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## Students' Perceptions of Learning in Blended Education: A Case Study of A Dutch University

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**Abstract:** The pandemic underscores the need for a blended approach, combining in-person and online education post-crisis. The lessons gleaned from the experience of pandemic-era education highlight the importance of emphasizing blended education in the post-pandemic context, which combines both in-person and online educational approaches. Effective use of blended education requires a clear understanding of students' perceptions of learning in such education and their needs for support. Therefore, in this study, we aim to explore what are the students' perceptions of learning and what are the source of support when students seek help in blended education. This exploratory study was carried out at a Dutch university, involving 537 students. Students' data regarding their perceptions of learning and their sources of help in blended education were collected through an online survey. The analysis of data regarding students' perceptions of learning in blended education revealed that, overall, a majority of students reported experiencing a high perception of learning in blended education compared to the previous academic year with mainly online education. In addition, a majority of students often search for answers in online resources when they seek help in blended education contexts. The results can provide insights into the effective implementation of blended education in higher education.

**Keywords:** Blended education, educational support, learning perceptions, seek for help, students

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## Introduction

Advances in technology play a crucial role in the field of education, especially after the Covid-19 pandemic where technology has shown a great potential to support education (Badali et al., 2022; Banihashem et al., 2022, 2023a; Farrokhnia et al., 2023; van Puffelen et al. 2022). The existing literature discussing the future of education in a post-pandemic world suggests that blended education is a promising approach. Blended education has seen as a balanced and flexible form of learning that combines online and face-to-face (F2F) instruction to address the challenges posed by online education in the post-pandemic era (Karimi et al., 2023; Stevens et al., 2023). Blended education is regarded as a well-balanced and adaptable form of learning, seamlessly combining online and face-to-face instruction to effectively tackle the challenges arising from the widespread transition to online education in the post-pandemic era. The fusion of these modalities not only offers students greater flexibility but also maintains the value of in-person interaction, thereby creating a holistic learning experience that accommodates the diverse needs of learners in this rapidly changing educational landscape (see Noroozi & Sahin, 2022, 2023; Van der Spoel et al., 2020).

Blended education is described as a pedagogically thoughtful combination of online and F2F teaching and learning elements (Vo et al., 2020). This approach leverages technology and online tools to mediate interactions among teachers, students, and learning resources (Bliuc et al., 2007). Effective blended education not only merges learning activities but also fosters opportunities for socialization to enhance the social and cognitive presence of both teachers and students (Singh et al., 2022; Dziuban et al., 2018). It is important to note that online resources and activities in blended education are not meant to replace in-person activities but rather to provide additional learning opportunities (Alammary et al., 2014).

Sharma and Shree's (2023) study, examined the impact of various education modes (online, F2F, and blended) in higher education after the pandemic. They discovered that facilitation, such as program structure, active participation, and feedback, was notably higher in blended education compared to online and F2F formats. Students found blended education more manageable and effective for their learning. In another study, Singh et al. (2022) conducted a SWOT analysis on different educational approaches post-pandemic, ultimately recommending a focus on building a suitable pedagogical and technical infrastructure for blended education. Other studies, like those by Al-Fodeh et al. (2021) and Munir (2022), echo similar recommendations. Tahir et al. (2022) found that blended education offers advantages like learner flexibility, content consolidation, and real-world knowledge application. In summary, these studies collectively suggest that blended education is likely to become the new norm in the post-pandemic era (Banihashem et al., 2023b). This underscores the efficacy of a blended approach in providing a more enriched and engaging learning environment. The students' collective perception reinforces this, as they express a preference for blended education, citing its manageability and

effectiveness in meeting their learning needs. These findings collectively advocate for the continued exploration and integration of blended education as a pivotal and responsive model in the ongoing evolution of higher education post-pandemic.

