Students' perceptions towards blended learning modality after COVID-19 pandemic: a case study

Percepciones de los estudiantes respecto a la modalidad mixta posterior a la pandemia de COVID 19: un estudio de caso

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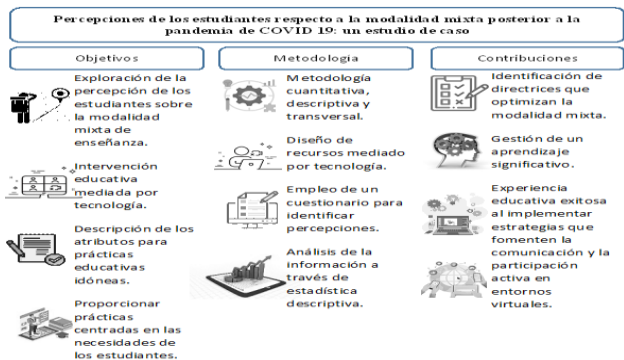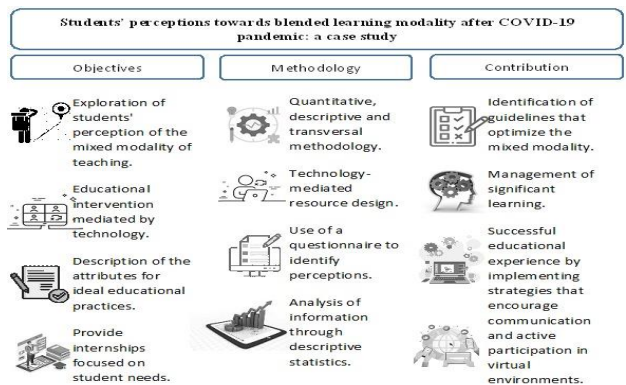
Abstract

The research explores the students' perception of the Blended learning modality to describe its attributes to facilitate decision-making in favor of good educational practices at the higher level. A quantitative, descriptive, and cross-sectional methodology was used based on a perception questionnaire applied to 60 students immersed in the modality under study. The results indicate that students value its usefulness, effectiveness, ease of use, and benefits such as flexibility, accessibility, updated, personalized and multi-format learning. The conclusions indicate that the educational experience is successful if strategies are implemented to encourage communication and active participation in virtual environments. This study contributes to identifying guidelines that optimize the blended modality to promote meaningful learning and offers guidelines for teachers' appropriate practice implementation that responds to the needs of students.

Resumen

La investigación explora la percepción de los estudiantes sobre la modalidad mixta de enseñanza, con el objetivo de describir sus atributos para facilitar la toma de decisiones en pro de buenas prácticas educativas en el nivel superior. Se utilizó una metodología cuantitativa, descriptiva y transversal a partir de un cuestionario de percepciones aplicado a 60 estudiantes inmersos en la modalidad sujeta a estudio. Los resultados indican que los estudiantes valoran su utilidad, efectividad, facilidad de uso, y beneficios tales como la flexibilidad, la accesibilidad, el aprendizaje actualizado, personalizado y con multiformato. Las conclusiones indican que la experiencia educativa es exitosa si se implementar estrategias que fomenten la comunicación y la participación activa en entornos virtuales. Este estudio contribuye a la identificación de directrices que optimizan la modalidad mixta para promover un aprendizaje significativo y ofrece pautas para docentes en la implementación de prácticas adecuadas que respondan a las necesidades de los estudiantes.

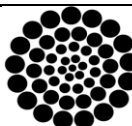**Attributes, Blended learning modality, Perceptions**

Atributos, Modalidad Mixta, Percepciones

Introduction

One of the modalities that gained relevance in the educational field after the pandemic, especially in language learning, is the mixed modality that combines virtual and face-to-face classes, relying on technological mediation and experiencing a radical change in teaching-learning methods.

This emergence triggers opportunities for the appropriation of knowledge and, at the same time, challenges for the main actors of the curriculum (teachers and students), impacting their roles during the educational process.

In this regard, various studies indicate that the most valued dimensions of this modality are access to interactive educational resources without limitations of time and space, flexibility for learning according to the learning styles and availability of users, and collaborative work through interaction that allow the construction of significant knowledge, among others (Bates & Sangrà, 2011; Hwang et al., 2012; Means et al., 2013; Jaggars and Xu, 2016).

