Discovering Blended Learning Adoption: An Italian Case Study in Higher Education

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Abstract In the last decade, online education has become a fast-growing delivery method in higher education in Italy. According to data provided by the Italian Ministry of Education, Universities and Research during the academic year 2014–2015, 60,000 students were enrolled in a Telematic University, experiencing a 60% growth rate in the last five years. In this frame it is important to inquire about blended learning adoption and implementation in order to assist University leaders in changing policies that will lead to improvement of teaching and learning conditions. Using a case study and conducting a survey on online structure this paper aims: (a) to identify institutional strategy, structure, and support markers that would allow administrators to determine their progress in transitioning exploration of blended learning to implementation; (b) to understand what are the main factors affecting satisfaction of faculty involved in a blended learning experience.

1 Introduction

The progression of information technology such as internet surged the growth of online educational programs that change the traditional system of education [1, 2]. Also in Italy, in the last decade, online education has become a fast-growing delivery method in higher education [3, 4]. Evidence of the embracement of online education is provided through the analysis of trends over the last decade. According to data provided by the Italian Ministry of Education, Universities and Research during the academic year 2014–2015, 60,000 students were enrolled in a Telematic University, experiencing a 60% growth rate in the last five years. The current economic downturn has increased demand for both online courses and programs it is expected that this trend will continue. Maeroff [5] maintained that developments

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in online education are not "just a fad" but a "sea change" (p. 2). The amalgamation of knowledge and technology permits higher education to provide learning anytime, anyplace, and to anyone [6, 7]. Today, online education represents a firmly embedded part of the higher education landscape: the use of information and communications technologies (ICT) has facilitated an explosive growth in this relatively new method of teaching. Moreover, the emergence of technology has become a competitive advantage for higher education institutions as it can provide an alternative approach in providing better quality of learning.

According to several scholars [8–11], the "blended learning" represents one of the most recurrent approach to deliver course content. 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. Concurrent with the phenomenal growth in blended learning, stakeholders in education continue to demand greater accountability and evidence of effectiveness in teaching [12, 13]. One of the ways to evaluate the effectiveness of blended learning is through the satisfaction of its users [14]. Wu and Liu [15] revealed several studies that consider student satisfaction as a crucial parameter to evaluate and assess the learning effectiveness specifically in academic institution.

However, along with students' satisfaction, also faculty's satisfaction is a critical building block of quality [16–18] in online education. Faculty's satisfaction is quite important, given that it affects faculty's motivation, which, in turn, contributes to enhancing students' learning experience. Webster and Hackley [19] 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.

Even though many studies have been conducted on online learning, studies specifically on blended learning are still scarce [14]. 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 [20]. Moreover, as factors that would influence satisfaction towards blended learning are still explored. Thus it would be interesting to identify the issue. In this frame, it would be interesting to identify both the issues. Without faculty engagement, in fact, any initiative to adopt a blended learning approach is likely to fail [21]. After all, faculty members are the primary decision-makers in their courses [22]. Research involving distance education has recognized the importance of considering faculty members' attitudes and experiences but existing literature has often neglected the faculty perspective.

Using a case study to describe the implementation of a blended learning approach involving today 2200 students and approximately 50 teachers at the University of Pavia (Italy) (UNIPV), this paper has a twofold purpose:

1. on the one hand, the aim is to analyze the adoption of a blended learning approach in an Italian University identifying institutional strategy, structure, and

support markers that would allow administrators to determine their progress in transitioning from awareness and exploration of blended learning to adoption and implementation;
2. on the other hand, the goal is understand what are the main factors affecting satisfaction of faculty involved in a blended learning experience.

2 Understanding Blended Learning

Blended learning is the combination of two words: blend and learning. *Blend* means combining things and *learning* can be defined as the acquisition of new knowledge [23]. Even if there is not a commonly accepted definition of blended learning [23], it is usually defined as "the mix of traditional methods of teaching, such as face-to-face teaching and online teaching" [11, 24: p. 233, 25–28]. Due to its features, this is perhaps the most common meaning of blended learning used in a higher education context. However, it is not clear as to how much, or how little, online learning is inherent to blended learning since several degree of blending may occur within these two approaches. According to some scholars, in fact, it is important to distinguish blended learning from other forms of learning that incorporate online opportunities. Jones and colleagues [29, 30]. suggest a continuum of blended learning, which begins with no ICT use, then progresses through the most basic level of ICT used to support face-to-face teaching, to intensive use, whereby the whole course is delivered online with minimal or no face-to-face interaction.

