFFERENCES BETWEEN TECHNOLOGY MEDIATED SERVICES AND TRADITIONAL SERVICES

Quality Key Factors	Type of Services		
	Self-Services	Delivery Services	Traditional Services
Active agent - production of the service	Consumer	Provider and Consumer	Provider and Consumer
Consumer participation	Coproduction	Co-creation	Coproduction and Co-creation
Consumer/ Provider interaction	Low	High	High
Simultaneity - production of the service	None	Moderate	High
Automation	Yes	No	No
Storage	Yes	No	No
Differentiation	Convenience	Convenience and Customization	Customization
Service Provider	System	People	People
Complexity	Low	High	High
Availability	Always	High	Service hours
Access	Home, specific local	Home, specific local	Specific local
Environment	Electronic interface	Electronic interface and Organic environment	Organic environment
Privacy	Anonymity	Anonymity and Social interaction	Social interaction

In our analysis the development of a technology mediated service has advantages and disadvantages in the way how to explore the technology in the services as a differentiator factor. Although, with time, the technology facilitates the service availability, on the other hand it can reduce the personal and social interactions. In this last case, the consumer has more difficult to perceive its value. Some studies try to answer this limitation by exploring what kind of factors impact the value in the satisfaction of the consumer, and the outcome of those studies is that consumers use a technology mediated service because they like the service availability, access, ease of use, efficiency, performance, control and convenience.

#### The reality of E-Learning

Talking about E-Learning is looking for World Wide Web and how this has influenced the educational process. With the web, multiple web resources were developed and the interactions and collaboration in the digital environment gained featured. The first stage of web – coined web1.0 - unleashed different roles for the users with highlights of the free content age, users were spectators, low interaction with contents and unilateral relationship. On the other hand, the

E-Learning 1.0 started increasing but teachers and students did not see the true impact on the educational process as the information was static (e.g.: eBooks, scientific articles and study cases) and the evaluation of these materials and the pedagogic strategy was focused on the person. Quickly the web changed and the paradigm of socialization and collaboration through web interactions known as web 2.0. This most recently configuration allows the users to create and develop content, socialize and collaborate through different digital platforms. With these web resources the E-Learning (E-Learning 2.0.) took the lead in being integrated in the educational system and some tools were developed to improve the pedagogical strategy by Learning Management Systems focuses at learner-centered.

Along the last years, in the higher education, a vast need to implement these learning environments started to gain territory and the students are more and more looking for online courses opportunities. But to implement a responsible and consistent strategy in this field, we need to be present what kind of technologies we should use, how to deliver and mediate the learning, develop goals focused on the tasks, and what kind of communication channels, as shown in Fig.1. We also need to understand the interactions and the roles of students in the way to deliver the best quality technology mediated service to support the instruction.



Figure 1. Learning environments and tutoring: the interaction developed on web

### III. METODOLOGY

In this section we provide the goals of the project and the guidelines to develop a technology mediated service.

#### The goal of the study

The goal of this study was the construction of a formative module using some technologies in the distance learning, through a methodological framework for analysis, design, implementation and evaluation of the proposal.

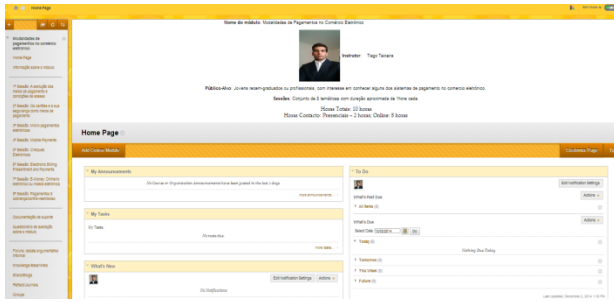


Figure 2. Front page of the b-Learning module

### The resolution method

We decided to adopt the models of Alessi & Trollip and the integration model by objectives of Peres & Pimenta. The designing module approach results in a constructive pattern characterized by the following steps:

- Learning environment analysis - learning context, segment characteristics, instructing for strategies, e-content and learning objects, prerequisites, supporting technologies, the module limitations and costs.
- Design - classification and structure of the themes, workload by theme and design of the activities.
- Development and Implementation – creation and integration of the activities previously designed, in the Blackboard platform - CourseSites, instructions to support the mentoring activity, and the production of the module support manual.
- Evaluation – adaptation of Online Learning Environment Survey (OLES) and Distance Education Learning Environments Survey (DELES).

## IV. THE SCOPE OF PROJECT

In this section we will provide the details of the project and give the assumptions which can contribute to the development of a b-learning module. We choose to approach the modalities of payment in the e-Commerce sector because we think that it is a subject of the actual daily life of the organizations, governments and societies, it is full of challenges and in the higher education programs we can't find too much organized information about it. The module resulted in a hybrid model (online and in person meetings) directed for a multimedia activities and it is designed for a small group of students.

### Learning environment analysis

This the first stage of the model we focus on the analysis of the learning context, market characteristics segmentations, main goal and transverse goals, e-contents and learning objects, prerequisites required, technologies to support and mediate the instruction, the limitations and costs of the module.

