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Online Students´ Satisfaction with Blended Learning

La satisfacción de los estudiantes en red en la formación semipresencial

ABSTRACT

This paper shows the results obtained from a blended training experience based on internet usage, more specifically, under the Blended Learning (b-learning) modality carried out on first-year students of Philosophy and Physics at the Pontifical University of Dominican Republic. The theoretical model in which this b-learning experience is sustained will be first presented and described, emphasizing the separation of activities to be done in virtual and attending sessions. Information was gathered for the purpose of this study through three different but complementary instruments: students' satisfaction questionnaire, interviews with students and interviews with lecturers by e-mail. The results achieved and the level of students' satisfaction show the significance of the experience as well as some limitations found concerning the need for teacher training and the difficulty of changing the organizational structures. Some of the conclusions point to the favourable attitude shown by teachers and students in blended learning, as well as the need for universities to include centers that support teacher training in these formative actions.

RESUMEN

En este artículo se exponen los resultados obtenidos a través de una experiencia de formación semipresencial apoyada en el uso de las redes, más concretamente, bajo la modalidad blended learning (b-learning) llevada a cabo con los estudiantes que cursaban la asignatura de Filosofía y Física Introductoria en la Pontificia Universidad Católica Madre y Maestra de la República Dominicana. Para ello se parte de la presentación y fundamentación del modelo teórico en el cual se sustenta la experiencia, es decir, el b-learning, haciendo especial hincapié en la separación de las actividades a realizar en las sesiones virtuales y presenciales. En el estudio se recogió información a través de tres instrumentos diferentes pero complementarios para nuestro objeto de estudio: cuestionario de satisfacción de los estudiantes, entrevistas a los alumnos y entrevistas mediante correo electrónico a los profesores. Los resultados alcanzados y el nivel de satisfacción de los alumnos nos muestran la significación de la experiencia, así como, al mismo tiempo se apuntan algunas de las limitaciones encontradas referidas a la necesidad de capacitación del profesorado y a la dificultad que supone transformar las estructuras organizativas. Algunas de las conclusiones apuntan hacia la actitud favorable que tanto profesores como estudiantes muestran hacia la formación semipresencial, así como la necesidad de la existencia en la universidad de instituciones que apoyen la formación del profesorado en dichas acciones formativas.

KEYWORDS / PALABRAS CLAVE

Blended-learning, students' satisfaction, higher education, educational technology, teaching methods, virtual classrooms.
Blended-learning, satisfacción estudiantes, enseñanza superior, tecnología educativa, métodos de enseñanza, enseñanza virtual.

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1. Introductory aspects

The use of «e-learning» along with attending actions, which has been labelled as «blended-learning», is gaining ground within the university context. As Llorente remarks (2008: 129) «B-Learning is both simple and complex. It is simple because it is basically made from the combination and/or integration of attending and online learning experiences. On the other hand, it is complex regarding that it provides several implementation possibilities through a virtual and attending design, and the multiple contexts it can be applied to».

We could briefly say that blended learning is a formative action in which online and attending training are combined. Mason and Rennie (2006:14) systematize this formative modality, showing the technological-instrumental contributions that each one generates (figure 1).

At the same time, from our point of view about blended learning (Llorente & Cabero, 2008) we could establish a differentiation in terms of two variables: synchrony/asynchrony of the mobilised tool of communication and iconic degree of the materials used. In figure 2 we show our idea.

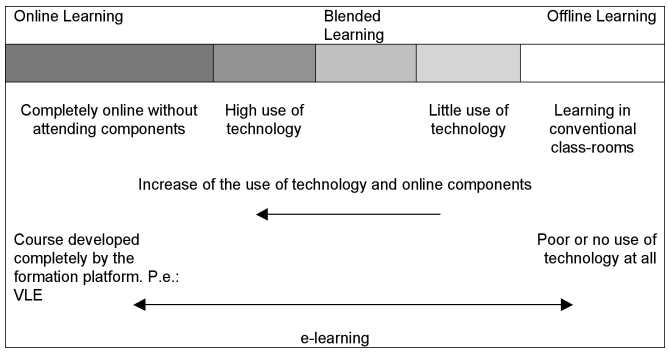

Figure 1. Schematic description of B-Learning (Mason & Rennie, 2006: 14).

