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Is the Spanish educational system ready for blended learning? Analysing pre-service primary education teachers' perceptions

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Abstract: *Blended learning* (BL) has taken a predominant role in the educational realm after the COVID-19 pandemic, which has led to significant adjustments in the educational system, being teachers the main enforcers of these changes. Taking into account the role future teachers have on this, the aim of this paper is to analyse pre-service Primary school teachers' perceptions of the challenges of implementing BL in the Spanish educational system using a mixed-method approach. Participants report a positive implementation of this approach in the system, but they mention lack of learner support in terms of interaction and feedback, as well as lack of self-autonomy by primary education students. Technological literacy and a possible digital breach are also considered in the implementation of BL. Furthermore, they emphasise the responsibility of the teacher in the selection and adaptation of the approach, their role as a social agent, and the need for technological training.

Keywords: BL; challenges; Spanish educational system; European Commission; perceptions; pre-service teachers; primary education; teacher training; teaching skills; technological literacy.

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1 Introduction

Changes in education are part of a natural adaptation process the system takes to respond to the social, economic and even political demands of the moment. As we evolve, so does education to cater to our needs, so the new 21st century realities need to be addressed by all education stakeholders. According to Fadel (2020), 21st century education should be

designed considering the following dimensions: knowledge, skills, character and metalearning. This division steps away from the traditional knowledge-based curriculum and considers issues such as communication, resilience and metacognition among others. In this line, the Council of Europe (2018) has set out some recommendations concerning the lifelong learning competences as "memorisation of facts and procedures is key, but not enough for progress and success" (p.2). Additionally, they establish the importance of competence-based education and the need to support educational staff "in their tasks and [improve] their education, for updating assessment and validation methods and tools, and for introducing new and innovative forms of teaching and learning" (p.2).

This opens the door to new procedures as well as new ways to teach and learn which reflect societal needs. It is understood that technology has become part of our daily lives and the COVID-19 pandemic led to a refashioning of the educational system in terms of how, what and where we teach. Regarding these spaces, the pandemic brought on new learning grounds which were nurtured by the use of technological resources; hence, learning took place not only in the traditional classroom, but also in different technological and digital environments. This new reality put emphasis on using different spaces, thus, leading to the implementation of *blended learning* (from now on, BL) in many educational centres across the globe. However, the need for distance learning showed that the system was not fully equipped to deal with the technological constraints many students faced (Onyema et al., 2020).

Considering that teachers are one of the main enforcers of change concerning education and they have to hastily adapt to new ever-changing realities, their perceptions and concerns should be considered as they shape their teaching practice (Barcelos and Ruohotie-Lyhty, 2018). In this line, learning about pre-service teachers' perceptions of BL and its integration in the educational system would provide information on their future practices. Therefore, the main aim of this article is to analyse pre-service primary education teachers' perceptions of the challenges of implementing BL in the Spanish educational system.

2 Theoretical framework

2.1 Blended learning in Europe

Although BL is not a new approach, it has gained popularity across the globe due to the need for distance learning during and after the post-pandemic period. To establish a common ground, the European Commission (2020a) published some guidelines for the start of the academic year 2020/2021 which defined BL as a hybrid approach where both on-site and distance learning are combined (p.4). However, they also point out that:

> "BL is not merely combining virtual plus shared physical space learning; it is a teaching and learning process integrating various factors: learning environments (home, online, school, workplace, other), competence development process (lifelong learning and professional); affective domain (motivation, satisfaction, discouragement, frustration), and people (learners, teachers, parents, other staff)" (2020, p.5).

This offers a broader scope of the issue at hand as BL is not a mere spatial matter; thus, several factors need to be considered, and collaboration among stakeholders is of utmost importance for the correct implementation of this approach. In Europe, the current

legislation concerning digital learning (as well as BL) falls under *the Digital Education Action Plan 2021-2027* (European Commission, 2020b, 2020c). After carrying out a public consultation with different stakeholders around Europe concerning digital education during the pandemic, the document highlights two strategic priorities:

1 to deploy a great array of digital resources to improve and extend education and training

2 to equip all learners with digital competences to live in an increasingly technological world (2020b, p.2).

