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Original Research

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Examining Academics' Decision-Making Processes and Implementation Challenges of Blended Learning Models for Future Higher Education

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Abstract

Objectives: Blended learning has gained increasing attention in higher education as a hybrid approach that integrates face-to-face and online modalities. This study investigated academics' decision-making processes and challenges in implementing blended learning models to inform future educational practices.

Methods: An exploratory case study design was employed. Data were obtained from academics representing multiple faculties who participated in a professional development program on technological approaches and learning models. Participants completed the Blended Learning Sub-Model Preparation Form, which was analyzed to identify preferences and challenges in adopting blended learning.

Results: Findings revealed a clear preference for sub-models, such as the flipped classroom, enriched virtual classroom, and station rotation, particularly for theoretical courses. Academics valued blended learning for its potential to enhance flexibility, engagement, and accessibility. However, adoption was hindered by limited digital competence, resource constraints, and resistance to pedagogical change. The study also found that faculty background and institutional context influenced the selection of sub-models and implementation strategies.

Conclusions: The results highlighted the need to align blended learning models with course content, student needs, and institutional objectives to achieve effective and sustainable integration.

Implications: Institutions should provide targeted professional development, strengthen technological infrastructure, and promote interdisciplinary collaboration to support academics' capacity for innovative and contextually relevant blended learning practices in higher education.

Note: This research was conducted within the scope of the Transformation in Higher Education: Blended Learning Model on the Way to E-University project conducted by Istanbul Aydin University STEM Education Application and Research Center. The authors declare no competing interests.

Keywords: *higher education, technology use, blended learning, academics, blended learning sub-models*

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Introduction

The COVID-19 pandemic has significantly reshaped the landscape of higher education, accelerating the integration of digital technologies into teaching and learning environments. Prior to the pandemic, the transition from traditional to online education was progressing slowly and was often regarded as a long-term institutional evolution (Koruga et al., 2023). The sudden onset of the pandemic, however, compelled universities worldwide to rapidly shift all instructional activities online, leading to a fundamental reevaluation of pedagogical strategies, technology use, and instructional decision-making processes among academics.

The abrupt transition from traditional to online education not only revealed deficiencies in technological infrastructure but also showed considerable uncertainty in how academics made pedagogical decisions under rapidly changing conditions. Instructors accustomed to face-to-face classroom settings encountered various personal and institutional challenges. Although some instructors initially expressed skepticism toward online teaching, many demonstrated a strong willingness to learn and adapt (Stevens et al., 2023). As a result, these instructors were required to navigate a dual identity—as users of digital tools and as pedagogical decision-makers. This interplay has become central to the development of innovative teaching identities that are grounded in lifelong learning and continuous professional growth (Koruga et al., 2023).

The integration of digital tools in higher education post-COVID-19 evolved from a temporary crisis response to a long-term transformation of instructional design. As a result, the combination of synchronous and asynchronous learning modalities has enhanced accessibility, flexibility, and student engagement, particularly in diverse learning contexts (Akgunduz & Topalsan, 2024; Aristovnik et al., 2020). Tools such as virtual laboratories, video conferencing platforms, and collaborative learning environments have reshaped how students interact with course content and with one another, extending learning beyond the physical classroom (García-Morales et al., 2021).

Technological affordances in student instruction have necessitated a deeper reconsideration of pedagogical strategies. Learning management systems (LMSs) and artificial intelligence (AI)–powered platforms have enabled personalized learning experiences, while activity-based designs and research-driven instructional practices—such as survey-based tasks—have fostered interdisciplinary collaboration and experiential learning (Crawford & Cifuentes-Faura, 2022; Sá & Serpa, 2020). When strategically integrated, these tools can serve as the foundation for blended learning environments, which combine the structure and immediacy of face-to-face instruction with the adaptability and scalability of digital components. Consequently, blended learning has emerged as a viable and compelling approach for institutions aiming to balance technological flexibility with pedagogical coherence.

Blended learning supports instructional diversity through its hybrid nature, allowing instructors to adapt course delivery to varied learning styles and curricular demands. Blended learning facilitates the transmission of content and fosters active learning and student engagement. Sub-models, such as the flipped classroom, exemplify this student-centered orientation, demonstrating the model's potential to enhance learning outcomes (Sankar et al., 2022; Singh et al., 2021). Blended learning implementation success, however, relies

heavily on instructors' capacity to select appropriate sub-models that are aligned with course content, student characteristics, and contextual constraints.

