Scientific and technological research article

How to cite: Fuentes Suárez, I., Pérez Egües, M. A., del Rey López Rodríguez, M. M., Guerra Domínguez, E., & Fuentes Morfa, L. M. (2026 Teaching and student perspectives on the blended learning process in cuban Higher Education. *Estrategia y Gestión Universitaria*, 14, e9197. https://doi.org/10.5281/zenodo.22832952

Received: 20/07/2026
Accepted: 17/09/2026
Published: 14/10/2026

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Conflict of interest: the authors declare that they have no conflict of interest, which may have influenced the results obtained or the proposed interpretations.

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Teaching and student perspectives on the blended learning process in cuban Higher Education

Perspectivas docentes y estudiantiles sobre el proceso de enseñanza-aprendizaje semipresencial en la Educación Superior cubana

Perspectivas de professores e alunos sobre o processo de aprendizagem híbrida no Ensino Superior cubano

Abstract

Introduction: cuban higher education is moving toward blended (semi-presential) modalities in an emergency context, which poses challenges for the teaching-learning process. **Objective:** to identify strengths and needs for implementing the blended (semi-presential) modality. **Method:** exploratory, descriptive study with a mixed-methods approach, conducted in three sequential phases: a questionnaire administered to N = 52 students, focus groups with 25 faculty members, and content analysis of chat messages. **Results:** students value flexibility but face digital divides, connectivity problems, and demotivation, generating frustration and feelings of disconnection; they call for effective communication. Faculty optimize available resources but report overload and a need for digital training. WhatsApp chats show asynchronous communication about doubts, assessment, and informal support, and reveal extensive use of artificial intelligence by students, which challenges assessment practices. **Conclusion:** findings indicate that the strengths of the blended (semi-presential) modality coexist with needs for faculty training, psychopedagogical guidance, and effective communication. These results inform decision-making and open future research lines on the impact of artificial intelligence on assessment, the emotional dimension of students, and digital divides in Cuban higher education.

Keywords: digital divide, cuban higher education, training, blended learning, semi-presential modality

Resumen

Introducción: la educación superior cubana avanza hacia modalidades semipresenciales en un contexto de emergencia, lo que plantea desafíos para el proceso de enseñanza aprendizaje.

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Objetivo: identificar potencialidades y necesidades para implementar la modalidad semipresencial. **Método:** estudio exploratorio y descriptivo con enfoque mixto, en tres fases secuenciales: cuestionario a 52 estudiantes, grupos focales con 25 docentes y análisis de contenido de chats. **Resultados:** los estudiantes valoran la flexibilidad, pero enfrentan brechas digitales, problemas de conexión y desmotivación, lo que genera frustración y sentimientos de desconexión; reclaman comunicación eficaz. Los docentes optimizan recursos, aunque reportan sobrecarga y necesidad de formación digital. Los chats de WhatsApp evidencian comunicación asincrónica sobre dudas, evaluación y apoyo informal, además el uso extendido de inteligencia artificial por estudiantes, lo que desafía la evaluación. **Conclusión:** los hallazgos permiten identificar que las potencialidades de la modalidad semipresencial coexisten con necesidades de formación docente, orientación psicopedagógica y comunicación efectiva. Estos resultados aportan a la toma de decisiones y abren futuras líneas de investigación sobre el impacto de la inteligencia artificial en la evaluación, la dimensión emocional del estudiante y las brechas digitales en la Educación Superior cubana.

Palabras clave: brecha digital, educación superior cubana, formación, modalidad semipresencial

Resumo

Introdução: o ensino superior cubano avança para modalidades semipresenciais em um contexto de emergência, o que impõe desafios ao processo de ensino-aprendizagem. **Objetivo:** identificar potencialidades e necessidades para a implementação da modalidade semipresencial. **Método:** estudo exploratório e descritivo com abordagem de métodos mistos, em três fases sequenciais: questionário aplicado a N = 52 estudantes, grupos focais com 25 docentes e análise de conteúdo de chats. **Resultados:** os estudantes valorizam a flexibilidade, mas enfrentam brechas digitais, problemas de conexão e desmotivação, o que gera frustração e sensação de desconexão; reivindicam comunicação eficaz. Os docentes otimizam recursos, embora relatem sobrecarga e necessidade de formação digital. Os chats de WhatsApp evidenciam comunicação assíncrona sobre dúvidas, avaliação e apoio informal, além do uso disseminado de inteligência artificial por parte dos estudantes, o que desafia os processos de avaliação. **Conclusão:** os achados permitem identificar que as potencialidades da modalidade semipresencial coexistem com necessidades de formação docente, orientação psicopedagógica e comunicação efetiva. Esses resultados contribuem para a tomada de decisões e abrem linhas futuras de pesquisa sobre o impacto da inteligência artificial na avaliação, a dimensão emocional do estudante e as brechas digitais na Educação Superior cubana.

Palavras-chave: brecha digital, educação superior cubana, formação, modalidade semipresencial



Introduction

The complexity of the current socioeconomic context calls for educational decisions that respond to emergency conditions while also laying the groundwork for the changes that are genuinely needed. Such decisions should therefore contribute to a contextualized model capable of drawing on scientific, technical, and social developments to manage risk and address unforeseen conflicts (Dopelt, 2026; Gilles Dufrénot & Takashi Matsuki, 2026). Within this framework, higher education has adopted a proactive stance, one that stays connected to its local territory and aims to prepare professionals equipped for adaptability, self-management, critical thinking, and civic responsibility more broadly (Díaz Zavala et al., 2025).