What we want to remark is that blended learning is established in centric positions regarding completely online and completely offline learning. In figure 3, Llorente & Cabero (2008) present the model proposed for its implementation, by which we establish initial, middle and final attending sessions. The purpose with the initial session is to reach the following objectives: socialization, explanation of the subject performance standards and evaluation criteria, program presentation platform learning, etc. The final session focuses on the synthesis and recap of the course and the final evaluation activities. And the middle session is dedicated to clarify questions and carry out self evaluation activities.

From our point of view, attending sessions can also be attended by other means, for example, videoconferencing.

For its concretion, we can frame around attending elements (physical place of learning, attending tutorship, class work, distribution of printed, electronic and audiovisual communication means…), and online elements (contents for online learning, online tutorships, online collaborative learning, online learning management, learning with mobile means…). The list of components that acording to Clark (2003) one can mobilize for its development, is shown in table 1 below.

We will not focus on how it is put into action due to the length of this article. However, the reader may consult the recent work of Llorente (2009), in which the main components for its development are analyzed in a practical way: planning, content design, tutorships, e-activities and evaluation strategies.

The advantages that this formative modality presents are, on the one hand, the presentiality and, on the other hand, the formation using internet and the communication tools mobilized in it. With respect to presentiality, we can point out the following: «a) they provide essential information about the use of technology and tools; b) foster knowing each other (including staff and tutors); c) groups are set up and work rules are established; d) exams and evaluations are carried out; e) the paralinguistic elements that virtuality can not give by itself are given; f) «they help overcome isolation» (Llorente, 2008: 135). Experience demonstrates that student's isolation is one cause of failure of experiences with e-learning. Likewise, they also present

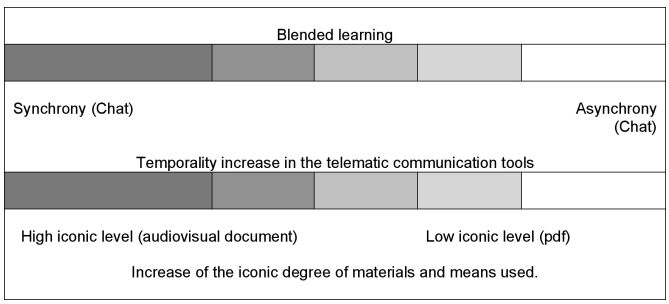

Figure 2. Communication tools, means and materials usage in B-learning actions.

Offline component		Online component	
Physical place of learning	Learning in the working area Visits to physical places	Subject-matter of online learning	Basic resources for learning General interactive contents Representations and simulations
Online tutorship	Tracking tutorship	Online tutorship	Online tutorization Onile monitoring
Class work	Readings Seminars Role-play Conferences	Online collaborative learning	E-mail Discussion forums Chat work Videoconferencing
Printed means	Books Magazines Newspapers	Online learning management	Search orientations Recovery of documents and archives.
Electronic means	Audio cassettes Audio CD Videotape CD-ROM DVD	Internet	Web pages Blogs
Communication means	TV Radio Interactive television	Mobile means	Lap tops PDAs Mobile phone

Table 1. List of components for B-Learning (Clark, 2003).

a number of drawbacks: a) those of e-learning, b) the need for a correct and justified combination, c) social preconception about distant learning, d) greater need for schedule (which part for the attending and which part for the virtual), e) time required for planning and implementing the blended methods, and f) it is still thought that online teaching consists only in uploading information to the net and making it accessible to the students.

Research involved in how the blended model is put into practise is taking its first steps, even though we already met some specific contributions: students show high satisfaction, especially about the space-time flexibility and the greater accessibility to materials; greater interaction between participants, both student-student and student-teacher; sharper sense of community between participants. The blended model also offers learning experiences closer to the real world; proper use of communication tools by students; attention must be put on material design; teachers feel attracted to take part in the experience; tutorship systems and student help are improved; increasing capability to offer a greater range of resources and, therefore, didactic answers that are more appropriate to the diversity of cognitive styles of students; and acquisition of efficiency; (Jiménez & others, 2006; Llorente & Cabero, 2008).