In choosing and applying blended learning models, the decision-making process is a critical determinant of instructional effectiveness. While the adoption of blended learning continues to expand across higher education, academics' behavioral intentions and actual usage patterns significantly influence its sustainability and impact (Anthony et al., 2023). Accordingly, a nuanced understanding of how academics make pedagogical decisions regarding model selection is essential for supporting effective blended learning practices, especially alongside the interaction between their technological knowledge, their pedagogical knowledge, their content knowledge, and the broader institutional context.

Literature Review

Blended Learning Model in Higher Education

The COVID-19 pandemic has accelerated the adoption of blended learning models in higher education, combining online and face-to-face instruction. Blended learning gained significant traction as well due to the growing prevalence of massive open online courses and micro-courses, the rapid evolution of Web 2.0 tools, and the transformative impact of the pandemic. The blended learning trend is supported by several studies, such as those by Alamri et al. (2021), Bokolo (2021), Muller (2022), and Tong and Wei (2020).

Blended learning improves flexibility, engagement, and accessibility. Students express higher satisfaction compared to purely online or face-to-face learning models (Akgunduz, 2019; Singh et al., 2021). Blended learning enhances learning outcomes and students' ability to manage their workspace while also fostering collaboration through structured hybrid models (Muller, 2022).

Successful implementation of blended learning relies on robust technological and methodological support, including LMSs like Moodle and information and communication technology tools (Berestok, 2022). Faculty training and adaptive teaching methods are also critical to optimizing this learning model during emergencies (Tabo et al., 2022).

Challenges in blended learning remain, however. Technological barriers, such as a lack of access to reliable internet and devices, can hinder equitable implementation (Sain et al., 2024). Moreover, social interaction and group engagement must be emphasized to replicate the benefits of in-person learning (Mali & Lim, 2021), as students appreciate the convenience of blended learning but prefer more face-to-face interactions when possible (Huang & Lee, 2022).

Tailoring blended approaches to course content and student demographics, such as gender and academic level, further enhances effectiveness (Sankar et al., 2022). Post-pandemic, blended learning has become a transformative and adaptable model for higher education and offers the potential for enhanced engagement and outcomes. Requirements, however, must address technological and social interaction challenges to ensure equity and quality.

Blended Learning Sub-Models

In higher education, blended learning combines traditional face-to-face instruction and online learning, offering various sub-models that are designed to meet diverse educational requirements. Each sub-model has unique strengths and weaknesses that educators and institutions must consider for effective implementation.

In the station rotation model, students rotate between different learning stations, including online and face-to-face activities (Staker & Horn, 2012). This approach encourages active learning and engagement while

allowing students to revisit materials at their own pace. The station rotation model, however, requires significant logistical planning and resource allocation, which can be challenging for some institutions.

The flipped classroom model involves students reviewing course material online before engaging in interactive, in-class problem-solving activities (McCarthy & Palmer, 2023). The flipped classroom model enhances classroom interaction and critical thinking, empowering students to control their learning pace (Tong & Wei, 2020). Nevertheless, this model's success depends on students completing pre-class work and may increase the preparatory workload for instructors.

The flex model is primarily online, and face-to-face sessions are available for support (Staker & Horn, 2013). This model offers high flexibility, accommodates diverse schedules, and is cost effective for institutions. The flex model limits social interaction, however, and demands high self-discipline and student motivation.

Project-based blended learning integrates collaborative projects into online and face-to-face components (Tong & Wei, 2020). Project-based blended learning fosters teamwork, creativity, and real-world problem-solving skills. Coordinating project-based blended learning among team members in hybrid settings, however, can be challenging and resource-intensive for both instructors and students.

In self-directed online learning with in-class support, students mainly study online but can attend optional in-class sessions for assistance (Kumar et al., 2021). This model supports diverse learning styles and reduces dependency on physical infrastructure. Self-directed online learning may, however, alienate students who require more structured guidance to succeed.

Blended learning models offer numerous advantages, including enhanced learning outcomes in academic achievement improvements, self-study skills, and learning attitudes (Tong et al., 2022). Flexibility in blended learning allows students to adapt their schedules and accommodates varied needs (McCarthy & Palmer, 2023). Resource optimization combines the benefits of online tools and physical resources (Kumar et al., 2021). Additionally, these models promote student-centered learning, encouraging active participation and personalized learning pathways (Bokolo, 2021).