In order to understand the degree of blended the real test is represented by the effective integration of the two main components (face-to-face and online technology) such that we are not just adding on to the existing dominant approach or method. This holds true whether it be a face-to-face or a fully online-based learning experience. A blended learning design represents a significant departure from either of these approaches. It represents a fundamental reconceptualization and reorganization of the teaching and learning dynamic, starting with various specific contextual needs and. For this reasons, despite some researchers define blended learning as a simplex approach [11] it is possible to introduce the great complexity of blended learning. In this respect, no two blended learning designs are identical. Following this assumption, also the analysis of a single experience can be very useful to understand the several patterns followed during the implementation of a blended learning approach.

In higher education, this way to intend blended learning is often referred to as a hybrid model. Hybrids are course in which a significant portion of the learning activities have been moved online, and time traditionally spent in the classroom is reduced but not eliminated. The goal of this hybrid courses is to join the best features of online learning to promote active, self-directed learning opportunities for students with added flexibility [31]. Italy has moved in the same direction.

Following the Ministerial Decree n. 47/2013 and according to the Guidelines provide by the National Agency for the Evaluation of Universities and Research Institute (ANVUR) [32] the course of studies could be defined:

- *Telematics (or online)* if they are provided by a Telematic Universities or when the didactic activities involve the support of ICT technologies for a CFU number greater than 75% of total CFUs;
- *Blended (or hybrid)* when the didactic activities involves the support of ICT technologies for a CFU number not less than 30% and not more than 75% of total CFUs.

Many higher education institutions—also in Italy—are systematically trailing various forms of blended learning in order to improve their student learning experience. There are many advantages over traditional teaching methods. For example, there is greater flexibility and students can download learning materials at their convenience, independent of location, time or physical attendance at the traditional lessons. Many students have the opportunity to balance work and study commitments. In addition, there is increasing evidence that students now use technology effectively in conjunction with workshops and lessons because they are more active and can prepare in greater detail for class when they do attend. The perceptions of faculty teaching blended learning courses have also been studied. On the one hand, the blended learning model provides some advantages: a high quality teaching experience, higher quality interaction between faculty and students compared to traditional in-person courses, and a "community of inquiry" through flexible course design [33, 34]. The high quality teaching experience comes from the ability of blended courses to provide opportunities for increased interaction between the students and faculty. On the other, instructors teaching a blended learning course can expect to invest more time becoming familiar with available technology, creating in-class activities, and reflecting on overall course structure [35, 36]. In addition, instructors need to consider ongoing classroom assessment. Because of these time-consuming tasks, some advise that faculty receive additional support and resources when teaching blended learning courses for the first time [37].

3 The Conceptual Framework

Previous literature have studied the adoption of various types of educational technology used for online learning in higher education institutions [38–40]: open educational resources [41, 42], a university's learning management system [43], an e-portfolio system [44], or an e-assessment system [45]. Many studies examined the role of ICT as an agent of change in learning identifying both the constraints and the factors enabling faculty technology adoption. Buchanan and colleagues [46] discovered that in a British University the issue related to the availability of technology and represented the most important barriers to technology adoption. One year later, the results of the research conducted by Lin et al. [47] showed that

the greatest barriers, preventing the adoption of ICT included insufficient support and insufficient time for developing technology driven activities. Some other studies tried to understand both factors promoting the adoption and the use of ICT by faculty and the factors perceived as barriers. On the one hand, the improved student learning, the advantages over traditional teaching, the tools availability and the ease of their use and, finally, the student interest represent—according to Beggs [38]—some of the factors that facilitate technology use. Furthermore, Butler and Sellbom [48] 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 [49] discovered that the decreasing 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 [50].

Despite these studies aiming to identify determinants and barriers to blended learning adoption, very little is known about the extent to which blended learning been adopted in universities [51–53].