However, not all results are positive. We also meet several challenges: lack of a pedagogical framework based on learning theories that support designs focused on the simple combination of one technology or the other; the risk of deepening the digital breach, since not all students have equal opportunities in access to technologies; lack of students' knowledge about the requirements that a blended model involves and how they are linked to the attainment of learning targets; fake supposition that students have certain technological, cognitive and metacognitive skills about information management that, actually, they have not yet acquired; the need for a greater coordination, both in resource management and relations between departments; and increased workload, for both students and teachers.

2. Developing the experience and information gathering instruments

The experience was developed at the Pontifical University Catholic Mother and Master of Santo Domingo, and its purpose was to know if it is useful to extend the training through the telematic networks in all the studies that are taught at this university, regarding the digital literacy of students [already analyzed in Cabero et al. (2009)], the infrastructure that the university had to put the experience into action, teachers' main characteristics, and the technology coverage students had at home (95,8% had a computer, 96,9% had internet connection at home and 56,8% had a laptop, see Cabero et al. (2009).

Meanwhile, a double objective was pursued: a) to know the satisfaction degree of students with b-learning experiences, and b) to detect problems that could come up during its implementation, and which should be solved before a massive implementation in the whole university. The experience was performed with all students from «Introduction to Philosophy» and «Introductory Physics» of first year. The experience was carried out in the last term of 2007, gathering all the information for its later evaluation in November, which was analyzed during the first term of 2008. 284 students participated in the experience. The platform used was WebCT and within the attending sessions the teachers were insisted to focus on solving pending questions from the virtual part through e-mail and the list of distribution, revision of the materials produced by students, making of e-activities located in the course material and self-evaluation and monitoring activies. It should be noted that the formative action began with sessions that pursued a double target: the platform

learning and student socialization. In general terms, we can say that we applied the model presented earlier in figure 3.

For the production of materials, the proposal made by Cabero and Gisbert (2005) was followed. This proposal has yielded significant results in different investigations, since it claimed for the materials to have the following elements: presentation or introduction, statement of objectives, concept map, e-activities and exploitation of audiovisuals.

For information gathering, three instruments were used: satisfaction questionnaire for university students about online learning (CUSAUF) (Llorente, 2008), student survey, and e-mail interview to the teachers. Once the data was collected, we made a triangulation; a process that allowed us to confront the opinions and guarantee their validity (Pérez Serrano, 1994).

The CUSAUF consisted of 30 Likert type items (with four answer options), which gathered information in seven dimensions: general aspects of the pupil, of the subject, that are related to the online teacher-tutor, to the contents, to the online communication, to the platform and global valuation of the subject. Reliability degree, measured by Cronbach´s alpha, was 0.901.

The protocol for the survey made to students consisted of ten open questions of this kind: Was the infrastructure appropriate for the performance of virtual learning? Throughout the development of the training experience, did you have access to an adequate user care service? What aspects would you highlight as positive in the tutorship carried out by the teacher/teachers in the virtual subject?

Teachers were sent an e-mail asking them for open information, which included questions like: «… we would like you to tell us all the aspects you think to be positive and negative about the experience developed…».

3. Results

3.1. Satisfaction questionnaire

The purpose with one of the items in the questionnaire was to gather information regarding the initial expectations that students had about the development of the training experience in b-learning modalities. 77.1% showed «very high» and «high» expectations (table 1). As we can see in the same table, such expectations stayed stable, since when they were asked «How do you consider the relation between work dynamics performed in the subject modules and the initial expectations you had before starting the experience?», they answered mostly «very high» or «high» (73,6%).

	Expectations before starting the experience		Relation between work dynamics and the intial expectations	
	f	%	f	%
Very high	36	12.7	25	8.8
High	183	64.4	184	64.8
Low	54	19.0	58	20.4
Very low	11	3.9	17	6.0
Total	284	100	284	100

Table 2. Initial expectations about training» and «Relation between work dynamics performed in the subject modules and the initial expectations».

Before presenting the punctuations reached in each of the dimensions of our questionnaire, we will show an overview of the answers given by students in the four answer categories they were offered: «Totally desagree», «Desagree», «Agree» and «Totally agree».