Moreover, research points out the multiple challenges teachers and students face when entering this modality, such as educational quality due to work flexibility and the lack of social interaction.

These also impact the academic performance that is the digital divide reflected in the availability of adequate equipment and Internet connection, the use of digital tools, and content design and implementation (Barbour and Plow, 2013; UNESCO, 2020; Allen and Seaman, 2017).

For the particular case of the study context where a mixed modality has been implemented to prepare future teachers in the teaching of the English language, specifically in the subject of English teaching methodology I, it is imperative to investigate the perceptions of said students due to that low academic performance is observed in this population so that, based on the characterization of said modality, decisions can be made in favor of good educational practices that impact their training and academic performance.

Theoretical framework

This modality, also called combined learning or Blended Learning, has its origins in the 2000s when institutions decided to include technology in training processes with the purpose of complementing face-to-face education.

However, its rise increased significantly after the pandemic caused by COVID-19, which is a watershed that frames new educational forms, among which this one is found. Its methodology combines online and in-person learning, allowing a personalized environment according to the student's learning styles as well as their schedule availability (Graham, 2013). In this regard, Garrison and Vaughan (2008) describe it as a means to potentiate the construction of knowledge comprehensively in virtual and face-to-face scenarios, privileging interactions at different moments, which contribute to significant learning in long-term memory. At this point, it is crucial to mention that a fundamental factor for such meaningful learning is the autonomy and responsibility of the student during the construction process.

It means that student commitment and participation through collaborative work are dimensions that the teacher must develop in his students. In fact, the study by Dziuban et al. (2018) shows how collaborative work under a mixed modality positively impacts student performance.

This modality represents an innovative pedagogy in contemporary education as a response to the demands of a multifaceted society that operates in a digital environment. However, as educational organizations implement information and communication technologies (ICT), learning and knowledge technologies (LKT), and Empowerment and Participation Technologies (EPT), teachers and students face new challenges in terms of implementation and use. Therefore, knowing what the learning process is like in this modality is essential for future teachers and potential users.

Characteristics of Blended Learning

Teaching under this pedagogical approach aims to privilege access to knowledge, adapting to the learning rhythms and needs of students under a globalized context permeated by technological transformation.

Taking this background into account, its main characteristics are mentioned in the following lines.

Self-directed learning. The hybrid scenario guides students to develop learning through an active role in the search for materials (Hattie, 2009), organization of study schedules, collaborative work and interactions, and an environment conducive to privileging self-regulation and therefore intrinsic motivation.

Autonomy. Acting and deciding are essential actions in this modality to manage resources and study times (Kuhlthau, 2016 and Bonk & Graham, 2020), work collaboratively and responsibly, and in general establish where, how, and at what time learning is done appropriately independently mediated by technological (Johnson, 2021).

Collaboration. This aspect allows meaningful learning to be carried out from the shared educational experiences in the hybrid scenario, giving a sense of belonging to a community (Johnson et al., 2018). In fact, this shared responsibility favors academic performance by developing teamwork and leadership skills which help to face the obstacles of a globalized work world (Hattie & Donoghue, 2019).

Interactivity. Being a modality that involves technology, the interaction between the actors of the curriculum is favored at different times and spaces instantly (Sadaf & Zuvela, 2020), facilitating the creation of learning communities where its members are motivated and participate in forums, chats, and video conferences.

It should be noted that this interaction also occurs with digital materials where the student chooses when and how to interact, which contributes to active and meaningful learning.

Cultural diversity. A distinctive element of the mixed modality is the cultural perspective (Martínez and Pérez, 2022) since integrating digital resources from different contexts and in various languages, traditions, customs, lifestyles, and forms of communication are appreciated, allowing analysis and understanding of realities from different angles.

In other words, the modality destroys socioeconomic and geographic barriers, allowing students to invest in a multicultural and intercultural educational environment (Gómez, 2023 and Ramírez, 2023)

Continuous evaluation. The mixed modality includes continuous evaluations (varied and integrated) since constant feedback and adaptation of teaching strategies are required for successful learning, among which are projects, teamwork, self-evaluations, co-evaluations, and hetero-evaluations.

