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How to improve students' experience in blending learning? Evidence from the perceptions of students in a Postgraduate Master's Degree

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Abstract

This paper examines the perceptions of a group of students of a Postgraduate Master's Degree in Cosmetics Industry at the Universitat de València, delivered with a blended learning modality, in relation to their experience in face-to-face learning and differentiating between those with or without a previous background in a remote online learning environment, with the added purpose of identifying strategies to enhance that experience, while offering further evidence for scholars, educators and institutions in this field. To this end, a survey with open questions devised ad hoc leaning on our literature review was submitted to a group of 114 students of the Master's Degree in the period 2017-2020. Students were enquired about the pros and cons of their blended learning experience in relation to the traditional face-to-face learning, and which modality they would choose next time if both were offered, only considering the achievement, experience and satisfaction, regardless of the price. 77 students of our initial sample participated in the questionnaire, 38 of them without previous experience in blended or distance learning. The results show a certain predilection for face-to-face learning, especially in the group of newbies in blended or distance learning. They highlight how they miss a closer interaction with their peers and professors and the difficulties to assimilate certain content, while appraising the flexibility, autonomy, and the self-pace of the blended learning modality. Correspondingly, students with experience in remote online education settings generally show a better predisposal and find fewer disadvantages in blended learning. This suggests that the factor of experience and adaptation to new tools and methods improves student perception and confidence and shapes their preferences, with a foreseeable growing acceptance of blended learning in

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the future. Finally, the outcome allows us to define a series of strategies to improve the achievement, experience, and satisfaction of students in this learning context.

Keywords: *students' perceptions, blended learning, face-to-face learning, remote online learning, Postgraduate Master's Degree*

Introduction

The blending learning modality, understood as a compromise solution between traditional face-to-face learning and purely remote online learning, is likely to combine the best of both modalities (Krause, 2007; Bonk & Graham, 2012). Remote online learning and blended learning have been gaining more and more attention and prominence in recent years (Clark & Barbour, 2015; Bonk & Graham, 2012) under the umbrella of the digital learning technologies (Bonk & Graham, 2012), a trend that has been even more accentuated after the irruption of COVID-19 in our lives (Dhawan, 2020). According to a recent United Nations publication (UNO, 2020), the COVID-19 pandemic has brought the largest known disruption in the history of education around the world, from pre-primary to higher education, and has exacerbated already existing problems and challenges. This scenario is accelerating even more the trend to further implement distance or remote learning and hence the need to make it more effective and enhance the experience of students, a central aspect in their learning process (Ginns & Ellis, 2009).

When assessing and comparing different teaching modalities, the casuistry can be diverse depending on many factors, such as the stage of learning and background of students and teachers, the subject, contents and learning objectives, the nature of lessons (theorical or practical), the weight of traditional vs online component, the technological means used, etc. This may explain why there is no consensus among scholars about which is the best modality in terms of student performance and satisfaction (Kemp, 2020).

Hence, and specially under present scenario where distance education is gaining even more momentum and relevance, we find of deep interest to enrich knowledge about blended learning from different educational settings and contexts. To contribute in this venue, this paper examines the perceptions and views of students that have participated along three academic years in the period 2017-2020 in a Postgraduate Master's Degree in Cosmetics Industry, delivered by the Universitat de València in a blended learning environment.

In particular through an ad hoc questionnaire, we contrast the views of newbies in blended learning with those with previous relevant background in blended or remote online learning, opposing their experience between face-to-face learning and blended learning, and propose, based on their feedback, various strategies to improve the achievement and satisfaction and enhance the student experience in this learning context.

For such a purpose, in Section 2 we review the relevant aspects of the different methodologies and collect the main potential pros and cons of blended learning, and from them we establish our research questions and questionnaire. In Section 3 we describe our case study, method and database, whereas Section 4 collects our results and discussion. Finally, in Section 5 we present our conclusions and limitations.