Despite the advantages of blended learning models, notable disadvantages exist. Implementation challenges arise, for example, due to limited digital skills among faculty and a lack of institutional support (Bokolo, 2021). Inequities in access pose barriers for students without reliable internet or devices (Simamora, 2020) and are also a disadvantage. High initial costs are associated with developing and maintaining online platforms and training staff (Kumar et al., 2021). Furthermore, students with low self-regulation may struggle to manage online components effectively (Tong & Wei, 2020).

In conclusion, blended learning encompasses a variety of sub-models that are tailored to different educational contexts. While offering significant benefits in flexibility, engagement, and personalized learning, the effective implementation of blended learning requires addressing challenges, such as resource allocation, digital literacy, and equitable access. By selecting appropriate sub-models, institutions can optimize blended learning to meet the needs of diverse student populations.

Purpose and Importance

This study aimed to explore how academics from diverse faculties and departments design and implement blended learning models. This study focused on their preferences, teaching practices, and perceptions of the strengths and weaknesses of face-to-face and online environments. Specifically, the study aimed to understand the theoretical and practical course hours that academics allocate within blended learning, identify future practices that academics intend to implement, and investigate academics' rationale for

selecting specific blended learning sub-models. Additionally, the study sought to provide insights into the evolving pedagogical landscape in higher education and guide the effective implementation of blended learning models that are tailored to different disciplines. The following insights are significant for several reasons.

Blended Learning Insights

As blended learning becomes a cornerstone of modern higher education, understanding how academics utilize and adapt these models is critical. Kumar et al. (2021) emphasized that blended learning combines the best of face-to-face and online teaching, offering flexibility and enhanced learning outcomes when implemented effectively. The success of such models, however, depends heavily on the alignment of pedagogical strategies with institutional goals and student needs (Bokolo, 2021).

The study also addressed a gap in the literature regarding how academics plan and execute blended learning strategies at the departmental and faculty levels. McCarthy and Palmer (2023) argued that a systematic understanding of blended learning practices across disciplines can help institutions optimize resource allocation and improve faculty support systems. This finding aligns with the growing emphasis on personalized and flexible learning pathways that address the diverse needs of students (Tong et al., 2022).

Finally, this research identified the strengths and limitations of face-to-face and online components in blended learning environments. Understanding these dynamics is crucial for developing hybrid teaching models that balance the interactivity of face-to-face sessions with the accessibility of online tools (Simamora, 2020). Moreover, exploring the motivations behind academics' choices of specific sub-models, such as flipped classrooms or project-based blended learning, can provide actionable insights for enhancing pedagogical effectiveness (Tong & Wei, 2020).

Research Questions

The following research questions will be addressed in this context:

1. What are the theoretical and practical hours of the courses that academics from different faculties and departments plan to teach using the blended learning model?
2. What future practices can academics from different faculties and departments implement in the teaching environment?
3. What are the strengths of face-to-face and online environments according to academics from different faculties and departments?
4. What are the preferences and reasons of academics from different faculties and departments for choosing a specific blended learning sub-model?

Method

The research adopted an exploratory case study design (Yin, 2013) to investigate how academics conceptualize and implement blended learning models within higher education. This design was deemed appropriate as the study sought to explore a contemporary phenomenon—the decision-making processes surrounding blended learning sub-model selection—within its real-life institutional context, where the boundaries between the phenomenon and context are not clearly evident. An exploratory case study enabled the researchers to identify patterns and situational themes emerging from academics' experiences and institutional conditions rather than testing predefined hypotheses. This exploratory approach was particularly suitable given the

qualitative nature of the data derived from the Blended Learning Sub-Model Preparation Forms, completed by faculty members participating in the Technological Approaches and Learning Models in Higher Education certificate program.

The program was implemented as part of a scientific research project at a foundation university in Istanbul, Turkey. Participants voluntarily joined the university's Blended Learning Application Team.

Participants

Criterion sampling, one of the purposeful sampling methods, was used to determine the research group, as this sampling method studies all situations that show the characteristic features of predetermined criteria. The criterion sample's main point is that the selected situations are rich in providing information (Patton, 2014). To determine the research group, a key criterion was that faculty members working at a foundation university must have completed the Technological Approaches and Learning Models in Higher Education certificate program, offered as part of the scientific research project. Academics from various faculties and schools of Istanbul Aydin University were invited to participate voluntarily via an official letter, and applications were collected through a Google Form.