The university is accordingly understood as a space where students take an active role in shaping the working and social circumstances they will eventually face. The teaching-learning process (TLP) must therefore be adjusted to both personal and contextual conditions, which in turn requires involving students themselves in decisions about what, how, when, and where they learn. When defining program modalities, degree-program teams must reconcile the relevance of objectives, content, and assessment with the demands of the surrounding environment, thereby opening opportunities to generate knowledge that is both pertinent and sustainable (Morán Apolo et al., 2025; Pedraza López, 2023). Active methodologies and virtual environments capable of advancing inclusion and social justice are needed for this purpose, all within a broader framework of sustainability (Hidalgo Parrales et al., 2025; Ureña-Villamizar et al., 2025).

In Cuba specifically, higher education policy explicitly sanctions adapting pedagogical decisions to scientific, technological, and labor-related change. The current energy crisis, however, is testing both the conception and the practice of teaching, prompting the Ministry of Higher Education (MES) to issue guidelines for continuing coursework during the 2025-2026 academic year (MES, 2026) while upholding quality standards and inclusive, equitable policies. Priority was likewise given to adapting training dynamics and to advancing the virtualization of academic, research, and pre-professional practice activities, an effort intended to build on lessons from the pandemic while incorporating recent technological advances (Area Moreira et al., 2023; Contreras Cruz et al., 2025).

Along these lines, the commitment to technological sovereignty and the use of national platforms has become a strategic priority for the MES, which has opted to favor institutional virtual environments. This decision lays the groundwork for transformation, yet it coexists with assessment regulations that still need to be adapted to the particularities of virtual teaching and to faculty training needs. These tensions together shape a scenario in which educators and students move between top-down guidelines and practices that are still being worked out collectively.

This push toward virtualization has in turn demanded a range of changes to educational models, resulting in the coexistence of in-person, blended, and distance modalities. The incorporation of virtual environments into blended learning has meant integrating an array of technological tools, a task that poses challenges for students and faculty alike (Cunningham-Bell, 2026; Fontenelle-Tereshchuk, 2025). Cuban higher education thus finds itself caught between the urgency of immediate responses and the slower work of building a model that is both contextualized and

sustainable.

The trajectory of Cuban higher education lends historical support to blended learning as a way of bringing working adults into university studies, reinforcing the study-work principle, and strengthening the ties between the university and society (Alpízar Santana et al., 2025). Culturally, this shift has to contend with a long-standing tradition of in-person instruction, since both students and faculty have historically built their academic identity around the physical classroom and face-to-face interaction. Making this transition, however, means reworking social and communicative practices that do not fall into place on their own: students trained under an in-person model tend to rely on direct guidance from the instructor, whereas blended learning calls for a culture of self-managed learning.

Blended learning, in this sense, offers a way of meeting the contemporary demands placed on higher education. Its methodological logic combines independent student work with in-person group dialogue, fosters cognitive independence, strengthens ties with the wider society, and makes room for virtual educational resources that can energize the training process (Cano Lassonde, 2025; Simon & Zeng, 2024). Experience implementing this modality bears out these potential benefits, while also raising real challenges around how autonomous, reflective learning is appropriated and assessed (Armas Alba & Alonso Rodríguez, 2022).

Communication between students and instructors, together with the part communication platforms play in shaping the learning experience, likewise stand out as major challenges of the blended model (López Collazo et al., 2021). This issue frames much of the reflection on how the TLP should be conceived methodologically, and on the need to understand how political, theoretical, and pedagogical positions interact once they reach actual practice.

Some authors emphasize the digital divides that constrain equitable access to technology whenever it mediates teaching and learning (Seclén Medina et al., 2025). Others have concentrated on demonstrating how important communication and feedback management are in virtual settings for reducing student isolation (Quintero Chávez, 2024). Still others give priority to pedagogical strategies aimed at student motivation and engagement within blended environments (Zhou & Zhang, 2025).

These considerations are essential for designing policies and practices that can ease existing difficulties while capitalizing on the transformative potential of this modality. Doing so requires recognizing that the emergency-driven nature of this transition will only succeed if pedagogical decisions are contextualized to the actual conditions of participants and settings.

The teaching staff of the Bachelor's degree programme in Education, Pedagogy-Psychology, at the University of Cienfuegos (UCf) saw a need to explore faculty and student perceptions during the second term of the 2025-2026 academic year. The research problem was framed as follows: what potentialities and needs do faculty and students identify regarding the implementation of the blended modality within the program? The corresponding objective was to identify the potentialities and needs associated with implementing the blended modality in the UCf program.

The rationale for the study established an up-to-date, well-grounded frame of reference for understanding the current situation, from which the benefits and obstacles could be used to outline the key aspects of implementation.

Methods and materials

This study was exploratory and descriptive in nature and followed a mixed-methods design, combining qualitative and quantitative approaches to make sense of what the blended modality means and represents under the current conditions of Cuban higher education. The methodological orientation acknowledges the modality's potential for knowledge construction on the part of participants themselves, as well as the weight given to pedagogical decision-making.