In regard to BL and the public consultation carried out, 76.2% (excluding Romania[1]) replied positively towards this type of hybrid learning. However, it bears noting that "[t]he positive opinion was consistent across the different target groups, while parents, learners and respondents from the group other in personal capacity were on the more sceptical side (25.2%, 16.7% and 19.5%)" (2020c, p.82). This sheds light on the different perspectives (and possible attitudes) various stakeholders have on the issue (to be addressed later). Among the most reported benefits of BL, the report highlights the following advantages:

1 flexibility and learning at one's own pace

2 face-to-face communication and interaction

3 integration of innovative practices

4 the opportunity to better support learners from disadvantaged groups.

On the other hand, the difficulty for caretakers to work and support their children's learning as well as the exclusion of learners without technological means were the most common disadvantages expressed for BL (p.82).

In order to provide some guidelines on this approach, the European Commission (2020a, pp.14–16) established some key issues for managing the in-school and distance learning:

1 Organisation of the school timetable: teachers and students' timetable may have to change to adapt to synchronous/asynchronous learning, the pupil's age (younger pupils may need more teacher contact time) or depending on the approach taken (e.g., flipped classroom).

2 Access to devices: IT devices, appropriate internet connection and knowledgeable IT staff are necessary to implement this approach. However, this could be a challenge for economically disadvantaged families (as seen on the disadvantages reported by the public consultation participants; European Commission, 2020c).

3 Digital tools: digital tools allow teacher to deal with daily life chores (e.g., homework assignment, grading, attendance). When used in BL, they can facilitate the way to share resources, the type of resources (and their adaptation) and the places of interaction. However, special attention needs to be paid to students' online security "to review the setup of secure passwords and logins as well as filters for the use of internet content" (2020a, p.15).

4 Individual support to learners by trained staff: it is stated that BL, when appropriately designed, may support learners "in their specific needs, increase their

motivation and ability to work autonomously" (2020a, p.15). Nevertheless, disadvantaged learners may need from more personal and close tutoring, so considerations should be made as to how trained staff (e.g., teachers) need to handle the in-school and distance environment to deal with this.

5 Individual support to learners by their caretakers: support from all stakeholders is key for the success of hybrid learning, as students (especially the young ones) need support from their parents and guardians. To help caretakers, schools should provide clear guidelines and actively involve them (as well as pupils) in designing/assessing/adjusting the learning tasks as it could help with the continuity between in-school and distance learning. However, the level of support may depend on several factors: "the educational level, language competences and digital skills of parents; time available (balanced with employment, several young children); and the relationship between parent and child" (2020a, p.15).

6 Helping learners manage the distance environment: considerations should be made regarding pupils' wellbeing, stress and emotional difficulties. They need support not only on the academic side of learning, but also affective factors should be accounted. Young and less-independent learners will need a supportive person to co-manage the distance environment (p.16).

7 Managing VET and work-based learning: the idiosyncratic nature of VET (abstract knowledge learning applied in a work-learning context) makes it particularly suited for BL. Nevertheless, the work-based learning aspect would benefit from more tools to coordinate among the different stakeholders in VET.

As seen on the previous lines, a solid coordination system is needed to support BL being teachers, students and guardians the main stakeholders of this approach at micro level. According to Atmacasoy and Aksu (2018), "the success of BL heavily relies on the competency of practitioners" (p.2400). Therefore, teacher's role, competences and working conditions should be considered. In this regard, the European Commission (2020a) detailed the following points concerning the teacher's skills (pp.17–20):

- Select an appropriate teaching and learning approach with learning tasks which are complementary and coherent across learning environments: it is important teachers do not replicate in-school practice, but that they adapt and update teaching strategies (e.g., using new tools) as well as support learners so they can manage and understand their learning.
- Shift mindset and share challenges: there may be different viewpoints on BL, which may influence the teaching and learning practice. Therefore, it is important teachers dispel misconceived notions by talking to others.
- Take risks to innovate practice and create new experiences: it is important that teachers are willing to try out new practices which may enhance their students' learning experience.
- Design appropriate assessment: teachers should design the assessment process and tools bearing in mind the different nature of in-school and distance learning tasks and adapt these accordingly.