The study sample consisted of 44 faculty members who voluntarily joined the program. This sample was out of 75 academics who were involved in the Transformation in Higher Education: Blended Learning Model on the Way to E-University project. This 4-year project, initiated in the fall 2020–2021 academic year, is funded by Istanbul Aydin University. The project aims to enhance the professional development of academics in technological approaches to higher education and to create new blended learning models. Demographic data of the research group are presented in Table 1.

Table 1. *Demographic Data*

	Variable	***f***
Gender	Woman	34
	Male	10
Faculty	Economics and administrative sciences	1
	Health sciences	4
	Education	3
	Medicine	3
	Dentistry	4
	Arts and sciences	5
	Engineering	3
	Communication	7
Vocational schools	Health services	6
	Anadolu BIL	4
Schools	Applied sciences	2
	Foreign languages	2

Procedure

We collected data from 44 academics from eight faculties and four vocational higher education schools. These academics participated in the certificate program organized within the scope of the scientific research project Transformation in Higher Education: Blended Learning on the Way to E-University.

Although 75 academics participated in synchronous and asynchronous training, lasting 3 months and 120 hours, the data were obtained from the documents prepared by 44 academics. Table 2 shows the training program attended by the academics, including the training topics.

Table 2. *The Training Certificate Program of Technological Approaches and Learning Models in Higher Education*

Program Specifications	
Duration	120 hours
Number of participants	75
Synchronous course environment	Microsoft Teams
Asynchronous course environment	Edmodo, Google Drive, OneDrive
Training type	Synchronous (live course) + asynchronous (apps)
Training Topics	1–Technological approaches, models, and methods
	2–Meeting and live course tools
	3–Learning management systems
	4–Cloud computing systems and collaboration
	5–Web 2.0-3.0 Tools and enrichment of teaching
	6–Technological assessment tools
	7–Course design with blended learning

Participating faculty members received Technological Approaches and Learning Models in Higher Education training in a synchronous and asynchronous manner. This training lasted 3 months and 120 hours. Faculty members wanting to incorporate their experience into the process were asked to fill out the course preparation document, the Blended Learning Sub-Model Preparation Form.

Instrument

A Blended Learning Sub-Model Preparation Form was systematically developed for this research to ensure validity and reliability in preparing blended learning sub-models. The development process included a comprehensive review of relevant literature to identify key elements of blended learning models and syllabus dimensions emphasized in previous studies. Furthermore, widely recognized quality frameworks in online course design were considered to align the form with established standards.

The initial draft of the Blended Learning Sub-Model Preparation Form was structured to include course-specific details and faculty members' perspectives on pre- and post-education practices in a blended learning context. Sample sections of the form covered areas such as course name, duration, purpose, content, specific requirements, the suitability of online and face-to-face practices, and the selection and rationale for appropriate blended learning sub-models.

The Blended Learning Sub-Model Preparation Form underwent a multi-stage validation to enhance the rigor of the development process. The preliminary version was reviewed by three field experts who specialize in blended learning and instructional design. Their feedback was incorporated to improve content validity, ensuring the form comprehensively addressed the dimensions relevant to the study. Following the expert review, the form was piloted with a sample of three faculty members from diverse disciplines. This pilot test evaluated the form's clarity, comprehensiveness, and practical utility. Participants completed the form and provided feedback on its usability and relevance to their instructional practices. Based on this feedback, the form was revised to clarify ambiguous items and better align with the research objectives.

To ensure the reliability of the Blended Learning Sub-Model Preparation Form, inter-rater reliability was assessed by having two independent reviewers analyze a subset of completed forms. The agreement rate between reviewers was calculated at 90%, demonstrating high consistency in data collection.

The finalized version of the Blended Learning Sub-Model Preparation Form incorporated dimensions derived from theoretical and practical frameworks in blended learning. On the developed syllabus, sample information requested of participants includes:

- Provide the name of the course, its duration (theoretical and practical), purpose, content, and any specific requirements.
- Identify the applications you believe can be most effectively implemented in the online learning environment of your course, including the types of applications and the advantages they provide.
- Describe your course's strong and essential practices in a face-to-face environment before transitioning to distance learning.
- Indicate which sub-model can be used to conduct your course when transitioning to a blended learning environment.
- Explain why you choose the sub-model you plan to use in the blended learning process.