The reference population consisted of the students and faculty of the Bachelor's degree programme in Education, Pedagogy-Psychology, in Cienfuegos during the second term of the 2025-2026 academic year. Given the exploratory nature of the study and the accessibility of participants, non-probabilistic, purposive sampling was used. The 52 students and 25 faculty members were selected based on convenience and on the point at which the information gathered reached saturation. All participants met the inclusion criteria, which required being enrolled in the program, having taken part in at least one blended-modality activity, and providing informed consent to participate in the study.

Methodologically, the study unfolded across three sequential phases. The research team from the UCf's Psycho-Pedagogical Support Unit first designed and administered a structured online questionnaire to the 52 students. Its construction drew on analytical indicators such as the challenges posed by the blended modality, concerns about overall well-being, technological competencies, connectivity and communication dynamics, and the areas that should presumably be covered by psycho-pedagogical guidance efforts during the transition. Content validity was established through expert judgment, with five doctoral-level specialists experienced in higher education assessing the relevance of each item. A pilot test with ten students preceded full administration and allowed the instrument to be refined. The questionnaire itself was completed anonymously and on a voluntary basis.

Twenty-five faculty members from the UCf's Education program were then convened into focus groups to examine their perspectives on the blended TLP. Three groups were formed, each running for 45 minutes, using a semi-structured guide that had likewise been validated by the specialists and that addressed the potential and limitations of the modality, digital-training needs, communication management, and the assessment of learning. Sessions were recorded with participants' authorization and later transcribed for analysis.

In the final phase, informed consent was obtained from the members of the relevant WhatsApp groups, and a content analysis was carried out on these chats, which function as informal spaces for feedback between faculty and students. To protect confidentiality, participant-identifying data were removed and messages were coded in aggregate form. Records from the first ten weeks of the second term

of the 2025-2026 academic year were considered, from which the basic analytical categories of the study were established.

Quantitative data from the questionnaire were processed as frequencies and percentages, whereas the qualitative data from the focus groups and the chats were examined through content analysis. Source triangulation (students, faculty, chats) and method triangulation (questionnaire, focus groups, and documentary analysis) were both used to ensure the validity and credibility of the findings.

This analysis was rounded out by a theoretical and methodological review of the pedagogical demands the blended modality imposes, providing a basis for understanding its shortcomings and for making the most of contextual opportunities to safeguard the quality of the TLP. At the same time, weighing theoretical positions against empirical evidence helped shape the ideas that inform the discussion and decision-making that follow. Sources for this review were selected through searches conducted on engines such as Google and in academic databases, with priority given to Latin American and Cuban publications as a matter of rigor in contextualizing the study.

Results and discussion

The exploratory work carried out in the first stage revealed that the shift to the blended modality in higher education was, unsurprisingly, a real challenge for both faculty and students, one reflected in the perceptions and methodological decisions they adopted in response to this emergency implementation. For faculty, experience gained during the pandemic serves as a positive point of reference; nevertheless, a noticeable degree of uncertainty persists, largely because the pedagogical and didactic demands of this process are shaped by the worsening energy crisis and by how administrators, faculty, and students themselves understand the process.

In the preliminary methodological discussions, a pragmatic, emergency-response mindset tended to overshadow the significance of this kind of transition, and reusing resources already developed for the distance or in-person modalities was seen as a viable option. While that is a reasonable move in itself, the requirements of blended learning in Cuban higher education are formally set out by the Ministry of Higher Education (MES, 2022), and they call for a distinct kind of teaching organization.

The program's methodological work accordingly followed the instructions to begin this transition in the second academic term of 2025-2026. In line with institutional regulations, virtual classrooms were updated and expanded. Each instructor took ownership of the process, and course coordinators, with varying degrees of success, worked to bring greater coherence to the methodological design of study guides and educational resources, while also setting up the interactions required for both in-person and remote activities.

Simply correcting the methodological shortcomings inherited from transferring the pedagogical framework used for in-person and distance modalities

was not enough on its own. Technical difficulties and problems accessing virtual platforms were identified early on, along with limitations in students' technological and study skills; more broadly, the process exposed the absence of a clear pedagogical framework for structuring interactions between students and faculty.

Along similar lines, behaviors associated with a degree of procrastination were also observed, including complaints, pushback against assignments, and difficulties managing time, all of which were read as forms of resistance, frustration, or tension stemming from a limited understanding of connectivity problems. This state of affairs pointed to risks that needed to be controlled to ensure that objectives were met, particularly with respect to building the skills required to sustain learning in virtual environments.

Information gathered from the year-group teaching teams, and from lead instructors (PPA) in particular, regarding how the process was actually unfolding became the focal point for reflection among faculty and counselors at the Psycho-Pedagogical Support Unit. Working meetings concluded that a closer look at student and faculty opinions was needed in order to contextualize any guidance proposals, and it was on this basis that the study's results went on to inform subsequent decision-making.

The questionnaire showed that students (see Table 1) viewed the blended modality mainly as an opportunity for greater flexibility (92.3%; n = 48), better use of study time (78.8%; n = 41), and access to digital resources (59.6%; n = 37), which in turn made it easier to balance personal responsibilities, findings consistent with Area Moreira et al. (2023). More than half of respondents, however, reported difficulties with internet connectivity and access to devices (65.4%; n = 34). Lack of motivation came up repeatedly as well, cited by 55.8% (n = 29) as an obstacle to self-managed learning, alongside difficulties understanding instructions (48.1%; n = 25) and maintaining effective communication (42.3%; n = 22), results that align with the findings of Seclén Medina et al. (2025) on digital divides.