Probably in many cases, a blended learning approach has been adopted without a strategic intention or without assuming an institutional perspective. In this frame and considering the relevance that blended learning approach has gained in the last decade, universities are seeing a need to support its adoption and implementation from a strategic perspective. Policies and practices that enable and even encourage blended learning can strengthen a university's commitment to improve student learning as well as in crease side benefits such as access, flexibility, and cost effectiveness. While many studies have investigated more in general the quality and the effectiveness of the blended learning approach, very few studies provide guidance for institutions in higher education [54]. One of the most famous institutional framework has been developed in 2012 by Graham and colleagues: the 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. Aiming both to a better understanding of the process underlying the adoption of a blended learning approach, and to provide support during its implementation, the Authors have identified key markers related to institutional strategy, structure, and support (Table 1):

- *Strategy*: it includes issues regarding the overall design of blended learning. A well-defined institutional direction, the creation of a task force, a clear policy, the resources' availability and time, for example, may help to define "if" and "how" blended learning may help the institution to meet its mission and goal [11, 55].
- *Structure*: it encompasses issues relating to the technological, pedagogical, and administrative elements facilitating the creation of a blended learning environment. The development of the infrastructure and internal guidelines, as well as the policies definition regarding ownership and accessibility of materials

Table 1 Blended learning implementation categories

Categories	Sub-categories	Description
Strategy	Purpose	The goals that universities intend to achieve implementing blended learning should be clearly identified. In literature, three general purposes for blended learning adoption have been identified: (a) enhanced pedagogy, (b) increased access and flexibility, and (c) improved cost-effectiveness and resource use
	Institutional advocacy	Advocacy is required among administrators, faculty, and other institutional personnel
	Definition	The creation of an institutional definition of blended learning can facilitate several objectives, which include distinguishing blended learning courses from other delivery methods for scheduling purposes, providing students with clear and reliable expectations regarding blended learning courses, and developing appropriate support strategies
Structure	Infrastructure	The establishment of the necessary technological infrastructure is central to the success of blended learning implementation
	Scheduling	The coordination and a clear communication of the scheduling of blended courses it is necessary for each semester
	Governance	Institutions should determine who approves the development of BL courses and who owns intellectual property rights to materials created for them
	Evaluation	A culture of systematic self-improvement is necessary. Using an evaluation system also quality and effectiveness of blended learning can be identified
Support	Professional development	Faculty members need to develop new technological and pedagogical skills to teach in a blended format. Faculty must have the technological skills necessary to design and maintain the online portions of each course pedagogical skills are necessary to fully investigate the wide variety of instructional methods unique to blended learning
	Technical and pedagogical support	Faculty members need continued assistance as they incorporate blended instructional design principles and practices into their. Students likewise require technical assistance in accessing course materials, engaging with course content. Support may occur in person or by telephone, via instant messaging or e-mail, or on a website containing tutorials and other instructional materials, preferably using multiple methods
	Institutional incentives	Several incentives may be used to support blended learning adoption by faculty members: to release more time to redesign courses, learn new technologies, and obtain necessary equipment; to increase the weight of blended learning courses in workload calculations, or allowing faculty to hire teaching assistants; to provide financial incentives (workload compensation, BL implementation stipends, or financing for technological equipment); to consider blended learning implementation in matters of tenure and promotion

available in the online environment and—finally—a systematic evaluation of satisfaction and success of a new blended course in terms of teaching, learning, technology, and administration may increase the chances of a successful blended learning implementation [11, 51, 56–58];

- *Support*: it involves issues relating to the manner in which an institution facilitates faculty implementation and maintenance of its blended learning design. The pedagogical and technological development of the actors involved in the creation and use of a blended learning approach and the design of an incentive system are recognized as critical factors for blended learning implementation [58, 60, 62].

Evidences for these three areas of consideration 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 and show limited support for individual faculty exploring ways in which they may employ blended techniques in their classes.
- *Adoption-early implementation* (stage 2): the institution adopts a blended learning strategy and experiments with new policies and practices to support its implementation.
- *Mature implementation-growth* (stage 3): the institution has well established blended strategies, structure, and support that are integral to its operation.

One of the most critical factors for the progression through these three stages is represented by faculty engagement in the adoption and implementation of the new teaching methods. Particularly, faculty satisfaction play a role in blended learning effectiveness and vice versa. System theory supports the notion that change made to one part of a system affects all other parts of the system [60].

Faculty satisfaction can be defined as the perception that teaching online is effective and professionally beneficial (definition provided by the American Distance Education Consortium). Bolliger and Wasilik [16] point out that faculty satisfaction is a "complex issue that is difficult to describe and predict" (p. 105).

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 [59–61]. Cook et al. [59] 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 [61] 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.