- Support pupils as individuals and as a class community: maintaining individual contact with pupils and the learning group are issues to consider. Furthermore, the teacher should aim at creating a culture of collaboration and trust among their learners.
- Carry out regular reflection and continuous development: considering that BL may be a newly implemented approach for many teachers, it is necessary to undertake regular reflection to adapt it to respond to the learner's needs.
- Share their practice: the implementation of BL does not rely solely on the teacher, but it is a joint effort, hence it is important that teachers "recognise their role within the school as a 'learning community' to include peer observation, mentoring and coaching as well as co-designing lessons and resources" (2020a, p.19).
- Take leadership roles where appropriate: when having particular expertise on a field, teachers should take a leading role among their peers, which could enhance motivation and work on the idea of 'distributed leadership'.
- Communicate with families and the school community: as stated above, communication and interaction among stakeholders is of utmost importance. In this regard, it is especially significant to provide families with clear guidelines and direct communication.
- Support newly qualified teachers: new teachers may not have experience concerning BL, so they may need extra support to adapt to this approach.
- Manage their own working conditions: teacher should be aware of the expectations placed upon them to carry out in-school and distance teaching, and their working conditions (e.g., contact hours, support for their distance teaching, extra costs, etc.).

As much of the responsibility of BL falls upon the teacher, it is necessary to understand their thoughts on this approach because, as previously stated, one of their roles is 'to shift mindset', which cannot be done unless it is dealt with. Research on high-school teachers' perceptions of BL has been carried out by some scholars in the US (Sorbie, 2015; Raymond, 2019; Hensley, 2020) and Europe (López-Fernández et al. 2021). Furthermore, some studies have been carried out regarding higher education teachers in Europe (Koſar, 2016; Boelens et al. 2018), but no studies on primary education teachers' perceptions of BL have been conducted so far in Europe (to the author's knowledge).

Concerning pre-service teachers, previous research focuses on pre-service teachers' perceptions of this approach after having experienced it for themselves as students. In Turkey, several studies (Döş, 2014; Balcı and Soran, 2009; Uluyol and Karadeniz, 2009; cited in Atmacasoy and Aksu, 2018) show a positive impact on pre-service teachers' attitudes towards BL after having been instructed through this approach, while others show negative to no significant impact on the participants' attitudes (Ünsal, 2012; Coi, Küçük and Şahin, 2013; Dişli, 2012; cited in Atmacasoy and Aksu, 2018). Concerning pre-service teachers' opinions on the use of BL in their science education methods course, Yilmaz and Malone (2020) also found future elementary school teachers had generally positive opinions of the approach after having been taught using this, although they pointed out some technical difficulties (p.13). In this line, Pardede's (2019) study on pre-service EFL teachers' views of BL in Indonesia reported overall positive perceptions, although they "viewed face-to-face instruction more effective than online learning

because learning in the face-to-face classroom was more realistic due to the direct interaction, immediate response, and the convenience of reading printed texts" (pp.10–11).

The aforementioned studies shed light on pre-service teachers' insights on BL as part of their own learning (as students), but they do not focus on understanding their perceptions of this approach as future agents in a possible BL practice. Contextual factors, previous experiences and training might impact their own teaching practice; hence, it is necessary to know the challenges and concerns future teachers have regarding its implementation.

2.2 Challenges in BL

The COVID-19 pandemic shed light on several hindrances related to the educational field and technology. The *Digital Education Action Plan* (European Commission, 2020b) stated that respondents believed that "students in primary and lower secondary schools (and students who depend more on the physical presence of a tutor or teacher) were particularly affected during this period" (p.7). In fact, "the level of satisfaction [concerning the measures taken during the pandemic] appears to be greater in higher education compared to other educational levels, especially compared to early childhood education and care, and primary education" (European Commission, 2021, p.48). There were different opinions among stakeholders: while learners reported a lack of regular interaction and clear instructions as their most unsatisfied need, educators pointed at high-speed and stable connection at home as their top need, being "[t]raining and guidance to adapt the class material and the teaching methodology to distance and online learning" [European Commission, (2020c), p.75] a close second.