Table 1

Student perceptions of the blended learning modality

Category	Aspect	Percentage	n (Students)
Perceived benefit	Flexibility and work-life balance	92.3 %	48
	Optimization of study time	78.8 %	41
	Access to digital resources	59.6 %	37
Challenges encountered	Internet connectivity / Devices	65.4 %	34
	Lack of motivation	55.8 %	29
	Comprehension	48.1 %	25
	Effective communication	42.3 %	22

Source: Own elaboration.

Note. Percentage calculated based on a total of 52 students.

The 25 faculty members who took part in the focus groups likewise shared their views on blended teaching (Table 2). They recognized its potential for optimizing resources, noting, for instance, that "we've been able to reorganize the virtual classrooms in Moodle more effectively." They also saw openings for innovative methodologies, which push them "to be more creative, to look for other ways of teaching that we hadn't explored before." These remarks point to a generally positive assessment of the modality, though one that faculty tied closely to resource availability and institutional support.

Concerns about additional workload nevertheless surfaced. Faculty agreed that moving toward blended learning under current conditions demands attention to the specific nature of the process, since, as one participant put it, "it feels like doing two jobs, one for the in-person side and another for the virtual one." This duality in managing content and pedagogical strategies emerged as a key factor in assessing the modality's long-term sustainability. Participants stressed the need to spell out the methodological considerations required to meet the challenges of this transition, and both formal and informal guidelines were identified that year-group teams and individual instructors would need to secure, while also reconciling the broader considerations underlying the process (Bossolasco et al., 2024).

Technological availability and sound pedagogical guidance thus stand out as key to the success of the TLP. Integrating virtual and in-person activities is essential, even where students face connectivity difficulties (Cedeño Granda et al., 2024). Students in this context were found to experience recurring network-access problems, which pointed to the need for additional digital educational resources that could support autonomous learning while remaining aligned with pedagogical objectives.

Looking more closely at how students actually use these resources, however, shows that most consult the study guides directly in the virtual classroom, while some obtain them instead through files shared by classmates. Educational resources do foster interaction, which is precisely why this aspect needs to become a central concern in guidance efforts going forward. On this point, faculty warn that "when the required readings are long and somewhat difficult to work through, and students struggle to identify the key points, they give up on that kind of study and turn to AI tools as a source of knowledge instead." This suggests that blended learning needs to be built around instructor-designed resources that actively encourage students to construct their own knowledge.

Examining experiences from the first weeks of implementing blended learning surfaced a range of needs and proposals. Faculty agreed, on one hand, that the modality offers a real opportunity to sustain the TLP under present conditions. On the other, they flagged the need to build specific digital competencies and called for urgent training in virtual educational resources, strategies for using them, and ways of improving interactivity within the TLP, particularly given the sense, as one participant put it, that "technology keeps moving forward and we're being left

behind." Teacher-student interaction emerged as a key challenge, especially regarding the quality of feedback and personalized follow-up. Faculty noted that "it's hard to know whether a student really understood, and giving feedback the way you would in a classroom becomes complicated," adding that "it's worrying that the students who need the most support are the ones who risk falling behind."

Table 2

Benefits and challenges perceived by faculty in blended teaching

Category of analysis	Perceived benefits	Needs	Challenges
Resource and methodological management	Optimization of institutional resources. Better time management. Opportunities for more dynamic teaching formats.	Managing resources and methodologies for the virtual TLP.	Optimizing and harmonizing in-person and virtual activities.
Competencies and support	Willingness toward continuous improvement.	Limited knowledge of how to use technological tools.	Designing suitable educational resources and activities for the blended modality.
Teacher-student interaction	Fosters an affectively personalized relationship within the process.	Quality of feedback. Development of rubrics.	Ensuring student comprehension. Aligning assessment.
Assessment	No data	Aligning assessment	Ensuring the sustainability of learning.

Source: Own elaboration.

Note. Based on a qualitative analysis of focus groups with 25 faculty members.

Consistent with the above, faculty identify resource optimization and improved time management as the modality's main benefit, which matches the potential highlighted by Cano Lassonde (2025). At the same time, they feel that in-person and virtual activities should be treated as a single, unified process, and that assessment in particular carries significant needs and challenges. These difficulties can be traced back to gaps in faculty training for handling the change, as well as to the absence of agreed-upon methodological guidelines. Both factors deepen uncertainty about whether student learning is actually being achieved, which is why faculty single out psycho-pedagogical support for this transition as a priority for the program going forward, with the aim of reaching consensus on methodological practice.