Analysis of Data

The researchers used qualitative data analysis techniques, following Corbin and Strauss's (2008) guidelines, to analyze academics' responses. The first step was to collect all the responses to the survey questions. The study employed three main strategies: open coding, data display, and conclusion (Corbin & Strauss, 2008). During the initial open coding stage, the responses were read several times while taking notes to gain a general understanding. All significant points were coded with corresponding comments.

Data display, the next step, involved revisiting the data to refine understanding. This process included linking categories around a core category and refining and trimming the theory (Corbin & Strauss, 2008). In the first phase of data analysis, two researchers—who conducted the study independently—created their own list of codes. They then discussed and refined the codes.

To establish inter-coder reliability, the researchers calculated an agreement rate of .90 using the codebook (Bakeman & Gottman, 2009, p. 60). Any discrepancies were discussed, and consensus was reached at all stages.

Results

For the first research question, "What are the theoretical and practical hours of the courses that academics from different faculties and departments plan to teach using the blended learning model?" the theoretical and practical hours of the courses were determined, including where academics will apply blended learning. Using the Blended Learning Sub-Model Preparation Form, the academics first determined which courses to

integrate the blended learning sub-models into and then specified the current theoretical and practical hours of the course. The distributions of preferred course hours are shown in Table 3.

Table 3. *Theoretical and Practical Hours of Courses Planned for Blended Learning*

Courses	***f***
Theoretical only	28
Theory and practice	15
Practice only	1

When academics consider blended learning, they primarily associate it with theoretical courses (as shown in Table 3). It is observed that practice-oriented courses are not considered for adaptation to blended learning sub-models at all.

The second research question, "What future practices can academics from different faculties and departments implement in the teaching environment?" identified potential studies that academics may conduct in future periods. Table 4 outlines potential areas of academic focus in the near future.

Table 4. *Future Practices Academics Can Implement*

Future Practices	***f***
Online education at home	42
General education in the classroom	35
Small-group discussions in class	27
Project-based learning	21
Online education in a computer lab	11
Digital tool applications	10
Face-to-face laboratory applications	9
Seminar	8
Survey studies	8
Training in the activity room	3
Individualized education	3
Online lab applications	2

The data suggest a significant emphasis on online education at home, indicating the increasing importance of remote learning (see Table 4), although traditional classroom education remains relevant alongside a notable interest in small-group discussions and project-based learning. Technology integration is evident through digital tool applications and online laboratory experiences. Despite the rise of online education, however, face-to-face laboratory applications persist. Seminars, survey studies, and individualized education are also noted as areas of interest, reflecting a diverse landscape of potential academic inquiry.

The third research question, "What are the strengths of face-to-face and online environments according to academics from different faculties and departments?" analyzes the practices academics perceive as strengths in both face-to-face and online environments. Table 5 outlines key practices deemed essential by academics in face-to-face education.

Table 5. *Strengths of Face-to-Face Environment Identified by Academics*

Themes	*f*	Sample Answers
Communication/student interaction	(*n* = 11)	A.1. *The most powerful aspect of face-to-face education is that the instructor communicates with the students naturally in a natural way.*
		A.35. *Face-to-face interaction in which students can analyze the texts in question through group work and discuss their analysis studies within the scope of Turkish Literature in the Republican Period.*
Strategy, method, and technique	(*n* = 28)	*A.3. Within the scope of this course, for example, it was possible to see the effect of the group on productivity in a practical way by creating small working and interaction groups in the classroom*
		A.15. The aim of the course is to learn and apply the techniques used in diagnosing genetic diseases theoretically and practically. For this reason, it is essential that the knowledge learned theoretically is reinforced by practical face-to-face laboratory applications and that the information is grasped in depth
Assessment and evaluation	(*n* = 5)	*A.3. Instant feedback implementation studies are done more easily and are very important.*
		A.11. One of the strengths of face-to-face education is that while I process my course in crowded classrooms, students ask their questions and get their answers simultaneously.
Class and process management	(*n* = 4)	*A.33. To observe whether the students have started their projects in the courses held in the computer laboratory, or at what stage they are in their projects, and to follow the project more easily.*
		A.3. To be able to observe the students' interest/reactions to the course content
Suitability for online learning environments	(*n* = 2)	*A.7. Since it is a theoretical course, no practice must be done face-to-face.*
		A.11. The course is suitable for online delivery as it is based on theoretical knowledge, and its application is planned to be held next semester.
Use of materials	(*n* = 9)	*A.31. It is important to be able to develop rhythm instruments and materials, to create*

		new choreography and to be able to practice in the hall with group work.
		A. 7. Computer-aided calculations related to energy efficiency, using a face-to-face environment in software usage stages, will increase student participation and performance in the course.
Out-of-school learning environments	(*n* = 2)	*A.21.Theoretical knowledge needs to be experienced in practice, that is, by going to the field.*
		A.38. Going to the archive, examining the documents on the spot, and using the archive in person are also important for the students' achievements.
Interdisciplinary studies	(*n* = 2)	*A.41. Working interdisciplinarity during my studies is the strength of my course.*
		A.21. Joint course contents with different faculties are applied simultaneously.

