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Blended Learning Adoption: a case study of one of the oldest Universities in Europe

Prof. Pietro Previtali, PhD
Rector's Delegate for Human Resources management
Associate Professor of Organization and human resources management
Department of Economics and Management Sciences
University of Pavia
Via San Felice 7, 27100 Pavia Italy
pietro.previtali@unipv.it

Dr. Danila Scarozza, PhD
Post-Doc Research Fellowin Business Organizzation
Department of Economics and Management Sciences
University of Pavia
Via San Felice 7, 27100 Pavia Italy
Danila.scarozza@unipv.it

Purpose
The aim of this work is the study of the determinants of blended learning adoption in universities by focussing on faculty's satisfaction.

Design/methodology/approach
The research methodology is based on a case study of one of the most ancient University in Europe. We administered a questionnaire to the professors that used blended technologies, and we conducted clinical interviews with some of the key people involved in the implementation process.

Findings
The paper allows to identify the main factors that impact on faculty's satisfaction. Student-related issues seem to be the most important factors influencing faculty satisfaction, while instructor-related issues and especially institution-related issues definitely seem to be less important.

Research limitations/implications
The study is focussed just on a single case study. Further researches could explore a wider application of this research approach to several universities and different countries.

Originality/value
This study is one of the first that analysed blended learning adoption in historic universities.

Key words: ancient universities, blended learning, faculty satisfaction, information technology adoption

Article classification: research

Introduction

The progression of information technology such as internet surged the growth of online educational programs that change the traditional system of education (Sher, 2009; Adeoye et al., 2013, Lyons, 2017). The current economic downturn has increased demand for both online courses and programs.

It is expected that this trend will continue. Maeroff (2003) maintained that developments in online education are not "just a fad" but a "sea change" (p. 2). According to several scholars (Garrison and Kanuka, 2004; Harris et al., 2009; Wade, 2012; Tan and Neo, 2015; Boone, 2015) the "blended learning" represents one of the most recurrent approach to deliver course content. Even if there is not a commonly accepted definition of blended learning (Tshabalala et al., 2014), it is usually defined as "the mix of traditional methods of teaching, such as face-to-face teaching and online teaching" (Bliuc et al., 2007; p.233). Probably its features contribute to the diffusion of this approach since it combines traditional face-to-face teaching, typically with the use of online teaching resources and materials.

Using a case study to describe the implementation of a blended learning approach involving today 2.200 students and approximately 50 teachers at the University of Pavia in Italy, we administered an on line questionnaire to 46 professors, and we conducted some clinical interviews to key people involved into implementation processes. In Italy, in the last decade, online education has become a fast-growing delivery method in higher education. Just to give an example, according to data provided by the Italian Ministry of Education, Universities and Research during the academic year 2017-2018, nearly 75.000 students were enrolled in a Telematic University, experiencing a 80% growth rate in the last five years. In this context and unlike a telematic university, an historical university - like University of Pavia - faces different challenges related to its important history and its consolidated approach to learning processes. Here, the process of innovation can't begin according to a "big-bang" approach, but it needs a more gradual and systematic approach, that can be developed according to a step-by step approach (Graham et al., 2012; (Ghemawat, 2017).

Even though many studies have been conducted on online learning, studies specifically on blended learning are still scarce (Arbaugh, 2014). In particular, relatively little research on blended learning addresses institutional adoption, although such research would benefit institutions of higher education in strategically adopting and implementing blended learning. Moreover, the factors that would influence satisfaction towards blended learning are still unexplored, and very little is known about the extent to which blended learning been adopted in universities (Oliver, 2005; Sharpe et al., 2006; Graham, 2013). This is the starting point of this research, with the aim of contributing to this literature and in particular to fill the gap related to faculty satisfaction as one of the main driver for blended learning adoption in universities.

The rest of the article is organised as follows: in section 2 we review the literature; in section 3 we describe our research and methodology; section 4 presents our results and discussion; and, in section 5 we provide concluding remarks.

Literature review

One of the ways to evaluate the effectiveness of blended learning is through the satisfaction of its users (Sharma et al., 2001). Alongside with students satisfaction (Loh et al., 2016), faculty