Various factors exist that help to describe and define the faculty experience of online education [62–68]. However, according to Bollinger and Wasilik [16] these factors 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 [68], the interactions with students [63, 64, 68] 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 [66]. This environment provides faculty with professional development opportunities and research and collaboration opportunities with colleagues [64–68]. 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 [64, 67, 68] and, finally, policies that clarify intellectual property issues [62, 65, 67, 68].

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. 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. Faculty who feel well-supported by their institutions, who have, for example, adequate technical and pedagogical support, and adequate professional development opportunities are reported to be more satisfied with online teaching overall [69].

Starting from this framework the empirical analysis of our research—presented in the following sections—has a twofold purpose. Firstly, using the case study of UNIPV, the adoption of a blended learning approach is analyzed, identifying the main features of the several categories (Table 1) used to understand the institutional strategy, structure, and support markers. The analysis of these three conceptual dimensions is conducted for two of the three stages of institutional adoption/implementation of blended learning: the "awareness and exploration" phase and the "adoption-early implementation" phase.

Secondly, a survey is conducted aiming to explore one of the most critical factors for the progression through these two stages: the faculty engagement and satisfaction in the adoption and implementation of the new teaching methods. The goal is to understand what are the main factors affecting satisfaction of faculty involved in a blended learning experience in order to identify some opportunity to both change and improve something in the chosen strategy, in the infrastructure or in the categories of the support makers.

4 Method

Since only limited empirical research on how higher education institutions deal with the adoption of blended learning has been found an explorative approach has been chosen. Particularly, the research being reported in this paper involved the case study of UNIPV engaged in the delivering of blended learning courses since 2008.

Other scholars used the case study approach to examine blended learning in higher education institutions [70, 71]. Among the others, the case study conducted by Taylor and Newton [71] 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.

In this study, a single case is used, which is an appropriate way of establishing the field at the early stages of an emerging topic [72]. 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 [73–75].

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 [20] we investigated how the blended learning is implemented within the Italian UNIPV. According to our exploratory approach, we selected UNIPV as an exemplar case study [75], with unique circumstances. In particular, in UNIPV, the project on blended learning begun prior to the regulatory intervention by Italian legislation. In 2013, in fact, there are two relevant facts for distance education in Italian context. On the one hand, the Decree n. 47/2013 clearly stated the conditions according to which a course of studies can be defined "blended". Furthermore, on September 2013 the triennial plan (2013–2015) for Universities presented by the Italian Ministry of Education, Universities and Research (MIUR) stated that one of the main objectives was the improvement of services provided to students: the promotion of distance education moving in this direction was one of the suggested actions by the Minister. In this setting, we analyzed four different building blocks in order to understand both how blended learning has been implemented and how faculty perceived this new learning approach: (a) strategy; (b) structure; (c) support; (d) faculty satisfaction.

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. From a methodological point of view, data and information collection period is particularly significant for our analysis, since it allows us to better define the nature and the relevance of the collected information. The longitudinal approach used in the observation of the project development led to the analysis of context, groups, and individuals dynamics, concerning the implementation of the blended learning approach. To improve validity and reliability [75], of our finding and conclusions,

we collected data from different sources. In relation to the three conceptual dimensions of analysis (*strategy, structure* and *support*), a triangulation was carried out between documental information and interviews. The documents helped understanding the relevance given to the different phases and practices, the modes of interaction between actors and the technologies adopted for blended learning. All information gathered provided also evidence on both the process of internal communication and the role of people involved in trialing and implementing blended learning. The interviews were conducted with some of the key organizational actors involved in the blended learning implementation process. The interviews were conducted to ensure that the case study is "bounded" [75] and to guarantee that the conclusions of this study are based upon specific observations [76]. Thanks to a collaborative analysis process between academics and organization technical staff, the case study description has improved and the construct validity has increased [75].

Finally, in relation to the *faculty satisfaction*—the last dimension of analysis—a survey was conducted on 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 5 min. 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, this represent a response rate of approximately 83%. 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%). As with any survey of a particular and small group, cautions needs to be exercised in generalizing study findings.

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 $\alpha = 0.52$), (b) instructor-related issues (Cronbach's $\alpha = 0.92$), and (c) institutional-related issues (Cronbach's $\alpha = 0.89$) [16].