As BL is a hybrid modality, technology is a significant factor to consider. However, there may be other issues which affect the blending such as

1 the purpose of learning (e.g., learning objectives)

2 the context of learning (e.g., location, synchronous/asynchronous learning)

3 the approach to teaching/learning (considering here institutional support, students' learning style and prior experiences; for instance, handling digital tools) [Littlejohn and Pegler, (2007), p.72].

Furthermore, research on the possible challenges of BL has expanded in these last years (see Table 1), which shows the relevance of this approach in 21st century education.

Digital tools and adequate infrastructures are key aspects of distance learning and scarcity of resources is detrimental to BL. As a member state, Spain has taken the guidelines provided by the European Commission in regard to digital education and also to cater to the digital breach, which has resulted in 500,000 electronic devices with internet connection being lent to the most vulnerable students to allow distance learning in the first quarter of the 2020/2021 school year [Eurydice et al., (2022), p.11]. However, as stated above, BL poses some other challenges and pre-service teachers' views on the issue are of utmost importance to understand the future of hybrid learning and possible implications of said approach.

Table 1 Literature review of the challenges concerning BL

Littlejohn and Pegler (2007)	Deciding where the activities should take place (in-school or outside school) and whether communication be synchronous or asynchronous Designing meaningful activities Careful planning of the teaching method and the timing Blending different media and tools
Zhonggen (2015)	Not enough evidence on teacher's professional development Reluctance by some institutions Possible students' passive participation
Boelens et al. (2017)	Incorporating flexibility (e.g., time, place, pace, etc.) Facilitating interaction (possible misunderstandings) Facilitating students' learning process (self-regulation skills) Fostering an affective learning climate
Rasheed et al. (2020)	Students' challenges: • Self-regulation • Technological literacy and competency • Isolation • Technological sufficiency • Technological complexity Teachers' challenges: • Technological literacy and competency • Online video • Technological operation • Beliefs Institutions' challenges: • Technological provision • Teachers' training
European Commission (2020a)	Independent learning may be difficult to younger pupils and those needing additional support Combining face-to-face teaching with distance learning requires teachers and school leaders to have a high level of competence and innovation Need for flexibility and significant fundamental changes across the educational system (e.g., legislation, resources, professional development, etc.)
European Commission (2021)	Clear vision and coordinated approach by the whole of the system Developing a legal basis for enabling and supporting BL Need to invest on infrastructures

3 Method

To achieve the aim of this research (to analyse pre-service primary school teachers' perceptions of the challenges of implementing BL in the Spanish educational system), an exploratory analysis of the data was carried out. The following research questions are drawn:

- RQ1: What do pre-service primary education teachers think about the Spanish education system and BL?
- RQ2: What teaching skills do they consider the most important to implement BL?

This study follows a mixed-method approach considering that this is based on the "collection and analysis of quantitative and qualitative data, as well as their integration and joint discussion, to carry out inferences of the whole collected set (metainference) and achieve a greater understanding of the object of study [my translation]" [Hernández Sampieri et al., (2010), p.546].

The participants of this study are 100 pre-service Primary School teachers in their third year of their undergraduate programme (degree on primary education) in a Spanish university. It is worth mentioning they have had experience with BL, as this was the followed approach during the first year of their degree. They have completed their first internship period at a public-funded school, and they have been taught about the principles of BL in one of their mandatory modules right before carrying out this research.

In order to gather the data, a questionnaire with different items (e.g., Lickert-scale items, rating scales and open-ended questions) was handed to participants so to collect quantitative and qualitative data. The quantitative data was analysed using SPSS while the qualitative data was run through the *MAXQDA* software. The questionnaire items were based on the guidelines on BL provided by the European Commission (2020a; see Section 2.1.) to ascertain to what extent pre-service teachers believe them to be possible in their educational system and their own teaching role in regard to BL.

4 Results

The results of this study are presented in three different points to facilitate the analysis of pre-service teachers' perceptions:

1 preparedness of the Spanish educational system for BL

2 teachers' skills and BL

3 issues with BL in primary education.