Research indicates that blended education offers a flexible learning environment and can enhance students' performance, persistence, self-efficacy, self-awareness, and self-paced learning (Li et al., 2022; Prifti, 2022; Singh et al., 2022). However, it also comes with challenges related to acceptance and implementation due to its more complex design compared to F2F and online education, including aspects like students' perceptions of learning in blended education and their needs for support in this context (Banihashem et al., 2023b). Students often have limited experience with blended education, further emphasizing the need to explore how they perceive their learning and what are the sources for support when they seek for help. Such investigations can provide valuable insights into the factors contributing to its wider acceptance and effective implementation in the post-pandemic era (Sharma & Shree, 2023).

In summary, the wealth of research highlights the manifold benefits associated with blended education, ranging from fostering a flexible learning environment to enhancing crucial aspects of students' academic experiences such as performance, persistence, self-efficacy, self-awareness, and self-paced learning. However, the journey towards its adoption is not without hurdles, with challenges arising from the intricate design of blended education in contrast to more conventional face-to-face and online models. Understanding students' perceptions and their specific needs for support in this context is crucial, as illuminated by studies such as Banihashem et al. (2023b). Given that students often have limited exposure to blended education, continued exploration into their perceptions and the identification of support mechanisms becomes imperative. This deeper investigation serves as a valuable avenue for unraveling the complexities associated with acceptance and implementation. As we move forward into the post-pandemic era, scientific research outcomes are needed to serve as a roadmap for leveraging these insights to enhance the wider acceptance and effective implementation of blended education, ensuring its continued relevance and success in the evolving landscape of education. Therefore, this study was conducted to further explore and address these issues by answering the following research question:

RQ1. What are the students' perceptions of learning in a blended education environment?

RQ2. What are the sources of support that students utilize when seeking help in a blended education environment?

## **Method**

### **Participants**

This exploratory study took place at a Dutch university renowned for its focus on life sciences. In this study, a total of 537 students took part. Among the student participants, the majority were female (N=328, 61%). Importantly, there was a well-balanced representation of students from both bachelor's and master's levels, with

253 (47%) at the bachelor's level and 267 (50%) at the master's level. Furthermore, a significant portion of the students held Dutch nationality (N=356, 67%). Considering the diversity observed among the participants in terms of gender and nationality, it can be reasonably concluded that the sample was reflective of the university's overall student population.

### Measurements

Students' perceptions of learning within the context of blended education were assessed using a five-point Likert scale, which spanned from 'strongly disagree' to 'strongly agree' and consisted of five items. These items encompassed aspects such as learning performance, motivation, engagement/participation, feedback from teachers, and collaborative learning among students. Similarly, the sources of help to students in the context of blended education were evaluated using a five-point Likert scale, ranging from 'strongly disagree' to 'strongly agree,' and were based on three items. These items inquired about students' tendencies to seek help from teachers, and fellow students, or to independently search for answers in (online) resources when encountering difficulties in understanding a topic or assignment.

### Analysis

A descriptive analysis was conducted to provide an overview of students' perceptions on blended education and their sources of assistance in this educational approach.

## Results

### RQ1. What are the students' perceptions of learning in a blended education environment?

The findings regarding students' perceptions of learning in blended education revealed that, overall, a majority of students reported experiencing a high perception of learning in blended education compared to the previous academic year with mainly online education (N=149, 28%) (see Table 1).

Table 1. Students' perceptions of learning in a blended education context

Item	Mean	SD	Agreement no. (%) <sup>b</sup>	Disagreement no. (%) <sup>c</sup>	Neutral no. (%)	NM no. (%)
My learning performance is	4.40	0.96	156 (29%)	54 (10%)	127 (24%)	197 (37%)
My motivation is	4.22	0.85	147 (27%)	86 (16%)	105 (20%)	196 (37%)
My engagement/participation is	4.37	0.90	166 (31%)	68 (13%)	103 (19%)	197 (37%)
The feedback of teachers to me is	4.30	0.89	133 (25%)	64 (12%)	127 (24%)	210 (39%)
The collaborative learning among students is	4.20	0.72	142 (27%)	99 (18%)	86 (16%)	207 (39%)
Overall	4.30	0.86	149 (28%)	74 (14%)	109 (20%)	202 (38%)

<sup>a</sup> Based on a 5-point Likert scale (Strongly disagree, disagree, neutral, agree, and strongly agree); <sup>b</sup> Agreement = Agree, and strongly agree; <sup>c</sup> Disagreement = Strongly disagree, disagree; NM = Not Mention

**RQ2. What are the sources of support that students utilize when seeking help in a blended education environment?**

The findings regarding sources of help for students in blended education revealed that, overall, a majority of students often search for answers in (online) resources when they have trouble understanding a topic or assignment (N=288, 54%) (see Table 2).

