# CONSTRUCTION OF BLENDED LEARNING METHOD IN A GRADUATE PROGRAM AT THE UNIVERSITY OF THE ANDES

## *Systematization of the Experience*

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Abstract: In this paper the authors present the results of an ongoing process of systematization of the experience of the construction of blended learning mode in a postgraduate program at the Andes University. In this process the authors tried to solve how the process of construction and implementation of a blended learning mode in the design of a postgraduate courses program? In order to answer this question, we defined three principal categories, based on the systematizer team's participation in this experience, as well as on its trajectory in the incorporation of IT in educational processes. These categories are: Interaction, Technopedagogical Design and Blended Mode.



# 1 INTRODUCTION

Below is the systematization of the experience of creating blended learning mode, a master's program, accompanied from the Laboratory of Computer Research and Development and Education [LIDIE], belonging to the Centre for Educational Research and Training [CIFE] of the Universidad de los Andes.

The central question was to systematize how did the process of construction and implementation of a Blended learning method in the design of the courses of a graduate program? To answer this question, we defined three main categories, which would allow us to identify those aspects that can contribute to the construction of a methodology for the design of programs in this mode. Interaction, Educational technology design and Blended learning mode.

# 2 INTERACTION

We understood it, as the process by which an educational community, in this case those involved in the teaching-learning process of the graduate program, build relationships and knowledge from the sharing of understandings, paradigms, models and other ways of knowing (Scardamalia & Bereiter, 2003 cited by Osorio, 2008). This definition includes the interaction generated between teachers and students, between the monitors and students and, finally, the ones that took place among students.

## 2.1 Interaction between Teachers and Students

This type of interaction met three main functions, first, to support the process of appropriation of theoretical concepts in the subjects treated by the students, the second type, of organization, which aims to maintain the clarity of the activities in each courses, and finally, we present the interactions of social and / or motivational, which were designed to engage students with activities in the courses (Barbera, Badia & Mominó, 2004, cited by Osorio, 2008).

The type of interaction between teachers and students who fulfills the function of supporting the conceptual appropriation process is complemented by the principles of Onrubia (2005) referred to the "joint activity", for which the learning process, especially in the virtual learning environments, occur due to the interplay of three fundamental elements: the student mental activity, the content (or learning materials) and the teacher. In this triad of elements -help set-, the constant and significant accompaniment from the teacher to learning activities of students, -joint activity- is a key element



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to facilitate student learning.

### 2.1.1 Factors that Enable the Joint Activity

Among the aspects that allowed the joint activity it was possible to establish the position of some teachers as facilitators of the learning process, was crucial to create an environment that allowed students to lay the foundation for knowledge sharing, discussion and reinterpret them in learning that were building in the course of graduate school.

During the course accompanying the program, from the interaction of students with reading and concepts that they had, a vacuum was present by the inexperience of them on the issues and their complexity. These gaps were trenching through meetings with teachers, in this way, the readings met the first level of conceptual appropriation, and thereafter, with a first level of understanding in the classroom sessions and even some virtual spaces, interaction with teachers allowed the understanding of the concepts that were unclear. Thus, the joint activity (Onrubia, 2005) allowed teachers to strengthen student learning, through fulfilling the role of **conceptual facilitators.**

As seen, when a teacher assumes a position of conceptual facilitator opens the door to initiate a fundamental process that was highly valued by students on several occasions in this program: the possibility of **linking the theoretical with the daily life** facilitated the understanding of the concepts explained in face to face meetings, in the reference materials such as texts, videos and sound files. This linkage was enriched further more when teachers were able to **link aspects of professional experiences from students.** This fact allowed a further commitment to the implementation of planned activities, giving the students the possibility of applying direct the learning acquired in the courses, to their professional practices.

Another factor that facilitated students' conceptual appropriation was **timely feedback** provided by some teachers of the virtual activities. Thanks to feedback from the work, tests, reading tests and discussions, the students found opportunities to recognize their faults and, especially, to identify ways to improve their performance in the course content.

### 2.1.2 Factors that Hinder the Joint Activity

Delayed feedback of learning activities, the absence of some teachers in virtual spaces and the lack of communication channels between teachers and students, a high workload and the failure of some students were other aspects that also limited the student's performance and their learning processes.

### 2.1.3 Organizational Interaction

The organizational interactions between teachers and students, "designed to maintain the clarity of the activities and shared understanding of those who develop" (Barbera, Badia & Mominó, 2004, cited by Osorio, 2008), were presented permanently in the different face to face and virtual spaces of the courses of the program, mainly, this type of relationship was oriented in the first meetings of the courses to present the programs, evaluation criteria and ways of proceeding during the duration of the courses.

Despite the presentation of programs and evaluation criteria at the beginning of the courses, we found that in some, the rules were not entirely clear, this fact highlights the need for constant communication between teachers, instructors and students that allows specifying the objectives of the activities, criteria for evaluating them and the rules to deliver the work.