*In the learning context we highlight:*

1. Name of the module – “Modalities of payment in the e-Commerce market.”
2. Instruction environment – adoption of a hybrid model with online and in person activities.
3. Module hours – we estimated an amount of 10 hours, with 8 hours online and 2 hours in person.
4. Number of students enrolled – the module has a reduce dimension as it is limited to 20 students. The choice of this number is implicit in the adoption of Alessi & Trollip model, and in fact that some activities will occur in the class environment.

*About market characteristics segmentations we took this assumptions:*

1. Age group - the module aims to target an audience aged between 18 and 22 years. This choice is a reflection and analysis of the students in the ICT classes, they transmitted good knowledge of technologies, and good performance to handle in a different kind of projects that developed.
2. Internet access - according to statistics of 2013, about 95% of the higher education population use computers with internet access. A consistent and reliable access to the Internet is crucial to the proper functioning of the module as the module is in b-learning format.
3. Motivation in the learning process - the motivation of the students in the learning process is a less valued characteristic in the attraction and retention of the knowledge acquired by students. Find alternatives to engage students and keep them interested on the issues is a challenge achieve with less success by traditional teaching. In response to this, we develop and present content with interactive features including images, and videos, Scorm objects and online assessments/tests.

*Instructional strategies:*

1. Definition of the overall objective of the module - students must be able to characterize and distinguish the different methods of payment in e-Commerce as well as understand their functioning in the various business environments.
2. Definition of transverse objectives - the design of the different activities is reflected in the light of transverse objectives, poured of the guidelines of the European Union.
3. Definition of objectives by theme - each theme is accompanied by a set of objectives which allows students to have a more clear and concise idea about each topic.
4. Definition of the mentoring role - the instructor is responsible for guiding the learning process of the students. Once the module development is completed in b-learning environment, the instructor's presence is clearly essential. Thus, the instructor will guide, communicate, motivate, clarify and evaluate

students during the various activities. This tutoring is done through asynchronous communication means (by platform Blackboard, e-mail, forums).

*In the context of e-content and learning objects understand important characterized by:*

1. Definition of resources in the construction of content - the resources used in the content design reflect a dynamic, interactive and motivational approach to the theme of the exhibition. Tried to portray recent case studies, request reports of experiences or testimonies of the students, and disseminate news for discussion and reflection forum. Technological resources will be used as Prezi, PDF, video, audio, animations, for the creation and dissemination of information.

*The prerequisites to learning are focused on:*

1. Know how to search in the internet;
2. Know how to send a file by Blackboard;
3. Know how to use production resources (e.g.: freemind, Gliffy, powtoon);
4. Know how to use word processing resources (e.g.: Microft Word);
5. Know how to use the Blackboard platform – CourseSites.

*Within the supporting technologies, we consider:*

1. E-Learning Platform - the platform used is the Blackboard CourseSites. This platform holds the simplicity of navigation and the number of tools aggregated into a single space, and free access and construction.

*Under the limitations and costs, include:*

1. Infrastructure and access - is required to have a computer with internet access.
2. Constraints cross module - since the LMS platform used is freely accessible, this can present delays in loading pages, particularly in carrying out activities through integrated resources (ex .: Scorm objects).

#### *Module design*

In the module design phase we planned different activities based on the development of learning objectives, which include:

1. *Selection of themes:*
  - *The evolution of payments and access conditions;*
  - *The cards and their safety;*
  - *Micro electronic payments;*
  - *Mobile Payments;*
  - *E-Checking;*
  - *Electronic Billing Presentment and Payments: An evolutionary approach;*
  - *E-Money: electronic money or electronic money;*
  - *Payments to the collection / cash on delivery.*

2. *Grading and structure of the themes;*
3. *Hours by theme;*
4. *Design of activities;*
5. *Instructions on the use of some technological resources applied to develop the activities;*
6. *Evaluation planning;*
7. *Support module manual.*

#### *Module development and implementation*

In this phase we implemented all the activities, and the documents described in module design section into the platform (<https://tiagodbt.coursesites.com>). Furthermore, we develop a survey based in Online Learning Environment Survey and in Distance Education Learning Environments Survey to evaluate the overall module as well as the instruction module.

#### V. CONCLUSIONS

The higher education is living the most complex changes; the high amount of graduates is triggering concerns for the organizations and universities. The most recent adoption of information systems and communication technologies in the enterprise world to reduce and cut some operations and costs is leading the business models to deliver the services to the consumers – reflections of the fast grow e-Commerce market.

This work provides a set of organized information about the modalities of payment in e-Commerce through the construction of a b-learning module. The structure of the module is based on the LMS Blackboard Coursesites, and the e-learning environment was designed for b-learning activities, to answer to different learning styles, classifying it as multidisciplinary.

We hope this paper can contribute somehow to academics who want to develop projects in a service mediated technology context about payments in e-Commerce finding here some material.

As a future work we intend to implement the module in ICT classes to evaluate if the goals proposed here can be successfully achieved.

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