As it can be observed, the vast majority (84%) showed to be satisfied with the experience. With respect to the mean punctuations reached in each one of the dimensions, in table 2 we present the mean values obtained. For a correct interpretation, it must be taken into account that the answer options were: «Totally desagree» (1), «Desagree» (2), «Agree» (3) and «Totally agree» (4).

DIMENSIONS	Mean	Tip. Dev.
General aspects of the subject.	3.15	0.65
Aspects related to the online teacher-tutor.	3.25	0.15
Aspects related to the contents.	3.04	0.09
Aspects related to the online communication.	2.95	0.21
Aspects related to the platform.	3.16	0.12

Table 3. Mean values reached in the different dimensions.

As we can see, all dimensions were punctuated above 2, close to 3, which would indicate a high degree of satisfaction from students in them and, therefore, in the development of the experience.

With respect to the punctuations obtained in each one of the items, the punctuations reached are shown in table 4, arranging the items according to the dimensions where they were included.

These values, so close to 3, show us that students' answers, with respect to general issues of the subject (more specifically, to the program consistency, as well as to the validity of the assignments and practicals provided) have been positive, with mean punctuations of 3.17 and 3.05.

With regard to the teacher-tutor, the punctuations were the highest ones achieved, specifically: «The teacher-tutor of the blended course knew the subject-

DIMENSION: General aspects of the subject.	Mean	Tip. Dev.
The subject program was adequate	3.17	0.58
The assignments and practicals in the different modules were relevant in order to put the knowledge acquired into action.	3.05	0.70
DIMENSION: Aspects related to the online teacher-tutor		
The understanding of some technical questions about the platform was provided at some point of the course.	3.13	0.74
I consider the use of different online resources by the teacher-tutor to be adequate.	3.06	0.83
The teacher-tutor of the blended course knew the subject-matter very well.	3.58	0.60
When it was necessary, the teacher-tutor gave information and explained the contents presented	3.34	0.68
The teacher-tutor showed adequate valuations for the activities done.	3.23	0.69
I consider the explanation of the performance standards about the formative environment by the teacher-tutor to be adequate.	3.20	0.67
Public or private recommendations about the work and quality of them by the teacher-tutor were correct.	3.16	0.62
The teacher-tutor performed an adequate activity and encouraged participation	3.25	0.74
Activities were carried out to ease knowledge sharing between students involved in the modules.	3.25	0.15
DIMENSION: Aspects related to the contents		
The contents presented are up-to-date	3.25	0.68
Information volumen is enough for the formation in the different contents presented	3.21	0.72
The contents presented were easy to understand	2.91	1.00
I think the contents offered were original	3.08	0.72
I think the contents interest was adequate from a theoretical point of view	3.09	0.73
I think the contents interest was adequate from a practical point of view	3.02	0.74
I think the contents are nice	2.99	0.87
The relation between objectives and contents offered was adequate	3.00	0.75
The relation between timing and contents offered was adequate	2.95	0.69
I think both scientific and didactic-educational quality of the contents covered were adequate	3.09	0.71
DIMENSION: Aspects related to the communication		
Communication between teachers-tutors was easy through the use of communication tools: mail, forum, chat…	3.10	0.82
Online communication with the rest of my classmates was easy	2.80	0.92
DIMENSION: Aspects related to the virtual environment of teaching-learning		
The technical running of the environment is easy to understand	3.06	0.83
I think the platform was adequate because it was easy to surf	3.07	0.87
I think the aesthetic quality of the environment (letter size and font, color…) was adequate	3.29	0.74
There is consistency between the various aesthetic elements of the platform (texts, images, graphs…)	3.30	0.70
The platform´s response time (the delay when accessing a link, tools, etc.) was adequate	3.08	0.84

matter very well» (3.58), «When it was necessary, the teacher-tutor gave information and explained the contents presented» (3,34), and «The teacher-tutor performed an adequate activity and encouraged participation» (3,25). These values allow us to state that teachers were received satisfactorily by students, as well as the aspects related to the handling of contents and the advice shown.