Table 1. Students' source of support when seeking help in blended education

Item	Mean	SD	Agreement no. (%) <sup>b</sup>	Disagreement no. (%) <sup>c</sup>	Neutral no. (%)	NM no. (%)
I often ask teachers for help when I have trouble understanding a topic or assignment	3.93	1.19	137 (26%)	144 (27%)	94 (17%)	159 (30%)
I often ask fellow students for help when I have trouble understanding a topic or assignment	4.30	1.20	188 (35%)	99 (19%)	92 (17%)	155 (29%)
I often search in (online) resources myself for answers when I have trouble understanding a topic or assignment	4.99	0.97	288 (54%)	29 (5%)	68 (13%)	149 (28%)

<sup>a</sup> Based on a 5-point Likert scale (Strongly disagree, disagree, neutral, agree, and strongly agree); <sup>b</sup> Agreement = Agree, and strongly agree; <sup>c</sup> Disagreement = Strongly disagree, disagree; NM = Not Mention

**Discussion and Implications for Practice**

In this study, the primary focus was on investigating students' perceptions of learning and their preferred sources of support in the context of blended education within higher education. The findings can be summarized as follows: [a] “*High Level of Learning Perception*”: The majority of students expressed a high level of satisfaction and perceived learning within the blended education content. This suggests that the blended approach, which combines both online and in-person elements, resonated positively with the students, leading to a favorable learning experience. [b] “*Online Resources as Preferred Support*”: Another key finding was that most students indicated a preference for online resources as their primary source of support in the blended education setting. This signifies that students are increasingly relying on digital materials and resources to complement their learning experience and enhance their understanding of course materials. The results of this study have implications for practice as follows:

1. **Optimize Blended Learning Environments:** Based on the positive perceptions of learning in blended education, higher education institutions should continue to develop and optimize blended learning environments. This includes ensuring that the mix of online and in-person components is well-balanced and effectively designed to engage and support students.
2. **Emphasize Online Resource Availability:** Given that students are leaning towards online resources as their preferred source of support, educators and institutions should make a concerted effort to provide

easily accessible and high-quality online materials. This might include digitized lecture notes, supplementary readings, and interactive online platforms for discussion and collaboration.

3. **Faculty Training and Support:** Faculty members should receive training and support in designing and delivering effective blended education. This training should emphasize the integration of online resources and technology to enhance the learning experience. Institutions must invest in robust teacher training programs that provide ongoing support and resources. This investment not only benefits individual teachers but also contributes to the overall success of educational institutions in preparing students for a rapidly evolving, technology-driven world. Ultimately, the need for teacher training in implementing education is not just a response to technological advancements; it is a strategic investment in the quality and relevance of education in the 21st century (see Masoumi & Noroozi, 2023).
4. **Student Guidance:** Higher education institutions should provide guidance and training to students on how to make the best use of online resources. This can help students navigate the vast array of digital materials effectively and make the most of their blended learning experience.

## Conclusion

This study's results highlight the positive perceptions of students regarding blended education within the higher education context. The majority of students reported a high level of learning satisfaction, indicating the effectiveness of the blended approach. Additionally, the preference for online resources as a source of support underscores the evolving role of technology in education. To ensure the continued success of blended education, institutions should focus on optimizing the design of blended learning environments, making high-quality online resources readily available, providing support and training to faculty and students, and guiding students in the effective use of digital materials. As technology continues to shape the landscape of education, these efforts will be instrumental in enhancing the learning experience and meeting the evolving needs of students.

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