These themes span various domains, including communication, strategy implementation, assessment methods, and suitability for online environments. Notable points include the emphasis on direct instructor–student interaction, hands-on learning experiences (to reinforce theoretical knowledge), and the importance of immediate feedback. Additionally, Table 5 highlights the value of interdisciplinary studies and out-of-school learning experiences in enriching educational outcomes, offering a concise overview of the varied approaches utilized by academics to optimize face-to-face teaching and learning.

Table 6 illustrates the preferences of academics for synchronous and asynchronous online course applications across various themes. The data reveal a trend toward leveraging multimedia tools for theoretical content delivery and emphasize personalized support for student interaction and feedback.

Table 6. *Synchronous/Asynchronous Environment Preferences as Identified by Academics*

Themes	***f***	**Sample answers**
Theoretical applications	(*n* = 16)	*The theoretical part of the topics can be conveniently given synchronously.*
		Presenting the theoretical courses online before the class allows the use of time more effectively and different activities to be done in the classroom.
Web 2.0 applications	(*n* = 22)	*With the video application, the procedure to be performed on the patient can be shown before the application.*
		The course will be explained with presentations to be prepared in the digital environment.

Teacher–academic interaction and feedback	(*n* = 11)	*Answering the questions asked by the desired student.* *Meeting the needs of the student, such as questions, problems, and objections related to the course during the course*
Assessment and evaluation	(*n* = 15)	*Answering questions that are usually done incorrectly when assigned assignments.* *Create and execute a project.*
Cloud discussion and collaboration	(*n* = 23)	*Synchronous small-group work during class and listening to study presentations.* *Discussion: In order to ensure that theoretical information is understood, it will be clear whether the subject is understood or not with the discussions and thought executions to be made in the form of question and answer.*
24/7 flexible learning	(*n* = 13)	*The student can listen to the lecture wherever and whenever he wants.* *Briefly explaining the lecture notes uploaded to the system, the information, and videos in the source books to the students.*

Table 6 shows that assessment strategies prioritize targeted feedback and project-based evaluations, while collaborative activities aim to foster active learning. Additionally, flexible learning options cater to student autonomy and accessibility. The insights reflect a comprehensive approach to enhancing online learning experiences through diverse and adaptable instructional methods.

The fourth research question, "What are the preferences and reasons of academics from different faculties and departments for choosing a specific blended learning sub-model?" identifies the blended learning sub-models that academics prefer to use in their courses, as well as the reasons behind their choices. Table 7 summarizes the preference of academics for blended learning sub-models, revealing a strong inclination toward the flipped classroom model, followed by the enriched virtual classroom and station rotation models. Other sub-models, such as personal rotation and flexible blending, garnered some interest but to a lesser extent. Overall, the table underscores the diversity of approaches within blended learning, highlighting the importance of accommodating varied instructional preferences and needs in educational settings.

Table 7. *Academics' Blended Learning Sub-Model Preferences*

Sub-Model	***f***
Flipped classroom	32
Enriched virtual classroom	28
Station rotation	20
Personal rotation	11
Flexible blending	9

Self-blending	6
Laboratory rotation	4
Custom sub-model	4

Table 8 provides insights into the reasons academics prefer specific blended learning sub-models. The data reveal several key themes influencing their choices.