4.1 Preparedness of the Spanish educational system for BL

Participants were asked to provide their opinion on the different key considerations the European Commission (2020a) regarding whether they believed the Spanish educational system was prepared to deal with these. Overall, they report that the organisation of the school timetable to adapt both on site and distance learning is highly possible with almost 70% of participants agreeing on this (see Table 1). Moreover, there is a correlation

between this and pre-service teachers' beliefs on the likelihood of providing individual support to learners (chi-square: p > 0,001); hence, the correct timing of school and distance-learning has an impact on the specific needs of each student and the individual support trained staff may provide.

As previously mentioned, technological competence and infrastructures are necessary to carry out this model (European Commission, 2020c; Rasheed et al., 2020). Considering that the digital breach took a toll on low income families during COVID-19, it is significant to see that only 22% of participants report 'access to digital devices' as an issue, which seems to point that participants believe that the investment on technological devices from the government after the pandemic somewhat filled this previous void (to be discussed later). Similarly, the use and knowledge of different digital tools is not seen as a problem with 60% of participants stating that the educational system is ready for this (see Table 1). Unsurprisingly, there is a strong significance between these two items (p > 0,001), as it could be argued that the first item would deal with hardware equipment (e.g., computers) while the second one would be related to the software used for BL (e.g., programmes and resources). These complement each other as both are necessary to deal with the technological and digital aspect of BL.

As far as individual support to learners is concerned, the data show differences of opinion among pre-service teachers. About the support given by trained staff (e.g., teachers) to students, 41% believe this to be possible while 37% disagree on this, which could be explained by their own previous experiences (Littlejohn and Pegler, 2007). Furthermore, there is a correlation (p: 0,008) between the individual support trained staff provide with the use of digital tools as these may provide a more one-on-one teaching and learning experience (e.g., individualised feedback). Concerning parental support, equivalent results are found with less than 40% of participants believing on the likelihood of it.

Table 2 Key considerations to implement BL

	Strongly disagree	*Disagree*	*Neutral*	*Agree*	*Strongly agree*
Organisation of the school timetable	2%	6%	23%	53%	16%
Access to devices	6%	16%	29%	41%	8%
Digital tools	4%	9%	27%	41%	19%
Individual support to learners (trained staff)	12%	25%	22%	26%	15%
Individual support to learners (caretakers)	9%	26%	26%	33%	6%
Helping learners manage the distance environment	6%	25%	32%	25%	12%

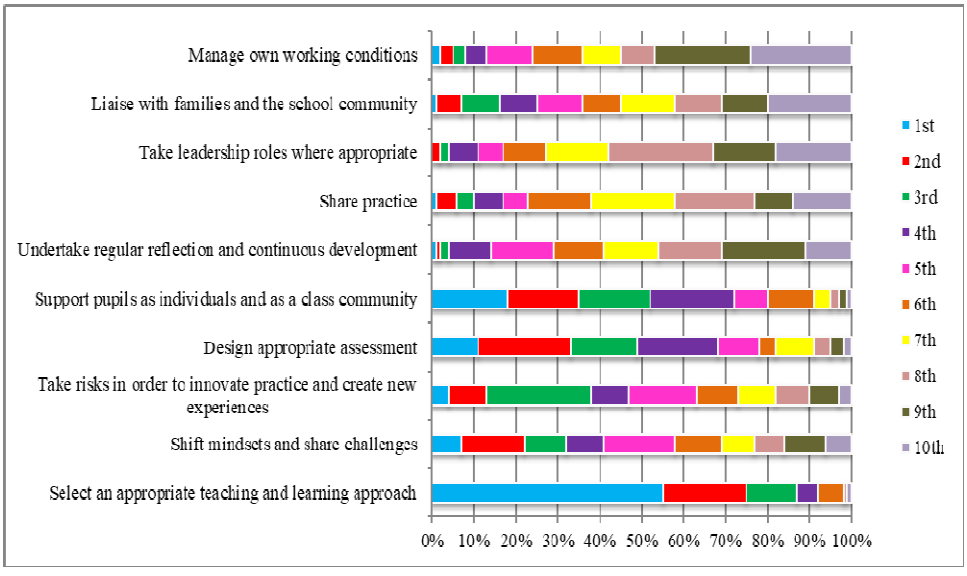
Furthermore, affective factors are of utmost importance when helping learners manage the hybrid environment of BL. Regarding this issue, results do not show a clear tendency on participants' opinion concerning the preparedness of the system to help learners manage the distance environment: while 31% do not believe this to be likely, 37% of them report the educational system to be ready to deal with this issue with the remaining 32% being unsure. After carrying out chi-square tests, a close link between this item and 'individual support to learners (trained staff)' was found (p > 0,001): both are related to the teacher-student relationship and communication, which seems to be one of the main