Literature background: learning modalities, potential pros and cons and research questions

The face-to-face learning modality

Onsite or face-to-face learning, with the teacher and students gathered in a physical classroom, confined to a specific space and time, and often delivering content most of the time, has been the dominant method of learning. This educational method has shown its limitations in terms of student participation, flexibility, learning pacing, personalization, learning context, or adaption to the particular needs of students (Stein & Graham, 2020). To address these challenges, there are nowadays various innovative educational tools, and many of them are linked to the emerging technologies (Bonk & Graham, 2012), which in turn pose greater challenges for their effective implementation.

The remote online learning modality

The remote online learning modality, understood as e-learning, distance education or remote learning that relies on the internet and new technologies (Hong et al., 2017; Gross & Garcia-Peñalvo, 2016), opens up new possibilities for greater customization and adaptation to suit to specific learning needs (Al-Khanjari, 2018). On the other hand, as further developed in the following subsection, it can hinder some of the face-to-face learning's strengths, especially those related to physical social contact and interaction (Woo & Reeves, 2007), which implies a probable loss of communication tools between actors, lack of direct feedback or more difficulties for effective follow-up, favored by the time and space separation (Angeli et al., 2003), which can potentially lead to disaffection or lack of motivation and engagement of students.

The blended learning modality

Scholars had predicted that blended learning would become the 'new normal' in higher education (Norberg et al., 2013) even before the COVID-19 pandemic, with the potential to provide better learning outcomes (Garrison & Vaughan, 2008; Means et al., 2013). blended learning essentially consists of a mix or integration of traditional face-to-face and remote online learning, devised to maximize/minimize the relative strengths/weakness of each modality (Stein & Graham, 2020). As Krause (2007) exposes, blended learning involves these education environments through an effective integration of various modes of delivery, teaching models and learning styles, through a strategic and systematic approach, combining technology with the best forms of face-to-face learning and physical interaction.

In this way, blended learning can combine the relative strengths and benefits of remote online learning and face-to-face learning ([9)], both complementing each other to go beyond existing possibilities of each one separately and improve results (Garrison & Vaughan, 2008; Poon, 2013). Yet, its effective and successful implementation is not really an easy task, since it involves the mix of many different resources and multiple relationships between actors (McGee & Poojary, 2020). In fact, not all research identifies a clear advantage of blended learning over face-to-face learning in terms of student's achievement, engagement, or satisfaction.

In the next subsections we summarize from our literature review the main pros and cons of the blended learning modality.

Potential advantages or benefits of blended learning

- The blended learning modality is more accessible (Stein & Graham, 2020) to a broader number of students Bonk & Graham (2012), since the number of face-to-face sessions is reduced, and proximity is no longer a determinant factor for attending it.
- The online component allows easier access to information (Bonk & Graham, 2012), more flexibility and self-paced learning (Rovai & Jordan (2004); Tang & Chaw, 2016) and further customization, both from temporal (simultaneous vs asynchronous) and spatial (remote vs face-to-face) perspectives (Halverson & Graham, 2019).
- The blended learning modality can stimulate multidimensional communication and new learning relationships (Garrison & Vaughan, 2008), with further forms of contact between teacher and students and among students (Tseng & Walsh, 2016), without sacrificing social interaction and the sense of learning community (Garrison & Vaughan, 2008), and thus offering a potential increase in engagement (Stein & Graham, 2020).
- Students work their self-learning capabilities, problem solving and thinking skills (Sayed, 2013), being able to orientate their focus on their knowledge gaps (Stein & Graham, 2020). This leads to increase student autonomy and can improve their motivation (Rafiola et al., 2020), along with an increase in experience and confidence for the future blended learning (Tseng & Walsh, 2016).
- The blended learning modality offers the possibility of rethinking, combining, and integrating diverse instructional strategies to improve results (Poon, 2013; Garrison & Vaughan, 2008), offering new possibilities to adapt them to the educational context.
- The blended learning modality allows cutting down costs for both participants and institutions, less travel time and less physical space needed (Stein & Graham, 2020). In addition, there are associated environmental and health benefits, by reducing the emissions related to transportation or the possibility of disease transmission.