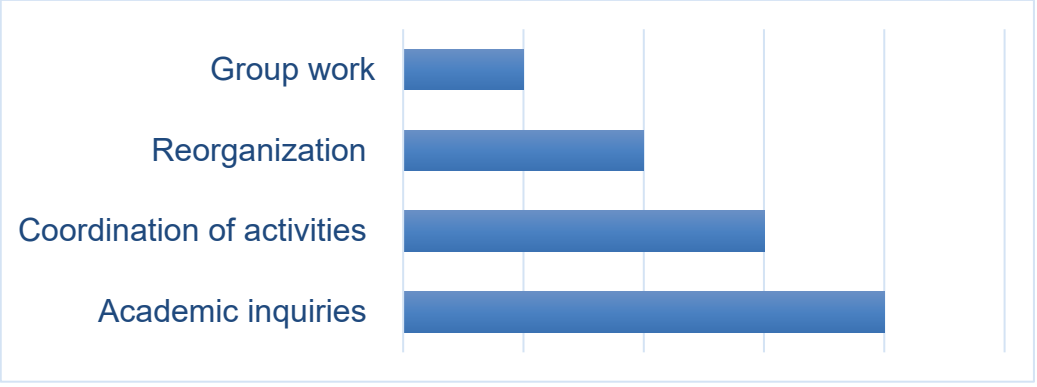
Teacher-student communication was examined in greater depth as well. For this purpose, a content analysis was conducted on the WhatsApp chats used by year-group teams, which bring together students and faculty from the same academic

year. The results pointed to a predominantly asynchronous style of communication, with clear intent driving each message from the sender's side. Looking more closely at what students were trying to accomplish through these exchanges, the analysis found that they use the chats to expand on information, confirm their understanding, resolve immediate academic doubts, and voice the difficulties they face in completing assigned activities.

Faculty, for their part, use the chats to encourage exchange in response to academic queries, to coordinate changes or adjustments, and to circulate announcements and reminders about assignments and assessments. They also offer more extended explanations and propose adaptations to activities and to how group work is organized. Figure 1 shows the thematic breakdown of these conversations: academic queries and adaptation-related exchanges account for the highest frequency of messages, followed by group work and activity coordination.

Figure 1

Frequency of messages by thematic category in class group chats (WhatsApp)



Source: Analysis of class group chats (n = 10 weeks of records).

These results echo studies by other authors (Dávila Cisneros et al., 2024; Cano Fragoso, 2025), who likewise confirm that interactions within blended learning can take place either in real time (videoconferencing, chats) or asynchronously. Either way, a supportive system on the instructor's part and active collaboration from students are both required. Instructors, in turn, need to encourage participation among students through collaborative activities and by making the most of existing exchange spaces, an effort that, to be effective, also has to draw on channels for emotional engagement such as chats and feedback spaces.

Along these lines, the analysis of message records revealed considerable concern surrounding assessment. Students voice opinions on evaluation criteria, submission deadlines, academic expectations, and how their learning is being assessed. This concern points to the need to make decisions about task quality and learning verification more transparent and shared, a problem made more acute by the widespread use of AI in completing assignments and by the lack of mechanisms or rubrics for dealing with it.

The study did indeed find that students rely on AI to complete teaching-learning activities, mainly as a quick way of locating and condensing the information they need. This practice appears to be spreading fast, and it raises recurring uncertainty about the mark it may leave on students' training, particularly since overreliance on it can foster a kind of cognitive laziness toward learning, a clearly negative outcome for professional preparation.

Conversations among students themselves proved significant as well: peers share study strategies, resolve doubts with one another (including questions about assessment), and offer each other emotional support when the modality proves difficult. Alongside this, comments about understanding course content and managing one's own time also came up repeatedly, suggesting that these chats, beyond their organizational function, play an informal supporting role within the broader educational experience.

WhatsApp clearly emerges as a valuable learning tool, one that makes it easier for faculty and students to resolve doubts and address problems quickly. This finding is consistent with earlier work: authors such as Osorio Castillo and Tapia Huamani (2023), Arias-Avilés (2024), and Fang and Brown (2024) have shown that widespread use of the platform has reshaped how information is accessed and exchanged, and they highlight its advantages for peer collaboration. Unlike those studies, however, which focus on settings with stable connectivity, the present findings show that under conditions of limited connectivity, WhatsApp becomes more than a collaboration tool, it also turns into a space for emotional support and informal learning management.

Broadly speaking, the literature confirms that although the potential of this modality is widely acknowledged, real challenges remain that still need to be overcome for the process to succeed (González Rojas & Rincón Roldan, 2025). Flexibility and resource optimization are frequently highlighted, yet blended learning also tends to keep in-person and individual activities separate, with activities carried out in physical and virtual settings complementing one another at best. This view narrows the intent behind teaching-learning activities, which should instead be conceived from the standpoint of integration, optimizing media, resources, technologies, methodologies, and strategies to strike the right curricular balance.

This shows up in practice when faculty and students attribute learning difficulties mainly to connectivity and technology-access problems, when what is actually needed is to create alternatives that let the process move forward regardless. That said, discussions with the faculty and students in this study make clear that the absence of shared criteria for allocating time, designing tasks, and organizing activities is itself a source of difficulty in managing the blended process.

These findings suggest that the shortcomings observed have multiple causes; at their core, however, lie persistent gaps in faculty preparation for guiding the hybrid TLP. Recent research (Estigarribia et al., 2025; Sosa Zerna et al., 2025) likewise expresses concern over technical problems and virtual-platform access as a constant, widespread condition, one linked to digital divides or technological barriers that undermine equitable access to education.

Students perceive that an unstable connection makes it harder to engage meaningfully with course content and requires that assignments be flexible enough to adapt to their circumstances. This, in turn, feeds student demotivation and instructor frustration, in keeping with what Gómez Cárdenas (2025) has reported. The issue represents a significant point of tension, one already identified in other distance-education settings (García Soto et al., 2020; Covarrubias Hernández, 2024), and it confirms the need for psycho-educational interventions and pedagogical strategies that go beyond simply transmitting content and instead foster genuine didactic innovation.