### 2.1.4 Social Interaction and Motivational

It was found that they took place in both face to face and virtual spaces, but it was in the classroom spaces in which they occurred to a greater extent. In this context, teachers permanently motivated student participation and managed to get their attention. With regard to virtual spaces, social and motivational interactions were aimed at getting students to commit to the core activities of the courses.

## 2.2 Interaction between Students

The first type of interaction between students presented in the program was organizational, this was directed to establish agreements between groups of students to coordinate actions of consultation of literature, drafting of documents and, sometimes, to guide other students in the individual tasks. This type of interaction, although it was present sometimes at face to face sessions, was particularly evident in the virtual spaces made for group work or solving logistical difficulties. Through this kind of tools offered in the virtual classroom courses, students were able to communicate with their peers to achieve different objectives.

The second type of interaction between students evidenced was the one mediated by collaborative work. These interactions were oriented to get

students got common goals in which dialogue, confrontation of academic or professional ideas and experiences were shared to generate learning through virtual forums, open to all courses in online forums or the ones that were only to group discussions held in face to face moments from work done in the weeks of independent work and virtual. Interactions aimed at achieving a collaborative work, were evident mostly in face to face sessions.

# 3 EDUCATIONAL TECHNOLOGY DESIGN

In the understanding of the construction, dynamics and implementation of courses in blended learning mode, is essential to recognize as central line, the educational treatment linked to the use of information and communication technology (ICT) to enhance the teaching and learning. This demand led us to recognize a category also called for Onrubia Educational Technology Design (Diseño tecnopedagógico) (2005) "inter-activity and technological potential."

The initial definition of this category, is based on the distinction offered by Javier Onrubia in his article Learning and teaching in virtual environments: joint activity, learning support and knowledge construction (2005), - understood as the potential restrictions or derived from two converging factors, instructional design and technological resources of the virtual environment. According to the above, we address this category from the following subcategories: Instructional design, characteristics of the materials, and distance between design and use as a category that can recognize contingent factors that arise in the implementation of a blended experience.

## 3.1 Instructional Design (Design of the Instruction)

### 3.1.1 Pedagogical Principles

An analysis of the characteristics of the activities, leads us to recognize some components that we named as principles that define the intent of the activities. This analysis is performed from the paradigm of situated cognition, which is part of the "premise that knowledge is located, is part and parcel of the activity, context and culture that developed and used" (Diaz Barriga 2003, p.3), which leads us to identify the following principles:

- Learning with others.
- Learning from student activity or learning by doing.
- Learning from authentic activities. The data analysis led us to identify three conditions that are associated with this principle: (a) Recognize the student's individual process, (b) Recognize the context and meaning as a means of new information, and (c) Teacher Facilitator learning.

### 3.1.2 Types of Strategies and Techniques

The pedagogical principles are visible in the strategies and techniques used by the teacher to promote learning, in line with this, it is assumed the teaching strategy as those "... procedures that the teacher or teaching agent use in a flexible, adaptive, and reflective self-regulated to promote the achievement of meaningful learning in students "(Diaz Barriga, 2003, p.8). Every strategy and technique, according with it´s orientation, may be established to more than one type of pedagogical principle.

Table 1: Pedagogical principles and pedagogical strategies.

| Principle | | Strategy |
|---|---|---|
| ***Learning with others*** | | Work in small groups.<br>Conceptual forums.<br>General discussions. |
| ***Learning from student activity or learning by doing*** | | Case Studies.<br>Projects.<br>Analysis of problems.<br>Conceptual forums. |
| ***Learning from authentic and significant activities*** | (a) Recognize individual student process | Case Studies.<br>Projects.<br>Formative assessment strategies. |
| | (b) Recognize the context and meaning as a means of new information | Problem analysis. Projects. |
| | (c) Teacher as a learning facilitator | Problem analysis. Projects.<br>Traditional class supported by various materials and linked to other strategies.<br>Conceptual forums. |

* Considered as evaluation techniques for learning.

It is possible to affirm that the following strategies found are characteristic of meaningful learning, ie, those "... focused on experiential learning and situated, that focus on the construction of knowledge

in real contexts, in the development of reflective skills, critical and the higher-level thinking and participation in authentic social practices of the community "(Diaz Barriga, 2003, p.8). The table below shows the strategies and techniques found in the teaching and learning experiences generated.

## 3.2 Use and Guidance of Technology Tools.

Analyze the principles, strategies and teaching techniques used, required to describe the use and direction of technological tools to support their development in virtual spaces, in this way is to recognize the contribution of virtual media such activities.

### 3.2.1 Integration between Virtual and Face to Face Spaces

It is possible to identify three main types of relationship-level, subject preparation and development issues.