Potential disadvantages or challenges of blended learning

The possible cons of blended learning are mainly related to the weakness of distance learning and difficulties in marrying up both distance and face-to-face learning. from our literature review, the main potential disadvantages, problems, or challenges at implementing blended learning are as follows:

- Education with online component requires comparatively more preparation and follow-up by the teacher (Rovai & Downey, 2010).
- Effectively combining both distance and face-to-face methods and technology implies a further development of the competences of the teacher and those responsible for the design of the course (Rafiola et al., 2020).
- The combination of both methods requires greater organizational support from the institution to implement the required adaptation, and a good coordination between faculties and teachers (McGee & Poojary, 2020).
- The interactions between students and teachers and with the content are more impersonal, with less human touch (Bonk & Graham, 2012), and again good planning, preparation and teacher's skills and involvement are important to minimize this loss (Rovai & Downey, 2010).

- The success of blended learning is more on student self-management compared to face-to-face learning (Zhu et al, 2016), with a higher risk of disconnection for those less proactive or autonomous students.
- Technology can be a barrier for some students and teachers (Rovai & Downey, 2010), either to handle it or when technical problems arise.
- The reduced number of onsite sessions expands the potential 'customers', opening new chances for participation for students from more distant locations, while reducing costs for institutions. Institutions may be tempted to prioritize their financial interests and slip into a lucrative cycle (Rovai & Downey, 2010; Volery & Lord, 2000), for example, focusing on delivering to more students rather than serving students better (Garrison & Vaughan, 2008).

Research questions

In all, and despite the challenges ahead, the blended learning modality appears as a promising alternative, even more in the higher education context (Garrison & Vaughan, 2008; Lopez-Perez et al. 2011). Graduate and postgraduate students in their last years, with a longer trajectory and more competencies acquired through their education, are more likely to be more mature, self-sufficient, and independent. Also considering the growing need to increase the weight of distance learning, we find it of special interest to investigate the perceptions of students in different variants of the blended learning modality.

Thus, we pose the following research questions:

RQ1. Which are the main advantages and disadvantages of their blended learning experience in contrast to their face-to-face learning experience underlined by university students in their last years?

RQ2. Does previous experience in blended learning or remote online learning influence their perceptions and preferences about these two modalities?

RQ3. From the feedback received, what strategies can we put in place to improve their learning experience?

We will address these questions below through our case study, as detailed in next section.

Method

Case study

Our case study is a Postgraduate Master's Degree in Cosmetics Industry held at the Universitat de València in which the first author is co-director and designer of instructional strategies and the second author is one of the professors. Its extension is one full year, and is articulated through an online platform with all the contents, a general discussion forum for students and professors, including students from previous editions, and specific forums by subject areas, where all participants can connect synchronously and asynchronously. The face-to-face part consists of six onsite sessions of four hours each, held on Friday afternoon, which can also be followed simultaneously online. Besides these sessions are recorded and can also be viewed later. The face-to-face part combines round tables, traditional lecturing, and practical sessions, with the participation of highly recognized professionals in the sector, oriented towards having a

practical and social character. Overall, it is basically a predominant remote online modality blended with these face-to-face sessions.

Data collection and assessment

The data was collected from a semi-structured questionnaire in Annex prepared ad hoc by the authors, drawn up around our research questions.

The questionnaire is comprehensive of a series of open questions formulated in a clear and concise manner (Graso, 2006), which enquire about the pros and cons that students underline when comparing both face-to-face learning and blended learning modalities, and which one they would prefer in the future excluding any price considerations, incorporating a guidance as a support to fill them (Graso, 2006), with the aim to represent an unstimulated reminder. This guidance is based on our literature review to encourage broader reflection and enrich the spontaneous feedback offered by open questions (Gomez, 2014).

The characteristics of the students such as age or gender were collected for further purposes, with the interest centered in their previous background or not in blended learning or remote online learning as the discriminating variable of our study.