Table 8. *Reasons Sub-Model Preferences*

Themes	***f***	**Sample Answers**
Theoretical background of the course	(*n* = 21)	*The use of synchronous and asynchronous models in the theoretical background of our course, and the applied models in the campus environment are considered suitable for the flipped learning model because it is suitable for group studies.* *Since there is a three-thousand-year history of Turkish, the knowledge conveyed to the students in our course is intense. I think it would be correct to give this information synchronously and asynchronously, and that it would be useful to work by dividing students into groups to reinforce this intensive knowledge with exercises.*
Method and strategy	(*n* = 25)	*The student understands the subject by examining the documents shared before the course. Where they do not understand, they can find answers to their questions in face-to-face or online classes.* *By forming study groups among students in a face-to-face /online environment, they can be directed to work together and complete their deficiencies together.*
Class size and student profile	(*n* = 8)	*"Flipped learning" due to heterogeneity in classrooms (the coexistence of different departments)* *"Self-Blending" with students with high cognitive capacities*
Time management	(*n* = 15)	*Since the course is theoretical, various materials are presented to the student before the course. The student learns these materials himself, asks about the places he does not understand in the course, and only this part is explained in the course, which leads to the effective use of time.* *In flipped classrooms, while the analysis-evaluation-design stages are carried out face-to-face in the classroom,*

		the remembering-comprehension-application stages are given to the student at home. Thanks to this model; since the parts of my course that require theoretical reading, research, and monitoring will be done at home and the students will be ready for the class, I will be able to devote more time in the classroom to the parts that require high-level thinking skills.
Variety of applications	(*n* = 28)	*Training can be implemented online in two ways. The first is short learning in the form of lectures for students with theoretical deficiencies, and the second is short learning to support three-dimensional thinking by using visual materials such as videos, etc.* *Project/assignment presentations of my course can be made synchronously or asynchronously in the online environment.*
Motivation	(*n* = 4)	*The discussion environment can be created online or face-to-face. It can be preferred face-to-face for student motivation.* *Face-to-face or online attendance during the semester can be decided by considering the student's motivation.*
Individual self-paced progress	(*n* = 11)	*I believe that the transition to the "flipped learning model" will make learning easier and more effective with introducing practical courses in the spring semester. The flipped classroom is a learning model in which technology is used to reverse the traditional time spent in the classroom. If in the past classroom time was used to teach students, in this model, this time is now used to encourage individual learning, help students one-on-one or as a group, and improve student-teacher interaction. Instructional content can still be given in the classroom, but it is mainly designed to be accessed outside the classroom; this is a good model for students struggling in class to learn at their own pace.* *Disadvantaged situations, "individual rotation"*

Data show that the theoretical background of the course plays a significant role (see Table 8). Here, academics consider the suitability of sub-models based on the nature of the content and the need for synchronous or asynchronous delivery to facilitate effective learning. Method and strategy considerations also influence preferences, focusing on providing pre-course materials and leveraging electronic tools to enhance understanding and collaboration among students. Class size and student profile considerations are evident as well. Academics select sub-models, such as station rotation and flipped learning, based on classroom dynamics and student heterogeneity. Time management is another important factor, with academics opting

for sub-models that optimize classroom time by utilizing asynchronous learning for pre-course preparation and focusing on high-level thinking skills during face-to-face sessions.

The variety of applications offered by different sub-models is highlighted, with academics favoring approaches that allow for various activities, such as project presentations, discussions, and online learning modules. Motivational factors also come into play, with preferences for face-to-face interactions to enhance student engagement and motivation. Lastly, considerations for individual self-paced progress are evident, with academics recognizing the benefits of sub-models like flipped learning and individual rotation in facilitating personalized learning experiences and providing support to students with diverse learning needs.

Discussions

The findings of this study contribute to a deeper understanding of how blended learning models are perceived and implemented in higher education, particularly by academic staff navigating the post-pandemic pedagogical landscape. Notably, participants' strong association of blended learning with theoretical courses, as opposed to practice-oriented ones, highlights a structural imbalance in its current adoption.

While prior research has emphasized the adaptability of blended learning across diverse instructional contexts (Staker & Horn, 2012), the limited implementation in laboratory-based or experiential settings points to persistent barriers. These barriers may include logistical constraints, ambiguity in pedagogical design, or insufficient awareness of sub-models suitable for applied learning environments. Crucially, as Koruga et al. (2023) argue, effective deployment of digital tools requires not merely access but also the pedagogical competence to integrate them in ways that are both meaningful and contextually responsive.

The observed emphasis on student-centered modalities, such as remote learning at home, small-group interactions, and project-based learning, further underscore a paradigmatic shift in teaching practices. These preferences align with Tong and Wei's (2020) assertion that active and collaborative instructional strategies serve as catalysts for deeper cognitive engagement. The findings, however, also reveal a duality in pedagogical priorities: Although flexibility and personalization are widely acknowledged benefits of online learning, instructors continue to value the immediacy, social interaction, and experiential depth afforded by face-to-face formats. This nuance is particularly relevant given that some academics, despite initial skepticism, have demonstrated a willingness to adopt digital methods, reflecting a broader cultural shift toward technological receptivity (Stevens et al., 2023). Such openness has likely contributed to the gradual normalization of blended models within academic institutions.