About the leveling we identified orientations focused in two aspects: initiate a course through participation in discussion forums and prior knowledge to clarify which raised challenges to be solved with the help of a tutorial.

As regards the preparation of the subject is possible to recognize: individual preparation based on previous readings, accompanied at times of jobs that should advance the student as essays, reviews and concept maps. Review of videos that lead to discussion forums. Chats and Forums, that although not explicitly articulated to the physical, they helped to prepare a dip in the treatment of the subject, by the students. Input tests in which the student received information about their performance. Preparation of the topic in small groups, through activities that focus on applied studies, exercises and workshops that were presented at the sessions.

The performances of the students are analyzed by teachers previously to face to face meetings, which gives useful information to consider possible adjustments to classroom activities.

The development of issues has been exclusively through discussion forums: collaborative activities, based on the exchange of experiences and knowledge. The exchange potentiated by forums it´s enriching given the diversity of experiences and knowledge; is possible to say that the use of asynchronous communication tools powers a characteristic of teaching-learning process.

### 3.2.2 Educational Purpose

Another aspect to consider in understanding the contribution of technological tools, is the educational purpose that leads them. The following table summarizes the findings of the cohort analyzed:

Table 2: Pedagogical uses of ILT

| Educational aid | Activity | Tool |
|---|---|---|
| **Support knowledge building** | Concept mapping for the understanding of theories | CmapTools. |
| **Support knowledge building. Communication and Collaboration.** | Real-time communication for the development of joint activities between participants | Skype and chat rooms. |
| **Support knowledge building** | Communication between students and teacher in deferred time for analysis and discussion of issues | Discussion forums. |
| **Learning assessment** | Portfolio to monitor the process of student | Areas of work on the platform (Black board). |
| **Learning assessment** | Information about knowledge and practices of students | Online surveys or links to the platform. |
| **Learning assessment** | Reading control, online surveys and perception surveys, input and output tests | Respondus. |
| **Support knowledge building** | Synchronic tutorials to small groups | Online conferencing through WebEx. |
| **Support knowledge building** | Tutorial for exercising and strengthening of basic skills | Accounting Tutorial. |
| **Provision of content** | Videos and recordings used to introduce or to delve into topics. | Videos. Podcast. |
| **Learning assessment** | Delivery of progress on individual and group work including teacher feedback on progress. | Areas of work on the platform (Black board). Blogs. |

# 4 CONCLUSIONS

The importance of the teacher's role as an enhancer of student learning through their continuous support and sustained learning activities, confirms then the Onrubia´s (2005) proposal on the centrality of the role of teachers in the process of helping set through joint activity.

The factors such as the role of teacher as a conceptual facilitator, linking theoretical concepts with everyday life, the inclusion of students with professional knowledge in the explanation of the theoretical and timely feedback are key elements to facilitate learning in such environments.

The interaction between students is a way to enhance their learning, but this interaction must be framed within meaningful activities for them. When this happens, it raises the possibility that peer knowledge sharing, generated significant discussion and succeeds in building useful knowledge to apply in a given professional context.

Moreover, in the category of Educational Technology Design emerged great importance for the orientation of learning environments that integrate virtual and face to face. The analysis of this category shows that in these types of environment, the issue is essentially pedagogical questions to be addressed early in the design of this type of experience should be focused on the purpose of learning and ways to reach them.

The need to address the design of the environment from an integrated scope that links pedagogical principles, strategies and techniques, the use of technological tools.

Alternatives are evident on the integration between virtual and spaces, so that learning can be enhanced from both kinds of space, so show the courses analyzed in this study, where the virtuality had different emphases: leveling very heterogeneous group, preparation of new issues by students and thematic development of the course.

While careful design is essential, not in itself is the guarantee of the effectiveness of planned environment, a closer look on the implementation of the courses, we showed the diversity of factors that must be addressed throughout the course: the appropriation of technology by the user, which means recognizing the conditions for using the tools, the precise handling of the information demanded by virtual spaces, the importance of tracking changes in these types of spaces.

A central contribution of this study was to recognize alternatives to absorb, in a blended learning mode, a pedagogical approach that part of the active role of students and reflective capacity, and the feasibility to mobilize significant learning, applied to the contexts of performance of trainees.

We understand the blended learning modality as one in which there is a link between real and virtual environments, with the aim of harnessing the potential of each to promote quality learning. This interaction involves thinking about how to address the dimensions "space, time, fidelity of the experience and human interaction" (Graham, 2006). It is the purpose of a blended mode on strengthening teaching experience from the strategies of interaction, active learning and student centered. In line with this, the characteristics of a blended learning environment provide a flexible approach to teaching and learning more personalized experience.

It is not possible to speak of blended mode in a unified way; different levels of coverage depending on their purpose either facilitate, enhance or transform the learning experience (Graham, 2006). This intentionality is linked to conditions that shape the institutional culture.

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