This gap, consistent with what Rochina Chileno et al. (2024) report regarding the integration of new technologies, constrains the quality of both teaching and learning. It is therefore necessary to move past the rigidity of current platforms toward more personalized learning, engaging faculty and students alike in digital-training and literacy programs centered on developing competencies for virtual environments and on the responsible handling of AI as conditions for success (Güneyli et al., 2024; Witthuhn et al., 2026).

These findings imply that higher education institutions need to pursue a comprehensive strategy geared toward the psycho-pedagogical strengthening that digital literacy and platform adaptability require, together with greater student motivation and improved communication. This means making the design of platforms and educational resources more flexible, but above all, it means implementing psycho-pedagogical guidance programs capable of easing current barriers while building on the opportunities that the blended modality inherently offers.

This helps explain why, given the weight of this transition, institutional and program-level academic leadership must guarantee certain baseline conditions. Guidelines are needed that specify how to steer and integrate the blended TLP, how to guide knowledge construction and the development of skills and attitudes, and how to define the conditions and ways of using virtual educational resources, matched to what institutions can realistically offer, and to the prior knowledge and needs of faculty and students within higher education.

This position is shared by Barcia Alcívar and Santana Sardi (2022) and Hernández Díaz et al. (2019), who argue that implementing the blended modality inherently requires organizational and methodological adjustments. Faculty training is emphasized in particular, so that instructors are equipped to design and develop learning experiences that are autonomous, self-regulated, and proactive.

This calls for a flexible instructional design, one that sequences the use of educational resources appropriately and encourages authentic, continuous, formative assessment. Putting these measures into practice will remain a subject of theoretical analysis and practical follow-up within the program, as part of the broader system of scientific, methodological, and guidance work that the Psycho-Pedagogical Support Unit carries out on the program's behalf.

Conclusions

The shift toward blended education in Cuban higher education is proving to be a complex process, given the emergency conditions that characterize both the national and global context. Adopting it nonetheless brings recognizable benefits for optimizing resources and advancing educational inclusion, even as it raises a set of interconnected challenges that call for a comprehensive strategy.

This study confirms that implementing the blended modality involves a mix of benefits, needs, and challenges. It broadens both study and communication skills, although the skills tied to working in virtual environments still take priority and remain a recognizable source of uncertainty. This, together with ongoing problems around motivation, access, connectivity, and assessment, emerges as a shared concern among faculty and students, one that ultimately conditions how successful the blended teaching-learning process can be.

Among the priorities for consolidating this modality within Cuban higher education, faculty training in the blended model stands out; at the same time, designing and implementing psycho-pedagogical guidance strategies for both faculty and students remains necessary to secure sound teaching-learning experiences.

The findings presented here open up new lines of research: designing pedagogical models that bring together in-person and virtual activities as a single, unified process; examining the impact of artificial intelligence on the assessment of learning; and studying the emotional dimension of the student experience.

References

Alpízar Santana, M., Velázquez Saldívar, R., & García Báez, R. (2025). Medio siglo del sistema cubano de educación superior. Propuesta de periodización. *Islas*, 67(210), e1516. https://islas.uclv.edu.cu/index.php/islas/es/article/view/1516/1216

Area Moreira, M., Bethencourt-Aguilar, A., & Martín-Gómez, S. (2023). HyFlex: Enseñar y aprender de modo híbrido y flexible en la educación superior. *RIED-Revista Iberoamericana de Educación a Distancia*, 26(1), 141–161. https://doi.org/10.5944/ried.26.1.34023

Arias-Avilés, M. M. (2024). Impacto del WhatsApp en el proceso de aprendizaje virtual de los estudiantes. *Episteme Koinonía*, 7(13), 168–185. https://doi.org/10.35381/e.k.v7i13.3212

Armas Alba, L., & Alonso Rodríguez, I. (2022). Las TIC y competencia digital en la respuesta a las necesidades educativas especiales durante la pandemia: Una revisión sistemática. *Revista Internacional de Pedagogía e Innovación Educativa*, 2(1), 11-48. https://doi.org/10.51660/ripie.v2i1.58

Barcia Alcívar, L. E., & Santana Sardi, G. A. (2022). Fundamentación teórica de la estrategia metodológica para el desarrollo vocacional en los estudiantes de Educación General Básica de la Unidad Educativa Fiscomisional "Sathya Sai". *Polo del Conocimiento*, *7*(7), 1260-1287. https://doi.org/10.23857/pc.v7i7

Bossolasco, M. L., Carreras, M. P., Torres Stockl, C. M., & Chiecher, A. C. (2024). ¿Enseñanza presencial, virtual o semipresencial? Tendencias en docentes de

educación superior en el contexto de postpandemia. *Praxis Educativa*, *28*(2). https://doi.org/10.19137/praxiseducativa-2024-280210

Cano Fragoso, M. A. (2025). La interacción en los procesos sincrónicos de enseñanza-aprendizaje en entornos virtuales. Estudio de caso colectivo. *RAES - Revista Argentina De Educación Superior*, 31, 26-40. https://revistas.untref.edu.ar/index.php/raes/article/view/2503

Cano Lassonde, O. M. (2025). Innovación metodológica en la educación superior: Empleo de estrategias activas en modalidades presencial y virtual. *Actualidades Investigativas En Educación*, *25*(3), 1-40. https://doi.org/10.15517/ried.26.1.34023