At this point, it is worth highlighting that the purpose of continuous evaluation is to stimulate self-assessment and reflection in students in favor of metacognition, which arises from hybrid activities (Martín et al., 2022) through the collaborative or individual online work and face-to-face projects (Pérez & Gómez 2023), resulting in lasting and significant learning.

Digital skills. It is a methodology mediated by technology, an essential attribute for its users is the possession or development of digital skills that allow them to manage and use tools for interaction with the content and their learning community, and these, in turn, connect them with the global world of work (Llorente & Rodríguez 2021 and González & Martínez 2022).

In this regard, Pérez & López (2023) state that these competencies promote an inclusive hybrid education that reduces gaps in use and access to technology, providing students with elements for a digitalized environment.

Other characteristics of this modality lie at the operational level, which makes it comprehensive and innovative. Some of them are:

The virtual modality has no temporal or spatial boundaries, which contributes to the accessibility of knowledge (Eynon & Malmgren, 2019 and González & Ramírez, 2020). This variability leads to another characteristic called flexibility, where students can choose the times and locations to study and work with their digital community, a highly appreciated aspect in today's society where students can balance their multiple responsibilities (work, family, and school).

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In addition to this, the hybrid modality encourages the personalization of learning by presenting its content through multiple formats (audiovisual and interactive material) that adapt to the needs and learning styles of users in authentic social and cultural contexts

(Pérez, 2021 and Morales & López 2022); an element that motivates them to learn by giving them control over their learning, generating an equitable and inclusive space. These multi-formats guide the diversity of resources that promote permanent participation through digital platforms (Dias & Diniz, 2014).

Last but not least, this hybrid approach reduces costs, allowing educational institutions to optimize their infrastructure-related resources and channel them to other needs for quality education.

The teaching profile in a Blended Modality

In recent years, the hybrid modality has evolved by leaps and bounds, demanding requirements of the teaching profile that permeates their role, methodology, strategies, and content design, among others. The attributes of said teaching profile are mentioned below.

a.   Instructional designer. In face-to-face and virtual modalities, the teacher becomes an instructional designer and must plan so that students can participate in both environments (Romero et al., 2022) and link the activities to the objective to obtain desired results.

b.   Learning facilitator. This dimension refers to the role teachers play in creating a learning environment that combines the virtual and the in-person, including digital technologies in their praxis through collaborative learning that focuses on the interaction of students and content (López, 2023). In this task, the adaptation of the curriculum and its digital design are fundamental pieces to satisfy the demands of the students as well as the inclusion of active methodologies to encourage their interest and active role.

c.   Communicator. As it is known communication is fundamental in the teaching-learning process. At this point, in this modality, the teacher must use different channels (in-person and digital) to keep their students immersed in the teaching dynamics and committed to their learning (Silva & Pérez, 2023).

d.   Evaluator. This role is exhaustive since the design of the evaluation instruments must include digital and face-to-face components under a flexible and receptive approach, focusing their teaching according to student's needs (Fernández, 2023).

e.   Socio-emotional promoter. Taking into account that they work in two different scenarios, teachers must develop the socio-emotional factors in their students (self-control, empathy, assertiveness, frustration tolerance, self-confidence, and responsibility), adapting the educational resources and methodology for meaningful learning (López & Rodríguez, 2022).

f.   Leader. As in any job, leadership plays a fundamental role in praxis. The teacher is a model for his students and a source of inspiration and motivation (Hernández & Torres, 2023).

g.   Mediator. It allows interaction between the actors involved in the educational process. Here, the teacher is a bridge of connection between students and the interactive content, collaboratively promoting exchanges of experiences (Pérez, 2020). Therefore, the role involves managing technological tools to trigger learning and enrich the construction of knowledge, demanding that the teacher not only be a content expert but also in the appropriate use of learning and knowledge technologies.

Methodology

The objective of this study is to describe and characterize the students' perceptions of the mixed teaching modality in the specific context of the subject Methodology of teaching in English I in the bachelor's degree in English teaching at a public university in the State of Puebla.

Article

The research has a quantitative approach with a descriptive scope and cross-sectional, which enables a precise exploration of the opinions of the participants at a specific time.