issues participants believe to face the educational system (according to the key considerations provided by the European Commission). Moreover, they believe the use of digital tools to help with managing the distance environment ($p > 0{,}001$), hence, giving important consideration to the materials, resources and activities chosen for the BL lessons to overcome this issue.

4.2 Teachers' skills and BL

As teachers are one of the main stakeholders when implementing BL, it is interesting to see what pre-service teachers believe to be the main competences and skills they need to have. Taking as a starting point the key considerations concerning the role, competences and working conditions of teachers by the European Commission (2020c) about BL, participants rated these in order of importance (see Figure 1).

Figure 1 Teacher skills and competences in BL (see online version for colours)



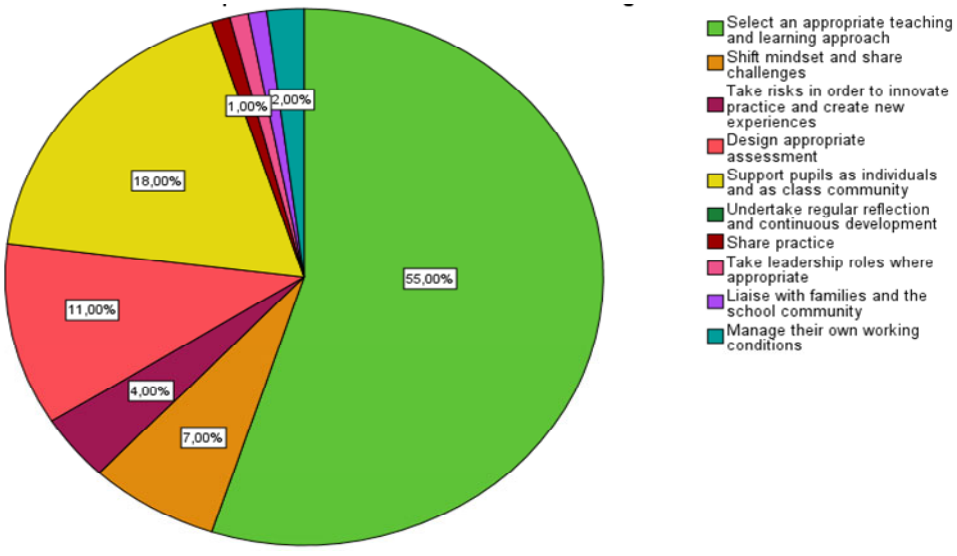
As seen on Figure 1, the item pre-service teachers value the most is 'select an appropriate teaching and learning approach' as more than a half of participants report this to be the most important skill. This bodes well for their understanding of BL as an approach which needs to cater to the different learning spaces and not replicate in-classroom lessons.

Overall, apart from the abovementioned skill, the most valued skills and competences are those related to classroom practice and student support: 'support pupils as individuals and as a class community' and 'design appropriate assessment'. Furthermore, the figure of the teacher as an innovator ('take risks in order to innovate practice') and influencer ('shift mindsets and share challenges') are highly valued by pre-service teachers, which seems to resonate with an active teacher role to transform their own teaching practice as well as help others. In this line, 'liaise with families and the school community' is the sixth most important competence pre-service teachers report.

In contrast, 'take leadership roles where appropriate' and 'manage their own working conditions' are the least important skills for pre-service teachers: it could be argued that these are not seen as top priorities due to participants' limited teaching experience.