Cedeño Granda, S. A., Encalada Jumbo, F. C., Elizalde Zapata, J. A., & Pintado Jiménez, M. M. (2024). Estrategias didácticas para la inserción de la tecnología en la educación. *Revista Social Fronteriza*, *4*(3), e43286. https://doi.org/10.59814/resofro.2024.4(3)286

Contreras Cruz, G. A., Benítez Contreras, K. X., & Benítez Contreras, K. E. (2025). La mediación pedagógica en la modalidad semipresencial: Retos y oportunidades. *Ciencia Y Educación,* 6(6.1), 1051-1064. https://doi.org/10.5281/zenodo.17149994

Covarrubias Hernández, L. Y. (2024). Educación a distancia: transformación de los aprendizajes. *Telos: Revista De Estudios Interdisciplinarios En Ciencias Sociales, 23* (1), 150-160. https://doi.org/10.36390/telos231.12

Cunningham -Bell, J. C., Ransley, S., Brar, S., Limniou, M., Raja, M., & Hands, C. (2026). Navigating the University Transition: The Role of Social Media in Student Wellbeing and Adjustment. *Trends in Higher Education, 5*(3), 54. https://doi.org/10.3390/higheredu5030054

Dávila Cisneros, J. D., Fernández Celis, M. P., Tello Flores, R. Y., & Puican Carreño, A. (2024). Análisis de la comunicación alumno-profesor en la enseñanza universitaria. *Episteme Koinonía,* *7*(14), 40-62. https://doi.org/10.35381/e.k.v7i14.4064

Díaz Zavala, R. M., Cuadros Paz, L. E., Esquivel Las Heras, J. A., Cuadros Linares, L. D., & Huerta Tapia, S. (2025). Nuevo modelo educativo universitario para el mundo globalizado. *Colloquium Biblioteca*. https://colloquiumbiblioteca.com/index.php/web/article/view/174

Dopelt, K. (2026). The Impact of Social Media on Public Health and Education: Mechanisms, Vulnerabilities, and Policy Implications. *European Journal of Investigation in Health, Psychology and Education*, *16*(3), 43. https://doi.org/10.3390/ejhpe16030043

Estigarribia, O., Le Gall, L., & Morenate, R. (2025). Tecnología, equidad y aprendizaje: un análisis de la inclusión y exclusión educativa en la enseñanza universitaria mediada por TIC. *Revista de Educación*, *35*(1), 47-74. https://fh.mdp.edu.ar/revistas/index.php/r_educ/article/view/8810

Fang, J., & Brown, G. T. L. (2024). Academic Success at Social Costs: An Exploratory Study on Social Networks of Chinese Students under Academic Streaming. *European Journal of Investigation in Health, Psychology and Education*, *14*(1), 164-180. https://doi.org/10.3390/ejihpe14010011

Fontenelle-Tereshchuk, D. (2025). First-Year College Students: Perspectives on Technology and Wellness in Education. *Trends in Higher Education*, *4*(1), 13.

https://doi.org/10.3390/higheredu4010013

García Soto, G. Y., García López, R. I., & Lozano Rodríguez, A. (2020). Calidad en la educación superior en línea: un análisis teórico. *Revista Educación*, *44*(2), 466-482. https://www.scielo.sa.cr/pdf/edu/v44n2/2215-2644edu-44-02-00466.pdf

Gilles Dufrénot & Takashi Matsuki (2026). Introduction: Mapping the challenges of a world in transition. En Gilles Dufrénot & Takashi Matsuki (Eds.), *Challenges of global economic and social transformations: Financial markets, structural change and economic development* (1-6). Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-06022-8

Gómez Cárdenas, N. (2025). Equilibrio académico: Motivación y procrastinación en tiempos de cambio. *Tradición*, *25*(1), 117-125. https://doi.org/10.31381/tradicion.v25i1.7675

González Rojas, A., & Rincón Roldan, F. (2025). La flexibilidad de los recursos humanos en el modelo cooperativo. *REVESCO. Revista de estudios cooperativos*,151, e106332. https://dx.doi.org/10.5209/REVE.106332

Güneyli, A., Burgul, N. S., Dericioğlu, S., Cenkova, N., Becan, S., Şimşek, Ş. E., & Güneralp, H. (2024). Exploring Teacher Awareness of Artificial Intelligence in Education: A Case Study from Northern Cyprus. *European Journal of Investigation in Health, Psychology and Education*, *14*(8), 2358-2376. https://doi.org/10.3390/ejihpe14080156

Hernández Díaz, A., González Hernández, M., & Viñas Pérez, G. (2019). Estrategia de formación docente y modalidad semipresencial. *Conrado*, *15*(66), 145-155. http://scielo.sld.cu/pdf/rc/v15n66/1990-8644-rc-15-66-145.pdf

Hidalgo Parrales, L. K., Choez Aranea, J. J., Quijije Quiroz, K. P., & Bacusoy Sánchez, C. L. (2025). Estrategias pedagógicas para la Educación Superior en Entornos Virtuales: desafíos y oportunidades para los docentes universitarios. *Revista Científica De Innovación Educativa Y Sociedad Actual "ALCON"*, *5*(4), 403–414. https://doi.org/10.62305/alcon.v5i4.767