Moreover, the increasing use of AI-supported platforms and LMSs reflects a convergence between instructional innovation and personalization imperatives. As Sá and Serpa (2020) observe, the strategic integration of digital technologies can offer customized learning pathways that accommodate a wide range of learner profiles. Nevertheless, participants' continued prioritization of face-to-face engagement underscores an enduring pedagogical tension. While online tools provide scalability and accessibility, these tools do not fully replicate the tactile, interactive, and socially constructed dimensions of physical learning environments. These findings resonate with Singh et al. (2021) and Mali and Lim (2021), who advocate for the complementarity, rather than substitution, of online and in-person components.

The preferences reported for specific sub-models of blended learning, particularly the flipped classroom, underscore the importance of aligning instructional design with contextual variables, such as content structure, student demographics, and classroom dynamics. The popularity of the flipped classroom, along with sustained interest in enriched virtual and station rotation models, mirrors broader trends in the literature that emphasize learner agency, peer interaction, and cognitive depth (McCarthy & Palmer, 2023). Model selection, however, is not driven solely by pedagogical alignment. Rather, it is shaped by a complex

interplay of factors, including institutional affordances, class size, faculty workload, and, most importantly, instructors' digital dispositions and prior experiences (Anthony et al., 2023; Kumar et al., 2021; Tong et al., 2022). As such, successful implementation hinges not only on the appropriateness of a model for a given course but also on the educator's capacity and readiness to enact that model with fidelity and pedagogical clarity.

Taken together, the findings suggest that sub-model preferences are not merely technical or logistical decisions but, instead, reflections of deeper pedagogical orientations and institutional cultures. Academics' inclination toward the flipped and enriched virtual models, for instance, signals a growing emphasis on learner autonomy, formative feedback, and flexible time management—principles increasingly central to post-pandemic higher education. Conversely, the relatively lower adoption of models demanding high infrastructural support, such as the flex or rotation formats, underscores persistent resource asymmetries between departments and disciplines. This synthesis highlights that institutional readiness and pedagogical mindset must evolve in tandem for blended learning to achieve systemic impact. For policy and practice, this implies the need to align professional development, digital infrastructure, and curriculum design with the specific sub-models most conducive to each academic context.

To fully harness the transformative potential of blended learning, institutions must pursue systemic and sustained efforts across multiple fronts. Professional development programs should go beyond technical training to include pedagogical mentoring, reflective practice, and instructional design support specifically tailored to hybrid contexts. Technological infrastructure must enable synchronous and asynchronous engagement, multimodal content delivery, and collaborative online environments. At the policy level, institutions should actively work to mitigate digital inequality by addressing barriers to access, particularly among underrepresented student groups. Student feedback loops, grounded in iterative evaluation, are essential to ensure that blended learning strategies remain aligned with learners' evolving needs and expectations (Huang & Lee, 2022).

Future research should move beyond documenting adoption patterns to interrogating the institutional, epistemological, and cultural variables that mediate the implementation of blended learning. Priority should be given to exploring how interdisciplinary curricular frameworks and flexible credit systems can accommodate the hybridization of content delivery. Moreover, research must investigate how faculty development programs impact instructors' long-term digital pedagogical transformation, particularly in relation to autonomy, professional identity, and epistemic agency (Bokolo, 2021). Finally, greater attention should be directed toward instructional models that effectively integrate personalization with active learning. Combining self-paced, AI-supported pathways with collaborative, discussion-rich components can help realize the full promise of blended learning as an inclusive, dynamic, and resilient approach to education that is responsive to diverse learners in a rapidly evolving world (Sankar et al., 2022).

Limitations

Despite its strengths, this study has limitations that should be considered. First, data were collected from a limited number of faculty and academics. In other studies, collecting data from different faculties and a larger number of academics may provide more in-depth findings. Second, the study's reliance on self-reported data may introduce biases, as participants might overestimate their engagement with or understanding of blended learning models. Incorporating observational data or longitudinal studies could provide deeper insights into actual practices and their outcomes. Third, the study focuses on existing and preferred practices without extensively exploring the challenges or barriers that academics face in implementing blended learning. Addressing these challenges in future research could offer more actionable recommendations for overcoming obstacles.

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