satisfaction is a crucial pillar. Faculty satisfaction is a complex idea; it is an interaction of conditions related to the students, the institution, the department and even an instructor's own experiences and attitudes (Martins and Nunes, 2016). Bolliger and Wasilik point out that faculty satisfaction is a "complex issue that is difficult to describe and predict" (p. 105). Various factors exist that help to describe and define the faculty experience of online education (Durette, 2000; Palloff and Pratt, 2001; Sloan Consortium, 2006; Simonson et al., 2009). Faculty that feel well-supported by their institutions, that have, for example, adequate technical and pedagogical support, and adequate professional development opportunities are reported to be more satisfied with online teaching overall (Tabata and Johnsrud, 2008). Faculty's satisfaction is a critical building block of quality in online education (Selim, 2007). Webster and Hackley (1997) stated that the positive attitude by e-learning instructors toward technology, interactive teaching style, and control over technology contributed to some of the success of effective learning. Without faculty engagement, in fact, any initiative to adopt a blended learning approach is likely to fail (Christo-Baker, 2004). After all, faculty members are the primary decision-makers in their courses (Graham and Robison, 2007). Furthermore, Butler and Sellbom (2002) asked to faculty which factors could influence the decision whether to adopt technology: technology reliability, the knowledge about the way to use technology or the difficulty using it and the technical support are identified as the most critical factors. On the other hand, Humbert (2007) discovered that the decrease in student-teacher interaction, the lack of time to prepare online content and activities are the main barriers in a French university; heavy workloads, lack of motivation, and lack of financial support are, instead, the barriers to blended learning adoption identified in the research conducted by Oh and Park in 2009. In existing literature, factors influencing faculty satisfaction tend to be classified as intrinsic versus extrinsic, motivating versus inhibiting, and/or promoting satisfaction versus promoting dissatisfaction (Schifter, 2000). Cook et al. (2009) classified factors as intrinsic or extrinsic and investigated the impact those factors had in contributing to the motivation or inhibition of experienced online faculty to continue teaching in the online education system. Intrinsic factors included desire to help students, opportunity to try something new, intellectual challenge, personal motivation to use technology, overall job satisfaction, the ability to reach a broader student audience, and the opportunity to improve teaching. Extrinsic factors included release time, support and encouragement from institution administrators and departmental colleagues, merit pay, monetary support, technical support provided by the institution, workload concerns, and quality concerns. This study showed that intrinsic factors positively contribute to ongoing and increased motivation to participate in the online education while failure to adequately address extrinsic factors can be found to contribute to greater inhibition to participate in the online education. Giannoni and Tesone (2003) used a similar classification. Their findings indicate that a mix of both intrinsic (i.e. personal satisfaction, teaching development, professional prestige, intellectual challenge, and recognition) and extrinsic factors (time, technical support, monetary issues, job security, and promotion) contribute to faculty satisfaction. According to Bollinger and Wasilik (2009) factors that affect faculty satisfaction can be categorized into three groups: *(a)* student-related, *(b)* instructor-related and *(c)* institution-related. The access to higher education for a more diverse student population, the interactions with students (Fredericksen et al. 2000; Hartman et al., 2000) are – for example – factors belonging to the first group. The second group of factors influencing faculty satisfaction include self-gratification, intellectual challenge, and an interest in using technology (Panda and Mishra, 2007). This environment provides faculty with professional development opportunities and research and collaboration opportunities with colleagues. In the last group, it is possible to include values and policies that support the faculty, workload issues, time for course development, compensation, a reward system for promotion and tenure and, finally, policies that clarify intellectual property issues.

As said before, our study is focused on an ancient university and not on a telematic or a young one. In this case we observed a progressive process of adoption, that can be analysed through the

model proposed by Graham et al. (2012). This framework aims to identify and provide details about issues that administrators should recognize in order to guide their institutions towards successful adoption and implementation of blended learning. The authors identified key markers related to institutional strategy, structure, and support, that can be identified and differentiated across three stages of institutional adoption/implementation:

- Awareness-exploration (stage 1): the institution has not yet adopted a strategy regarding blended learning, but administrators are aware of it and try to explore blended courses opportunities.
- Adoption-early implementation (stage 2): the institution starts to develop and adopt blended courses.
- Mature implementation-growth (stage 3): the institution has well established blended strategies, structure, and support that are integral to its operation.

Finally, the authors identify exactly the faculty engagement and satisfaction as the most critical factors for the progression through these three stages.

Research method

Starting by the consideration that limited empirical research on how higher education institutions deal with the adoption of blended learning, we decided to choose an explorative approach. We used a single case study, which is an appropriate way of establishing the field at the early stages of an emerging topic (Eisenhardt, 1989). Moreover, the single case study approach is normally preferred when an inductive approach can be adopted, using theory to explain empirical observations and also to inform refinements and extension of the theory (Yin, 1994). Other scholars used the case study approach to examine blended learning in higher education institutions (Motteran, 2006; Cahir, 2014). Among the others, the case study conducted by Taylor and Newton (2013) at an Australian university is very useful to examine learning practices in an institution faced with the challenges of delivering both on-campus and distance learning programs – as for UNIPV. The case study presented in this article aims to explore and to understand the methodology used to implement a blended learning approach in training programs. In particular, drawing on the conceptual framework provided by Graham and colleagues (2012) we investigated how the blended learning is implemented within the University of Pavia, that is according to our exploratory approach an exemplar case study with unique circumstances. In particular, the University of Pavia's project on blended learning can be classified an early adopter, since it began in 2008, 5 years before to the regulatory intervention by Italian legislation occurred in 2013 that established the duty for all Italian universities to implement new e-learning technologies.