López Collazo, D. Z. S., Dávila Valdés, D. Y., & Robaina Santander, D. M. (2021). Hacia una discusión teórica sobre el lugar de las TIC en el proceso de enseñanza-aprendizaje. *Ciencias Pedagógicas*, *14*(1), 153–164. https://www.cienciaspedagogicas.rimed.cu/index.php/ICCP/article/view/293

Ministerio de Educación Superior de la República de Cuba. (2022). Reglamento organizativo del proceso docente y de dirección del trabajo docente y metodológico para las carreras universitarias (Resolución No. 47/2022). *Gaceta Oficial de la República de Cuba*. https://www.gacetaoficial.gob.cu/es/resolucion-47-de-2022-de-ministerio-de-educacion-superior

Ministerio de Educación Superior. (2026, marzo 19). *Orientaciones del Ministerio de Educación Superior para la continuidad del proceso de formación de pregrado*. [Nota informativa]. https://www.mes.gob.cu/nota-informativa-mes-pregrado/

Morán Apolo, D. A., Lozada Meza, M. L., & Ortiz Vargas, A. A. (2025). *Del aula a la realidad: Innovación, adaptación curricular en salud y educación universitaria*. Ediciones RISEI. https://isbnecuador.com/catalogo.php?mode=detalle&nt=109280

Osorio Castillo, E. M., & Tapia Huamani, J. (2023). El aprendizaje colaborativo y el WhatsApp en el campo educativo. *Horizontes Revista de Investigación en Ciencias de la Educación*, *7*(27), 302-306. https://doi.org/10.33996/revistahorizontes.v7i27.515

Pedraza López, B. (2023). Educación y Formación Permanente: Nuevas habilidades y competencias para una empleabilidad sostenible en el contexto socioeconómico y laboral actual. *Alternancia - Revista De Educación E Investigación*, *5*(9), 107–122. https://doi.org/10.33996/alternancia.v5i9.1111

Quintero Chávez, C. T. (2024). Integración de tecnologías de la información y la comunicación en el proceso de enseñanza-aprendizaje de entornos virtuales de aprendizaje. *Didasc@lia: Didáctica y Educación*, *15*(1), 418–448. https://revistas.ult.edu.cu/index.php/didascalia/article/view/173

Rochina Chileno, S. C., Duarte Mora, M. J., Macanchí Pico, M. L., & Tipantuña Soria, E. G. (2024). Transformación educativa en el siglo XXI: Integración de Tecnologías Emergentes para el Aprendizaje Efectivo. *Reincisol*, *3*(6), 6092–6109. https://doi.org/10.59282/reincisol.V3(6)6092-6109

Seclén Medina, A., Valladares Cisneros, M. G., Ordóñez Zea, A. E., & Gamarra Rojas, S. (2025). Modelos híbridos y metodologías de aprendizaje activo en la educación superior: enfoques innovadores para potenciar la participación estudiantil y el desarrollo de la autonomía académica. *Revista Social Fronteriza*, *5*(6), e958. https://doi.org/10.59814/resofro.2025.5(6)958

Simon, P. D., & Zeng, L. M. (2024). Behind the Scenes of Adaptive Learning: A Scoping Review of Teachers' Perspectives on the Use of Adaptive Learning Technologies. *Education Sciences*, *14*(12), 1413. https://doi.org/10.3390/educsci14121413

Sosa Zerna, R. K., Obando Melo, E. E., Pullotasig Yugcha, L. A., Mamarandi Llumiquinga, M. G., & Flores Miño, C. P. (2025). Desigualdad en el Acceso a la Educación Digital: Desafíos y Soluciones para la Equidad. Ciencia *Latina Revista Científica Multidisciplinar*, *9*(1), 10972-10990. https://doi.org/10.37811/cl_rcm.v9i1.16679

Ureña-Villamizar, Y. C., Jaimes-Rodríguez, J. A., Jiménez-Ruiz, L. K., Berbesi-Sánchez, J. D., & Fernández-Delgado, M. K. (2025). Reingeniería de procesos de cualificación del profesorado universitario en entornos virtuales de aprendizaje a través de la plataforma Moodle. *AiBi Revista De Investigación, Administración E Ingeniería*, *13*(3), 1-18. https://doi.org/10.15649/2346030X.5073

Witthuhn, N., Sibiya, M., & Sumbwanyambe, M. (2026). Advancing Accessibility, Personalization, and User Engagement in Smart Educational Portals for High Schools in Gauteng Province, South Africa: A Systematic Literature Review of Natural Language Processing and Machine Learning Driven Approaches. *Education Sciences*, *16*(7), 1048. https://doi.org/10.3390/educsci16071048

Zhou, Q., & Zhang, H. (2025). Flipped Classroom Teaching and ARCS Motivation Model: Impact on College Students' Deep Learning. *Education Sciences*, *15*(4), 517. https://doi.org/10.3390/educsci15040517

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Miguel Alejandro Pérez Egües 2: Data curation, Formal analysis, Investigation, Resources, Supervision, Validation/Verification, Visualization, Writing/original draft, and Writing, review, and editing.
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Erwin Guerra Domínguez 4: Data curation, Formal analysis, Investigation, Resources, Validation/Verification, Visualization, Writing/original draft.
Lisbet Marina Fuentes Morfa 5: Data curation, Formal analysis, Investigation, Resources, Validation/Verification, Visualization, Writing/original draft.

Special Acknowledgments:

Financing:

Own resources