The second author began by establishing a first classification in two groups by students with or without previous experience in a distance education environment, and also noted and classified their preferred modality for each control group to answer our RQ2. Furthermore, in relation to our RQ1 and RQ3, in a first step, both authors jointly developed an initial list of codes, by assigning one separate code to each of the potential advantages and disadvantages of blended learning identified from the literature. This coding was not conceived as a closed list, since it could be expanded in case the students pointed out other aspects not included in this initial list, although finally all the responses could be classified within the pre-established coding. In a second step, both authors separately listed and coded the responses of each participant related to the stated advantages, disadvantages, reasons for their preferences and recommendations for improvement. As for advantages and disadvantages, not only the specific section of the questionnaire that asks directly about them was considered, but also the section asking to explain the reasons for their preferred modality and in the last one collecting further comments and recommendations for improvement, which in many cases complemented and enriched the feedback. In a next step the authors put in common their findings, with anecdotal small nuances found straightly resolved. Finally, the results were extracted from this assessment as presented in the next section.

Participants

The questionnaire was submitted to a total of 114 participants if the Master's Degree during three consecutive years (2017-2019), through its online platform. 77 students completed the questionnaire, about two thirds of the initial sample. 38 of them declared it their first time in blended or fully remote online academic learning, whereas the other 39 did have previous experience in blended learning or remote online learning.

Results and discussion

The feedback collected through the questionnaire was quite diverse in terms of the length and wording of the responses. However, it seems that in general the type of open questions with suggested topics invited students to reflect. Normally no more than two or three relevant aspects were highlighted in each response, but the most common feature was how clearly they explained and reasoned their answers.

Addressing our RQ1: 'Which are the main advantages and disadvantages of their blended learning experience in contrast to their face-to-face learning experience underlined by university students in their last years?' the most recurring advantages of blended learning over face-to-face learning pointed out by students are by far autonomy, self-paced and flexibility. Students more seldomly refer to easy access or use of the platform. Hereunder some representative extracts from their responses:

> *"I have no complaints, all run smoothly, there is a lot of information in the platform, well classified, and you can choose when to study. I remember first time it was like a new world, but now I'm familiar and confident. In my situation, working, I prefer this flexibility, with the chance to do it at my own pace."*

> *"Although it took me a while to get used to it, the online modality allowed me to follow it up on weekends. With face-to-face classes it would have been impossible."*

> *"At the beginning I was afraid because I had no previous background on this type of learning, but soon I realized about the convenience to study at your own pace and how easy is to handle it. It is very intuitive and easy to handle."*

In contrast, as for the main disadvantages, more than half of the students miss a more direct contact with their professors and their peers, often linked to slower learning, or difficulty understanding some concepts. In general, they miss the chance to ask questions, interact or discuss in situ and real time as they learn, even when they have online forums, in line with the findings of Kemp & Grieve (2014). In some cases, they miss traditional professor lectures as a space to interact with their peers and teachers, or even refer to online learning as boring:

> *"It was my first experience in this blending learning and I have to say I prefer the traditional presential class. It is strange not to even know your teacher, I was afraid to ask, it all looks too impersonal. Also, I think that at the end I had to invest more time to learn the same content, since it is more difficult to understand just by reading. In my case it was the first contact with the Cosmetics Industry and maybe it was worse for me because of that."*

> *"In my opinion, one of the most important advantages in a Master is the people you know and the contacts you make, and this is something more difficult to achieve with this... The Directors always helped me quickly, but some teachers were slow at answering my questions and I had to send reminders in some cases. I would prefer more face-to-face sessions to get more contact with teachers and mates."*

"The worst thing I think is the lack of direct contact with your professor and your classmates during most of the learning process. I had doubts that could not solve at the same time. I had to send emails and wait for the answer, some days later. In addition, I could hardly attend the face-to-face sessions because of my work. I think it is essential, even more so in a Master's degree. This being the case, I don't see much difference with reading a specialized book."