Concerning the skill participants chose as the first and most important (Figure 2), the percentages are similar to the general results (Figure 1) with minor variations (e.g., 'shift mindsets' has a higher percentage than 'take risks', but not enough to be significant). Nevertheless, there is a close correlation between this data (most important skill) and participants' opinion on the preparedness of the system in regard to digital tools ($p > 0.001$): therefore, it could be argued that they believe the selection of an appropriate teaching and learning approach to be related to the adequate choosing of digital tools for hybrid learning.

Figure 2 Most important teaching skill (see online version for colours)



4.3 Issues with BL in primary education

Results on the open-ended answers show positive opinions on BL, but they also point to some issues towards its implementation in primary education. Participants understand BL as an interesting approach to use if adapted to the context and adequately planned:

> Participant 38: "I think that this method is appropriate for primary school if it is well planned."[2]

Even though some participants (N = 8) report no issues towards its implementation, most of them mention some concerns such as a possible lack of technological devices (f: 29) as one of the main points. This is often linked to economic issues or location:

> Participant 70: "The access to digital devices may be hard to accomplish since not all centres can provide them to their students, and not all families have spare devices for their children, so they would have to buy one and not all families can do that financially speaking".

> Participant 99: "I would not implement BL in primary education when the families had no internet connection because they live in a rural area".

The digital resources (f: 11) are also one of the reported of the main concerns. Participants point to a lack of materials and possible issues regarding its access:

> Participant 96: "I believe that students could have problems to access to some resources or have difficulties to find a 'productive' space".

As for individual support, it is interesting to see that, despite the fact teacher individual support was one of the major reported issues (see Section 4.1.), few participants (f: 5) report teacher support (related to the need to compensate for the online distance) while parental support and collaboration between caretakers and the school (f: 8) is seen as a more pressing concern: lack of collaboration and support at home as well as possible disagreements with the teacher are some of their concerns:

> Participant 59: "Parents not being able to organise one caretaker to be home at the time of education".

> Participant 78: "Sometimes the families find issues because they are not happy with the teachers decisions".

As younger pupils may struggle to learn independently and need more support, it bodes well that future teachers take this into account. Similarly, primary education comprises a period where youngsters mingle outside their family circle and social skills are worked. In this line, pre-service teachers report physical and social interaction (f: 11) to be one of the issues to consider: they emphasise the necessity for direct contact and on-site feedback for primary education students as well as their need to work their social skills and build relationships with their peers:

> Participant 52: "The remote lessons could damage the interaction between the students. In this way, social skills may face the consequences".

> Participant 74: "[…] teachers can not help students in the same way because students are not in the same place as them".

The affective component of teaching and learning (f: 10) is also present in participants' answers. They mention the need to help students overcome frustration which may be caused by the hybrid model and help them manage their emotions. Moreover, low motivation on the students' and teacher's side (f: 6) due to frustration or anxiety is a reported concern:

> Participant 25: "The main issue I could see is the lack of motivation of some teachers about technology and BL, which complicates the optimisation of the teaching-learning process".

> Participant 46: "I think that our system does not allow us to manage and help students with their emotions in a BL setting. We do not know how to help them with their frustration".

The teacher's role on BL is also commented regarding their willingness to implement said approach and their training. Elements such as the increase of workload, basic digital knowledge and willingness to dedicate time are the main constraints placed upon the teacher, although their frequency is quite low (f: 5). Similarly, students' lack of focus due to the use of the internet and technological devices (f: 5) is mentioned:

> Participant 87: "If we implement this method in online classes, students will pay less attention in class since they have more freedom to browse the internet".
>
> Participant 91: "[…] students can deal with a bit of a problem when it comes to focusing on the task that they need to do, because working with online resources implies some responsibility and self-control that I don't think that nowadays students have".

As abovementioned, self-regulation and internet usage by primary education students are jointly considered, which resonates with the digital action plan and the need to boost the digital competence in the educational realm. To deal with these issues, pre-service teachers' point to teacher training and collaboration between schools and families as the way to overcome this challenge.

5 Discussion and conclusions

Overall, participants report a positive view on the readiness of the Spanish educational system for implementing BL in primary education (RQ1) on several issues such as the organisation of the school timetable. However, there are several points to consider: despite the fact that the access to digital devices is not considered a problem on the questionnaire, the qualitative data shows that almost a third of participants are concerned on the grounds of socioeconomic differences and location, which is linked to the need for infrastructures reported by authors such as Rasheed et al. (2020). Although digital resources do not seem to be considered a problem, these should be adapted to students and to the context, which falls in line with Littlejohn and Pegler's (2007) reported need to design meaningful activities.