The lowest punctuations were obtained in the items of the dimension «contents» , which will lead us to perform a series of recommendations, because as we will see in the interviews made to students, they made a number of comments regarding this dimension. The lowest mean values in the mentioned dimension are located in the item expressed in the following terms: «The contents presented were easy to understand», with a mean value of 2.91 and a deviation of 1.00; followed by «The relation between timing and contents offered was adequate», with a mean value of 2.95 and a deviation of 0.69; and followed by «I think the contents are nice», with values of 2.99 and 0.87, respectively. We can infer that, although there are punctuations lower than the rest of items, we keep remembering that they are still closer to the option «Agree» than to other more negative options.

The dimension «Communication» was focused on the analysis of elements like the use of communication tools available in the virtual environment, the interaction degree that occurred between teachers and students, as well as their opinion regarding the existence of informal spaces for communication. In this case, the mean values obtained show that communication with teachers was punctuated satisfactorily with a mean value of 3.10 and a deviation of 0.82; not so well was the one done with their colleagues, where the mean value reached 2.80, with a deviation of 0.92.

Finally, with respect to the virtual environment used, we meet quite high mean values, as they all go around 3, even two of them go above mean values of 3.25, such as: «I think the aesthetic quality of the environment (letter size and font, color…) was adequate» (3.29), and «There is consistency between the various aesthetic elements of the platform (texts, images, graphs…) » (3.30) that seems logical since WebCT is a very reliable tool.

3.2. Online interviews made to students

One of our first questions was intended to inquire the perceptions of students regarding the consistency of the infrastructure offered for the development of the experience. And in this case, most of the students showed to agree with it due to a series of reasons, such as: the web page design, lots and adequate information, or its usage ease due to its organization, as we can see in some of the following answers: «Yes, because the web page has a good design and this makes learning easier», and «Yes, because it had a lot of good information for the teaching of the subject-matter».

They were asked if they had access to an appropriate user care service. We must remark that most of them confirmed it, and they did it to a double level: because of the attention received by the teacher and the technical service created by the Univeristy. The following answer from a student is a good example: «I did have access to it since the teacher was always there to give us an understanding of how this new method works and how we should manage, which facilitated obtaining the material for the class and also the communication with the teacher». Although some criticism could not be avoided: «Sometimes I would have liked to be sent a notification that the documents sent to the teacher were received».

The aspects highlighted by students as positive in the tutorship carried out by the teachers could be framed in: teachers' willingness to help and answer questions, constant communication with teachers, they being an inspiration to motivate them: «Yes, the teacher is always willing to help us with any need or problem that comes up in the web page» or «the teacher was well informed about everything this new web page involved, which could make the student understand the instructions immediately». Despite that, there were negative comments: «Yes, this service is ok… but it needs clarifications» or «They must keep up to date regarding online issues».

With respect to the aspects that, according to the students, the teacher/teachers should improve, most of the comments made did not point at any of them, although some students called attention in a series of aspects: «Well, my teacher has to realize we are not philosophers; he/she must teach us in a way we can understand» or «They should improve the contemporarity that occurs in the country and what regards to the internet».

With regard to the design of the virtual materials used, students' evaluations were mainly very positive due to the quality of the information given, the organization and because of the easy access they had: «Yes, because it is handy and convenient», «Yes, because there is enough information to help us get a better understanding of the matters; besides, the forums provide great help in order to know the different points of view» or «It is well organized, and it gives us a lot of information, and interesting examples». Although there were complaints too: «No, because it is not directed properly to answer the questions» and «The set of materials used was of great help and it provided a touch of dynamism required to foster the interest of many students for the subject».

With respect to the most positive aspects of the design of the materials used, the comments were headed to highlight: the images, tutorial videos, and graphics; i.e., all the audiovisual components given to the materials: «The images», «The tutorial videos that were put in the web; those helped me get a better understanding of the forum of student interaction. And other things as well» and «Graphics».

When we asked them to tell us what aspects they thought that should be improved in the material design used in the experience, the answers were positive, although students complained about «time given for exams; I think it is short» or «Well, we should be given more time to do the exams». Notice that we refer with «exams» to the execution of activities.

Also note that, regarding the perception they had about the consistency of the means available they had for the performance of the virtual subject, most of them showed a positive evaluation: «As I said earlier, it was adequate and successful» and «Yes, I would highlight the easy communication with the teacher».