"Learning in front of a computer is boring, I miss the contact with my partners, have the chance to carry out group dynamics, I feel not so confident about what I learn. Listening directly to the teacher and live discussion with mates helps a lot to fix concepts… In some cases the subjects are recorded through video lessons, and this makes a great difference in comparison to the lessons where all is written…From the master I keep the onsite sessions, where I really got the most out of it"

Besides, those students with previous background on modalities with a remote component do mention similar advantages but tend to identify fewer obstacles or disadvantages regarding blended learning.

In sum, and opposite to Tseng & Walsh (2016), these perceptions lead to an overall greater preference for face-to-face learning over blended learning. About 51% of participants prefer face-to-face learning over blended learning, while blended learning is the first option for about 37%, as collected in Table 1.

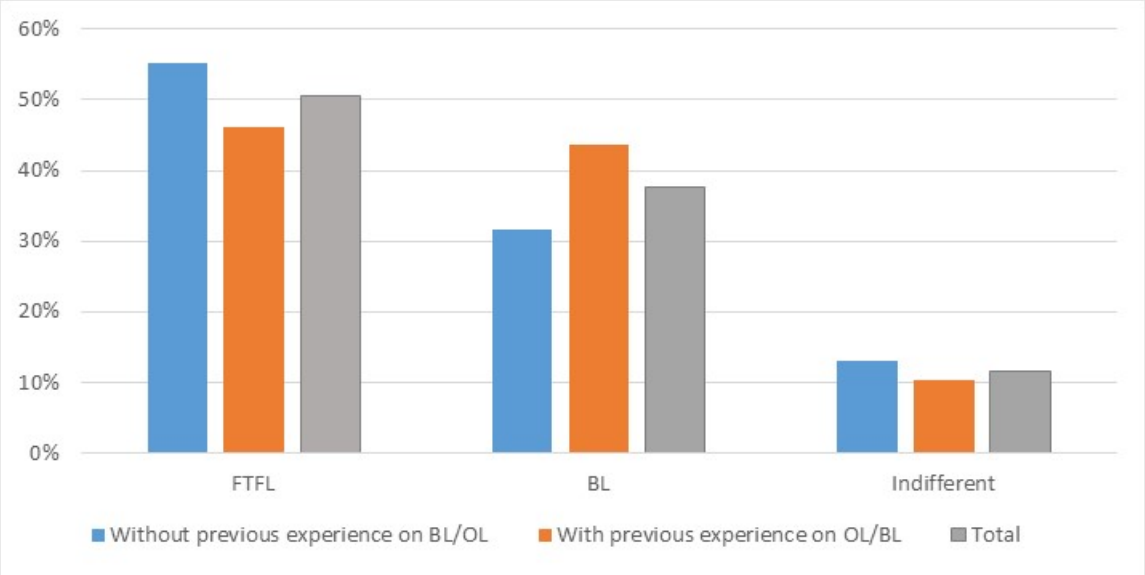
Addressing our RQ2: 'Does previous experience in blended learning or remote online learning influence their perceptions and preferences about these two modalities?' The group of students with previous experience in partial or fully remote online learning show a relatively better predisposition towards blended learning compared to those without previous experience, although nearly half of them still prefer face-to-face learning. Although the size of our sample is limited, we can glimpse a positive influence of previous background and adaptation to distant education environment and its tools. In Table 1 we summarize the outcome of our survey in terms of preferences of the two groups of students.

Table 1. Preferred learning modality. Source: Own elaboration from the results of our questionnaire

	Face-to-face learning	Blended learning	Indifferent
Group 1: (Students with no relevant previous experience in blended learning / remote online learning)	21	12	5
Percentage on the group 1	55,3%	31,6%	13,1%
Group 2: (Students with no relevant previous experience in blended learning / remote online learning)	18	17	4
Percentage on the group 2	46,2%	44,6%	10,2%
Group 1 + Group 2:	39	29	9
Percentage on total sample	50,6%	37,7%	11,7%

Above results are graphically represented in Figure 1.