5 The Case Study of the University of Pavia: Findings and Discussion

UNIPV is one of the oldest universities in Europe. It was founded in 1361 and has 13 faculties. 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.

UNIPV is in a way unique not only because of its prestigious historical origins and top quality achievements, but also due to its leading and promoting role in the so-called "Pavia System" 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 in UNIPV begun in 2008. Since the beginning of 2015, following the triennial plan for the Universities promoted by MIUR, UNIPV presented a project for the implementation of blended learning approach in five course programmes. This project has been funded by the Italian Ministry and the work began with the establishment of a working group composed by the Pro-rector for didactics, the Delegate to ICT, the Head of the Information System Area and the Head of the Digital Learning and Innovation Service.

Summarizing, to obtain insights about the blended learning adoption from the awareness and exploration phase to the early implementation phase, we identified an institution at the adoption and early implementation stage that received a fund in 2015 to facilitate blended learning development.

5.1 Phase 1 (2008–2014): The Exploration Stage

The first step toward the blended learning adoption in UNIPV is moved in 2008 with the promotion of an experimental project involving 50 students and 7 single courses delivered by the Faculty of Pharmacy.

Looking for the *strategy* dimension, improved pedagogy, access and flexibility, cost effectiveness and the intention to increase the student-instructor relationship outside the classroom are the main purpose declared by UNIPV. 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. The primary purpose for adopting blended learning was to improve student learning outcomes. In addition, UNIPV noted cost-effectiveness as another important driver for attracting additional students or increasing the student retention. The way in which blended learning approach was put into practice depends on institutional advocacy, individuals who actively promoted blended learning and organized adoption efforts. 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. Finally, the definition provided for blended learning was derived by Italian Legislation and included the combination of online and face-to-face instruction.

The analysis of UNIPV *infrastructure* evidenced how UNIPV focused on enhancing its technological infrastructure to facilitate online education. The creation of a "new" interactive digital environment called KIRO was very useful to share resources and experiences; at the same time, it represented a "place" where

students could meet and where the relationship between students and tutors could be improved. However, UNIPV did not systematically identify blended courses in their course catalogs. The Faculty of Pharmacy allowed individual instructors informed students on the first day of class if a course was blended: in sum UNIPV did not create a systematic protocol for indicating all blended learning courses. Furthermore, in this first stage governance and evaluation practices were not clearly identified.

Finally, the focus on the last dimension of analysis (*support*) evidenced that incorporating the use of the digital platform (KIRO) into face-to-face instruction required no additional professional, technological or pedagogical support, since the instructors were not learning new technological skills and were "well-versed" in face-to-face instruction.

5.2 Phase 2 (2015–Today): The Adoption/Early Implementation Stage

The activities programmed for the experimental phase concluded approximately in December 2014. In 2015—after the fund obtained by MIUR—UNIVP 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: 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 (Table 2): 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. UNIPV 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.

The evidences collected for this second stage showed a more complex frame for the three dimensions of analysis. The investigation about the *strategy* dimension revealed that the purposes UNIPV reported are aligned with those reported in the literature: pedagogical improvement, increased access and flexibility, and cost effectiveness. Blended learning adoption objectives seemed to be aligned also with institutional goals. Furthermore, the choice to implement blended learning only at the second cycle level (according to the Italian Higher Education Systems) allowed to implementers to consider different purposes for adopting Blended Learning. For example, administrators, tasked with the financial success of the institution, may

Table 2 Blended learning in UNIPV: the state of art

	Academic year 2015–2016	Academic year 2016–2017
Registered videos (total number)	682	385
Registered hours (total number)	1100	600
Course programmes (number)	6	6
Single courses (number) – in English language – in Italian language	13 10	9 10
Single course registered for each course programme – Communication, innovation, multimedia – Physics – International business and economics – Economics, finance and international integration – Civil engineering – Musicology	5 6 6 4 6 5	3 2 4 3 3 4
Access (number of views)	20.069	128.000

focus on increasing enrollment and retaining students, while faculty members may focus on specialized and highly differentiated course contents. In addition, focusing on students—the choice to implement blended learning in second cycle level allowed to provide this new training method to students who knew the existence of KIRO platform, its centrality for teaching activities and its services (how to use it). In the adoption phase the personnel working in the Digital Learning and Innovation Service, and the faculty members were the only blended learning *advocates*. It is possible to conclude that UNIPV should encourage advocacy at multiple institutional levels due to the distinct contributions provided by department administrators, faculty resource centers, faculty members, students and technical-administrative staff.