The main found issue is the need for closer support to primary education students in this modality as youngsters may need more one-on-one interaction as it has been reported that they are not autonomous enough at this stage (European Commission, 2020a). What is more, students' self-regulation due to their age and the lack of individual support is considered to be a possible concern towards implementing BL at this stage, which falls in line with one of the challenges established by Boelens et al. (2017): "several self-regulation skills are required for successful participation in BL courses: organisation, discipline, time management, skill in using technology to support learning, and self-efficacy to exercise control over their own learning processes" (p.4).

Likewise, affectivity and collaboration are frequently mentioned as one of the key issues teachers have to deal with in terms of helping students handle the distance environment (e.g., frustration by the lack of social interaction or the malfunctioning of the technological devices; Rasheed et al. 2020). The possible detriment to students' social skills is also a concern for pre-service teachers as they believe distance learning may hinder their development at this formative stage. Parental collaboration (associated with primary education students' need for closer support) seems to be one of the most found issues. This establishes the need to provide parents/caretakers with transparent guidelines bearing in mind that their support may vary on several factors (European Commission, 2021). Surprisingly, communication with families is only the sixth most frequented competence when participants are asked about the BL teacher's skills, which shows that, despite their theoretical understanding of the importance of collaboration with families, there is a clear dissonance between theory and practice.

Regarding teaching skills (RQ2), pre-service teachers believe that the selection of an appropriate teaching and learning approach to be the most important skill. The adaptation of the teaching practice to this hybrid environment considering students' diversity (e.g., learning styles and prior knowledge) is what is valued the most, which is one of the factors affecting the blending [Littlejohn and Pegler, (2007), p.72]. In this line, the design of appropriate assessment for learning taking into account the diverse learning spaces is also highlighted as an important teacher competence, hence, it can be said participants prioritise those skills which focus on the didactics (e.g., method and assessment wise) as the most significant ones.

It also bears noting the importance pre-service teachers bear upon the role of the BL teacher as a social agent, to change perspectives and support students as well as other stakeholders (e.g., parents). They emphasise the figure of the teacher as a motivator of class community and the social component in the teaching and learning process. Furthermore, individual support is highlighted in terms of feedback and emotional care to students: it is considered once again the importance of affective factors such as motivation and frustration in primary education students' wellbeing and how to help students manage these emotions, being this last idea one of the main challenges pointed out by authors such as Boelens et al. (2017, p.11) and in need of further study.

In accordance with Rasheed et al. (2020), technological literacy on the teacher's side is also considered and is often linked to the willingness to spend time and effort on the adaptation of the blending (European Commission, 2020a). Furthermore, pre-service teachers emphasise a need for further training, which is mostly linked to the adaptation of digital spaces to their practice. Nevertheless, considering the importance placed upon the role of the teacher as a supporter and their concerns on handling emotions, it is clear further training from teaching centres is needed to deal with these issues. This should lead towards a "fundamental reform in pre-service teacher education programs to raise competent, adaptable, and innovative prospective teachers who are able to design and deliver courses cultivated with cutting-edge educational tools" [Atmacasoy and Aksu, (2018), p.2404].

Taking into account the importance of primary education in students' learning experience and the implications of it in their future education, it is necessary to study the presence of BL in primary education in Europe as a current educational issue. Research on teachers' perceptions of the issues surrounding this approach would help to overcome potential problems and misconceptions. In this line, further research needs to be carried out among BL professionals: Primary in-service teachers, school administrators, students and parents could shed light on the most latent issues regarding this approach. Further studies should focus on stakeholders and BL teaching practices to reach the ultimate educational research goal, that is, improving the teaching and learning practice.

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Notes

1 65.39% respondents in personal capacity were from Romania [European Commission, (2020c), p.70], which could lead to significant differences in the data analysis. In fact, the number of positive replies decreased to 49.5% when considering 'All countries'.

2 Some comments were edited for clarity.