Figure 1. Percentages of preferred learning modality. Source: Own elaboration from Table 1



FTFL = Face-to-face learning. BL = Blended learning. OL = Remote online learning

It is also worth mentioning that according to Zhu et al. (2016), those students engaged with the course and with the ability to self-regulate are more prone to perform better in blended learning. Taking into account that it is a Postgraduate Master's Degree, of free motivated choice and where students are more mature compared to others in prior educational stages, our case is more likely to gather positive perceptions towards blended learning, and even so the face-to-face learning modality is still the preferred one.

Moreover, as for our RQ3: 'From the feedback received, what strategies can we put in place to improve their learning experience?' As discussed above, more students prefer face-to-face learning, despite the loss of autonomy and flexibility as the most salient advantages underlined by students who prefer the blended learning modality. This could be related to the need for more face-to-face sessions, one of the most raised issues, linked to the lack of personal interaction or human touch ([12)]. Besides, relatively low attendance at face-to-face sessions probably conditions the preferences. In addition to offering more onsite sessions, it may be worth making them more available or further fostering the student attendance. It seems clear that this physical interaction or human touch is one of the main issues to be reinforced in this case study.

Another interesting finding among the students' responses is their appraisal of the video lessons, not only as a tool to better prepare for exams (Arroyo-Barrigüete et al., 2019), but mainly for a more convenient and pleasant learning in contrast to text lessons with excess of written content.

Furthermore, the above results just reflect a preference between learning modalities and not an overall low level of satisfaction. The general surveys carried out in this Master's Degree, consistently show indeed a level of satisfaction above five in a Likert scale of seven across the different editions.

As for the strategies to enhance their experience, from the feedback collected in our questionnaire, below we point out a series of strategies to increase the achievement and satisfaction of the students and enhance

their experience, which combines the need to incorporate innovative techniques to the remote online learning environment, the focus on maintaining the strengths of face-to-face learning within blended learning (Krause, 2007), trying to make interactions less impersonal (Bonk & Graham, 2012) by enhancing teacher involvement, and reinforcing a more efficient use of available technological resources.

- Design instructional and learning strategies fostering online participation and interaction of students, such as teamwork, problem solving, role-playing, towards a more self-aware and motivational learning, which have shown their potential benefits in the face-to-face environment (Garcia-Ortega & Galan-Cubillo, 2021).
- Increase the number of face-to-face sessions, especially in the first period, to facilitate relationships and a greater human touch (Bonk & Graham, 2012) and closeness between actors, one of the potential benefits of blended learning that shows room for improvement in our case study.
- Encourage and favour the attendance at face-to-face sessions, in line with Lopez-Perez et al. (2011), for example through travel grants or better adaption to student schedules. Support these onsite sessions with video conferencing.
- Encourage and offer incentives to teachers to enhance their response reactivity and interaction with students, and further monitor this reactivity.
- Create virtual meetings to solve questions or difficulties of the students in real time, as a complement to existing forums and face-to-face sessions.
- Increase the number of video-lessons complementing the written contents to ease student understanding and make learning more pleasant.
- Enhance the online platform, making it more user-friendly, interactive, intuitive, comfortable, and attractive.

Conclusions

After introducing the growing relevance of blended learning and the convenience of assessing students' perceptions in different educational contexts, we extracted from the literature review the advantages, disadvantages and challenges of blended learning versus face-to-face learning, which served to devise our survey to collect such perceptions. The students were enquired about the pros and cons of their experience compared to the traditional face-to-face modality, and which one they would choose next time if they were available for both modalities, considering only achievement, experience and satisfaction, regardless of price, with the additional objective of defining strategies to enhance the student experience in our blended learning context, which in turn can be useful for other scenarios.