The information gathered during this research relates to the results of both the *exploration* phase, which began in 2008 and was completed in late 2014, and the *adoption/implementation* phase, which began in 2015 and it is still ongoing. To analyse these phases, we conducted nearly ten interviews with some of the key organizational actors involved in the blended learning implementation process. Thanks to a collaborative analysis process between academics and organization technical staff, the case study description has improved and the construct validity has increased (Maxwell, 1996).

In relation to the *faculty satisfaction,* we administered a questionnaire to the entire population of instructors involved in blended learning (46 instructors) who taught a blended learning course during the academic years 2015-2016 and 2016-2017. Faculty members involved in blended learning courses were contacted via email and invited to participate in the study. The survey is composed by 13-items and it took approximately 10-15 minutes. Participation was voluntary and participants were assured of confidentiality of results. Of the 46 questionnaires that in this first stage were delivered, 38 were returned. Our respondents include both Full (31,6% of the sample)

and Associate (44,8% of the sample) Professors, Researchers (10,5%), and, finally, professor with a temporary appointment for a given course (13,1%). The survey has a total of 15 questions including 13 questions with a 4-point Likert scale, ranging from 1 strongly disagree to 4 strongly agree. The items were taken from the scale on *online faculty satisfaction survey* (OFSS) developed by Bolliger and Wasilik in 2009. In this study we use only some items of the OFSS scale and they are grouped in three subscales: a) student related issues (Cronbach's α = ,52), b) instructor-related issues (Cronbach's α = ,92), and c) institutional-related issues (Cronbach's α = ,89) [16].

Findings and Discussion

University of Pavia is one of the oldest universities in Europe. It was founded in 1361 and has 18 departments. Today the University boasts 25.000 students, both from Italy and from overseas. It offers study programmes at all levels: Bachelor's degrees, single-cycle Masters degrees, research degrees, specialty schools and level I and II Masters degrees. The so-called "Pavia System" is characterized by 20 colleges and residences where thousands of students can live and study. In this frame, the project for the implementation of a blended learning began in 2008. The work began with the establishment of a working group composed by the Pro-rector for didactics, the rector's Delegate to ICT, the Head of the Information System Area and the Head of the Digital Learning and Innovation Service. As said before, the first step toward the blended learning adoption is moved in 2008 with the promotion of an experimental project involving 50 students and 7 single courses delivered by the Faculty of Pharmacy. The starting idea was to support traditional courses by creating an interactive digital environment where teachers, tutors, and students could share educational materials, create new ones, meet and deepen, ideally, what they did during their lessons. In this experimental phase the Head of the Digital Learning and Innovation Service in collaboration with all the staff of the Service, and the President of the Faculty of Pharmacy were the main blended learning advocates. However, already at this stage emerged the relevant role of faculty members: faculty was one of the major drivers in implementing blended learning.
The activities programmed for the experimental phase concluded approximately in December 2014. In 2015 the University completely redesigned the implementation of the blended learning approach. Currently, the service related to blended learning is supported by 18 instances of the Learning Management Systems Open Source Moodle (Cahir et al, 2014): the access is guaranteed to 12,000 students and 550 instructors. In general, the main activities to promote the integration of blended learning in traditional learning consisted in the live recording of the traditional lessons through a mobile recovery, the work of post-production on the video and – finally - the uploading of the videos on thematic channels of a video streaming manager (VIMEO). The blended learning approach is implemented in 6 course programs (see Table 1): the diversity among course programs allows to better achieve the objectives defined for the project. For each course program, lessons have been recorded for at least 30% of CFUs in the study plan. The University chose to adopt "vertical" video detection model: for each course program a number of single courses were identified: the final sum of the CFUs assigned to each single course corresponds to the 30% of CFUs delivered by the entire course program. . As depicted in table 1, along with an increase in the number of single courses and registered videos and hours, there was a very significant increase in access (number of views) from 2015/2016 to 2016/2017 academic year. That is indicative of students' increased participation in the blended classroom environment.

=== Insert Table 1 ===

Adequate technological *infrastructure* during blended learning adoption is required. For this reason the University adopted new technologies to facilitate BL adoption: 7 moving recovery for live recording, Films with Operator in Presence, 3 recovery Extron SMP 351, Nilox cameras,

lavalier microphones, notebook for managing recoveries, 3 Macintosh for postproduction and software for postproduction. In addition, the use of Microsoft Surface were offered to all faculty members. The opportunity to link the surface to the board permitted to look and to use the Surface as an interactive whiteboard (on which to record slides, compose charts, write, etc.). Single courses and the timeline of the project are clearly scheduled at the beginning of each academic year, blended learning are finally approved by instructors before publication, no other approval is required. Table 2 (see Table 2) provides the descriptive statistics for each item used to measure faculty satisfaction. The descriptive statistics reveal that the average scores are relatively high for items connected to both student and instructor subscale suggesting that most of the respondents are satisfied of the "new" way to interact with students.