As for the elements that should be improved about the resources used, most of the answers headed none of them, although there was a group of students that provided us with a series of ideas: «Well, I believe you should include some other types of practicals (example: an essay about your point of view in the issue X, life discussions, etc.) in order to sharpen the understanding», «The forums and assesments» and «More patience».

3.3. Electronic interview to the teachers

The negative aspects teachers met will be quoted with some of the most significant answers extracted from the interviews, from which we could highlight the following: 1) «I do not think the system to be negative but inherent to ourselves. We gave a lot of assignments and activities, which forced us to spend more time in the virtual part than in the attending part (which should be the opposite); 2) «Of course, we are not totally prepared to program things» (lack of training

by teachers)»; 3) «I think the university executives should be made even more aware so that they give a differentiated treatment to those teachers that initiate this innovative technique; they must invest a lot of time in their training, and training their students».

As we can see, there were two big problems the teachers detected: the one regarding their recruitment and the one related to the need for establishing rewarding actions for the participating teachers. Even though there were comments too referred to the need for establishing organizational actions that are different to those established for the attending learning.

4. Conclusions and evaluations of the experience

With our experience, it would be pretentious to offer a reference model based on the b-learning modality, since our objectives were more feasible and less conceited, wanting to study how online blended training actions can be carried out in a non-powerful technological context, emphasizing didactic variables such as: materials design, devoting attending sessions to tutoring and not simply information presenting or organizing these sessions actively through the implementation by students of e-activities.

Briefly, we can consider the experience and the development model proposed as positive, since the satisfaction degree shown by students and teachers was very high, which has fostered its extension to other subjects for the next course.

In the evaluation performed, students showed an optimistic attitude at the beginning about the possibility of using internet in formative actions, which was an advantage for starting teaching actions of this kind. This initial attitude was positively confirmed at the end of the experience.

The satisfaction level shown by students reached both the general aspects related to the subject, and the behaviour of teachers-tutors, the contents, the use of the online communication tools and the platform used.

An important fact is that the experience was constructive, thanks to the knowledge teachers had about the platform, both in a general way and the different possibilities it allows; as well as the attitude shown throughout the process, which was significantly valuated by the students. This leads us to remark that the introduction of such actions occurs, necessarily, when appropriate actions are established from the institution to ease the activity for the teacher and so that a positive attitude is shown throughout the course, and they do not have to become tedious actions added to their professional activity. In this sense, the Educational Technology Center of the university was of great help. Therefore, we believe that if universities are willing to carry out b-learning experiences particularly or ICT incorporation mainly, they must create centers that support teachers in learning the virtual environment, as well as material design and the implementation of didactic methodologies adapted to the new virtual scenery. These centers may perform different duties: teachers' and students' training in the use of the platform, didactic design of the contents, experience evaluation and monitoring…

One of the conclusions of our study is that the most negative evaluations given by the students were located at the levels of content virtualization carried out by the teachers, since they tend to assign even more work in the virtual part than in the attending part, which means an overload of activities for students. This is possible due to the lack of teachers' experience in working in these environments. In order to solve this aspect, it is necessary to establish actions for the training and recruitment of teachers, and create spaces (virtual or attending) for the exchange and discussion about the starting up by the teachers. From our point of view, such teacher training actions must be established before the beginning of the experience.

> «B-Learning is both simple and complex. It is simple because it is basically made from the combination and/or integration of attending and online learning experiences. On the other hand, it is complex regarding that it provides several implementation possibilities through a virtual and attending design, and the multiple contexts it can be applied to».

The experience showed us that, since not all students had internet connection at home, it is necessary that the university sets up actions that foster the building up of facilities for working at university. It would be shocking that the incorporation of training actions of this type could become discriminatory for certain students, increasing the «digital breach» and stimulating the e-exclusion.

Likewise, the comments of some teachers lead us to remark that it is required from the university to assist

teachers that develop these experiences from the beginning, motivating them in some ways: i.e. type of voucher, resources assign, etc.

From a methodological point of view, we would like to highlight that the tool used to check the students' satisfaction degree (Llorente, 2008), shows a degree of reliability useful for covering this kind of studies. Besides, it gives us information both from a general perspective, and in different dimensions: behaviour of the teacher-tutor, contents, online communication and the platform used for the performance of b-learning activities. In short, it can be a useful instrument, along with others, for validating online training experiences.

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