Adequate technological *infrastructure* during blended learning adoption is required. For this reason UNIPV 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.

Finally, a great number of initiatives are realized to provide *support* to the blended learning implementation. Firstly, UNIPV offered professional development to faculty adopting blended learning. In 2016 UNIPV created an online blended

learning training program: the program consisted of 26 online training units that provided instructors with as little or as much training as they needed. In addition UNIPV provided presentations, seminars, or webinars to small groups of faculty members or even individual teachers. UNIPV offered also robust technological and pedagogical support systems: a central coordination center oversees all the technical-methodological aspects and reaches the periphery through a network of collaborators (Kiro Manager) operating at the departmental level to provide support. A help desk service was created to support both users and online instructors.

5.3 *The Faculty Satisfaction*

Table 3 provide 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.

Although most of the variables present a moderate degree of variability, the creativity required to an online instructor in terms of the resources used for the online course (M = 2.58, SD = 0.793), the higher workload perceived when teaching an online course as compared to the traditional one (M = 2.61, SD = 0.790) and the ability to provide better feedback to online students (M = 2.21, SD = 0.741) produced the greatest degree of heterogeneity in

Table 3 Means and standard deviation of 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

responses. The increased access (M = 3.24, SD = 0.542), the use of a wider range of resources in the online setting than in the traditional one (M = 3.45, SD = 0.555) and the concern about course evaluation (M = 1.71, SD = 0.515) produced the greatest degree of homogeneity in responses.

Moreover, the survey includes two items that are considered general satisfaction questions. Here instructors indicated their levels of agreement or disagreement with the statements 'I look forward to teaching my next online course' and 'I am more satisfied with teaching online as compared to other delivery methods'. The means for these items were 2.41 (SD = 0.686) and 2.54 (SD = 0.730), respectively.

The results of the study confirm that the students, the instructor, and the institution are important in the measurement of perceived faculty satisfaction. The student factor seems to be the most important factor influencing satisfaction of online faculty, which is encouraging because it leads us to believe that many online instructors are student centered. Mean scores show that participants felt most strongly about questions in this particular subscale. Student-related issues that were most valued by respondents include providing flexible and convenient access to courses. These are some of the issues related to faculty satisfaction mentioned by the Sloan Consortium [68]. Additionally, the majority of faculty believed that their online students are actively involved in their learning, participate at a good level, and communicate actively with the course instructors. These results are encouraging and reassuring for faculty who are either considering to move or expand their online course offerings or who are pressured by administrators to participate in distance education. Not surprisingly, instructor-related issues directly impact instructor satisfaction but were less important than student-related issues. Finally, institution-related issues seem to be less important to online faculty. The majority (52.63%) of respondents agreed or strongly agreed that they have a higher workload when teaching an online course. These findings are consistent with the literature that points out online instructors invest more time than instructors who teach face-to-face [64, 77–79].

6 Conclusions and Next Steps

This article examined an Italian case study of blended learning adoption in which the higher education institution transitioned between the blended learning stages of awareness/exploration and adoption/early implementation. We identified patterns and distinctions regarding university's strategy, structure, and support decisions during that transition. One of the most important finding include the strategic need to develop blended advocates at multiple institutional levels in order to establish a shared implementation vision, obtain necessary resources, and attract potential adopters. In addition, institutions need to better define blended learning structure for potential adopters. Some improvements is required also on the infrastructure in order to facilitate the integration between online and face-to face learning.

The application of this conceptual framework is important from a practical viewpoint when introducing blended learning into higher education as planners and implementers will consider the readiness to adopt, the blended learning options available and how their impact will be assessed before the implementation occurs. This provides a more holistic approach to the implementation of blended learning options would like to suggest to evaluate the impact of the blended learning approach during its design rather than as an afterthought after implementation.

Future research could determine the nature of strategy, structure, and support patterns during the transition between adoption/early implementation and mature implementation/growth. Research might also examine institutional adoption stages and markers from differing perspectives, including faculty, student, or support staff viewpoints. This case study showed that UNIPV begin implementing BL with a small group of initial adopters and anticipate scaling their efforts; future research could identify core factors that need to be considered during institutional scaling. Examples of such issues could include physical and technical infrastructure needs and the continued use of incentives to facilitate faculty adoption.

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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