From the existing literature (i.e. Garrison & Vaughan, 2008; Means et al., 2013), the blended learning modality may get the best of both onsite and remote learning methods, and helps the student grow in a number of competences, such as time management, autonomy or independence, which are indeed very useful not only at learning but also at work environment. Additionally, blended learning can save time, reduce expense, and even contribute to sustainability. However, the results show in our case that blended learning is not yet the preferred method, neither by the group with previous experience nor by the newbies in distance learning modalities; blended learning per se is not a guarantee of a better student experi-

ence or perception, and there is no unanimous consensus on the preferred modality in any of the defined groups, which suggests that other factors should be considered to explain their preferences.

In line with previous research (Woo & Reeves, 2007; Bonk & Graham, 2012), personal accessibility, direct communication and interaction are the main aspects valued by students in favor of face-to-face learning, along with the easier assimilation of certain contents students are not familiar with, through the direct teacher's lecturing and interaction with the teacher and their peers. In addition, students underline the flexibility and self-paced feature of the blended learning modality, coinciding with some of the key advantages predicted from our literature review.

Until now, despite the efforts to provide face-to-face sessions with a social, practical, and interactive character, it seems to be insufficient, and a greater enhancement of educational and organizational strategies are required to improve the student's predisposition towards blended learning. To this end, from the collected feedback, several strategies have been established to be implemented in the following editions.

Besides, students with prior background at remote online learning or blended learning are more likely to prefer blended learning to face-to-face learning than beginners and find fewer cons or disadvantages. Hence, this case study shows that the factor of previous experience in blended learning and greater familiarity with its tools and methods seems to favor the preference of the student for this modality. Since a better student experience favours the learning process (Ginns & Ellis, 2009), that may imply entering a promising virtuous loop for the prospects of blended learning.

As for the main limitations, this is a relatively small-scale study, due the number of participants in each edition and the response rate. Nonetheless, the outcome offers further empirical evidence and hints on the subject for the scientific community and may be of interest for institutions and teachers to improve their methods and further enhance the academic achievement, experience, and satisfaction of students in similar educational contexts. Finally, we find of interest to keep this line of research to explore other educational contexts and contrast our results, as well as to add other variables to establish other control groups, such as the attendance rate to face-to-face sessions or the prior student knowledge on the subject, and look for differences in perceptions among them.

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Conflict of interests

We declare no conflict of interest.

Author Contributions (remove for the review process)

Both authors established the methodology, devised the questionnaire for data collection, participated in the assessment and wrote together the work. The first author conceived the study, collected the data, carried out the final revision and approved the final version. The second author carried out the literature review, created the published work and contributed to its final editing.

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ANNEX: Survey about student perspectives on blended learning

(translated version from Spanish to English)

This questionnaire is part of a research about the student perceptions in relation to their blended learning experience compared to the face-to-face learning. We would be very grateful if you could fill it and share your valuable views. The questionnaire is anonymous, and your answers will be treated confidentially!

1. PROFILE & BACKGROUND

Age:	

Gender:	*Male*	*Female*

……..

Do you have previous experience in blended or online learning?		
No	*Yes*	*Please describe it*

2. LEARNING METHODOLOGY

What factors prompted you to enrole in this blended Master's degree? *(i.e. price, program, approach, self-paced, flexibility, accessibility, autonomy, independence, recommendation, etc.)*	

What advantages have you actually found in relation to face-to-face learning?

continued in next page

What disadvantages or obstacles have you faced in relation to face-to-face learning? ***What do you miss in relation to face-to-face learning?*** *(i*.e. lack of communication or information / delay in getting feedback, lack of direct interaction with other students or professors / not enough professor's involvement / lack of coordination / lack of contents, theory or practice / difficulties *to follow or understand the contents / boring / evaluation system / more or less face-to-face sessions / difficulties to adapt to self-pace learning / technical problems or difficulties working with the online platform…)*

At the same price, what type of learning would you choose for a new Master?	*Face-to-face*	*Blended*	*Indifferent*
Please explain your reasons			

3. FURTHER COMMENTS, RECOMMENDATIONS TO IMPROVE

Free space for any further comment or recommendation to improve the Master.