=== Insert Table 2 ===

The results of the study confirm that the students, the instructor, and the institution are important in the measurement of perceived faculty satisfaction. As suggested by some scholars (Bender et al., 2004; Spector, 2005; Conceicao, 2006) the student factor seems to be the most important factor influencing satisfaction of online faculty. While instructor-related and institution-related factors seem to be definitely less important. The most important issues are related to students' feeling about online course, to the students' involvement in the several activities supplied by the new technologies, to the availability for students to access to online courses anytime and anywhere at their convenience

Finally, it's interesting focusing our attention on the two dimensions that have the lowest impact on faculty's satisfactions. Concerning the level of interaction among students and instructors, even though multiple communication options are available in online setups, they may not be used as extensively as they should be, maybe because the usage is largely dependent on the students' own initiatives. Consequently, online students tend to communicate with their instructors more to get help with a problem and less to take actual guidance to facilitate their learning. At the same time, also faculty members face similar challenges in the design of a blended course. Many times, the individual perceptions of the students and the online instructors are dramatically different, resulting in overall poorly designed courses that are confusing and dissatisfying for the students. This difference in perception can result in a certain amount of apathy on the instructors' part to recognize student emotions and feelings. Concerning instructor provision of feedback, low evaluations can be related to the need for additional faculty support. In fact, if a large number of students are enrolled in a blended course, some faculty may need assistance responding in a timely manner that allows students to maintain their own pace and schedule. The opportunity for further research could be a better focus on ideal class size.

Conclusions

This article examined an Italian case study of blended learning adoption. Summarizing, the point is made that a successful distance education program is reliant upon a dedicated and committed distance faculty. A positive perception of distance education and satisfaction with the distance-learning environment are likely contributors to that success.

Student-related issues seem to be the most important factors influencing faculty's satisfaction, while instructor-related issues and especially institution-related issues seem to be definitely less important. In particular, the most important factor are the student motivation and enthusiasm in using new tools, the freedom to access to online course anywhere and anytime both for the instructor than for the student. Concerning more directly the instructors, the most important factor seems related to the wider availability of resources given to the students. Finally and concerning

the institution-related factor, the blended learning courses seem to have no impacts on instructors' workload and on the students' satisfaction evaluations respect to the traditional courses.
Finally, as with many exploratory studies, several limitations should be taken into account. First, the results are derived from a single higher education sector organization. It is thus not possible to predict the extent to which the results can be found in universities using a blended learning approach in Italy. On this point, a next step of the research is to increase the number of case in order to compare different approaches for implementing blended learning. Moreover, the findings are limited to a small number of respondents and no attempt are be made, in this research phase, to generalize the obtained results to the wider Italian higher education sector faculty members. Further research will attain an increase in the breadth and depth of the content, both through the involvement of other Universities, and through the analysis of the students' satisfaction.

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Table 1. – Blended Learning in University of Pavia: the state of art

	Academic Year 2015-2016	**Academic Year 2016-2017**	**Total 2015-2017**

		(new courses and features)	
Registered videos (total number)	682	385	1.067
Registered hours (total number)	1.100	600	1.700
Course programmes (number)	6	6	6
Single courses (number)			
- in English language	13	9	22
- in Italian language	10	10	20
Single course registered for each course programme	5	3	8
- Communication, Innovation, Multimedia	6	2	8
- Physics	6	4	10
- International Business and Economics	4	3	7
- Economics, Finance and International	6	3	9
Integration	5	4	9
- Civil Engineering			
- Musicology			
Access (number of views)	20.069	128.000	148.069

Table 2 – Faculty satifaction's scores

Subscale	**Item**	**M**	**SD**
Student	The level of my interactions with students in the online course is higher than in a traditional face-to-face class	2,11	0,658
	I am able to provide better feedback to my online students on their performance in the course	2,21	0,741
.	My online students are more enthusiastic about their learning than their traditional counterparts	3,00	0,615
	My online students are actively involved in their learning	2,97	0,600
	I appreciate that I can access my online course any time at my convenience	3,00	0,658
	It is valuable to me that my students can access my online course from any place in the world	3,24	0,542
Instructor	I have to be more creative in terms of the resources used for the online course	2,58	0,793
	My students use a wider range of re-sources in the online setting than in the traditional one	3,45	0,555
Institution	I have a higher workload when teaching an online course as compared to the traditional one	2,61	0,790
	I am concerned about receiving lower course evaluations in the online course as compared to the traditional one	1,71	0,515