The sample consists of 55 students who study the aforementioned subject in a hybrid educational context. This selection seeks to obtain an adequate representation of students' perceptions taking into account that the use of hybrid approaches has permeated the educational field, especially after the changes imposed by the pandemic (González & Rodríguez, 2021).

Regarding the instrument used for data collection, a structured questionnaire was applied, based on a Likert-type scale that measures the degree of agreement of the students according to different statements. This questionnaire comprises 60 items, distributed in four categories: usefulness, effectiveness, ease of use, and benefits of the mixed modality.

The choice to measure these dimensions aligns with the literature that indicates the importance of measuring multiple dimensions of the student experience to obtain a broad description to interpret the phenomenon under study (Martínez et al., 2022).

It is worth mentioning that the validity of the questionnaire was carried out through a review process by experts in the area to ensure that the items adequately measure the proposed dimensions to obtain reliable results. The reliability of the questionnaire was calculated using Cronbach's alpha coefficient, obtaining high internal consistency, which reinforces the quality of the data collected.

Data collection was carried out at a single moment (summer 2024) to analyze the phenomenon at a specific time, avoiding possible biases that may arise from temporal variability (López & Fernández, 2023).

To interpret participants' perceptions in a clear and effective way, the data analysis was carried out based on the five aforementioned categories, using descriptive statistical techniques that allow us to visualize the trends and patterns in the students' responses as Pérez & Sánchez (2020) mention.

Results

This section presents the results according to the four categories described in the methodology.

Box 1

Table 1

Usefulness of the modality. M=Mean, Mdn=Median, SD=Standard deviation

Dimension	M	Mdn	SD
Interactive communication through applications	4.3	4.0	0.5
Learning accessibility	4.6	4.6	0.5
Flexibility in terms of time and space	4.4	4.1	0.4
Technology-mediated assessment	3.9	4.2	0.5

Interactive communication through applications gave an average of 4.3, which indicates a positive perception of the respondents. The median of 4.0 shows that a high number of students value this dimension positively, even though the standard deviation is 0.6 which indicates some variability in the responses.

According to Moreno et al. (2021), tools that allow interactive communication promote students' commitment to their learning process.

This highlights the importance of using technological tools that contribute to interaction in a learning environment.

Regarding accessibility to learning, a mean and median of 4.6 and a standard deviation of 0.7 were obtained. These data show high satisfaction with the accessibility offered by digital tools.

For Gómez and Pérez (2022), accessibility is an essential element for students to adopt self-managed learning. In addition, this factor is decisive in breaking down the technological barriers that limit learning opportunities.

Flexibility in terms of time and space showed a mean of 4.4 and a median of 4.1, which reflects a positive assessment. About the standard deviation, a value of 0.4 was obtained, showing high cohesion in the various questions. It shows that the majority of participants are favored with this flexibility.

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According to Ramírez (2023), flexibility in the educational process allows students to manage their time and space according to their learning needs and the context in which they operate, improving their training experience. Therefore, flexibility is a determining factor for the student to adapt to current learning. The technology-mediated evaluation reached a mean of 3.9, a median of 4.2, and a standard deviation of 0.5. These results show a more mixed scenario. Even though the median is positive, the mean shows that some students may have reservations about this approach. According to López (2023), evaluation is a determining challenge in digital environments. However, it also provides opportunities for formative and continuous evaluation.

In conclusion, the data obtained show that, although interactive communication, accessibility, and flexibility are recognized and valued positively, technology-mediated evaluation is a scenario that has a range of opportunities and improvement.

According to Fernández (2022), to insert the use of technology, a detailed approach is required to increase its effectiveness and acceptance. In summary, it is essential to continue exploring and adapting technology implementation to teaching to contribute to meaningful learning experiences.

Box 2

Table 2

Effectivess of the modality based on students' feelings.   M=Mean,   Mdn=Median, SD=Standard deviation

Dimension	M	Mdn	SD
Motivated	4.9	4.8	0.5
Active	4.3	4.5	0.5
Frustrated	0.2	0.1	.9
Confident	4.6	4.7	0.4
Confused	2.1	2.2	0.4

In table 2, the results indicate the average level and variability of participants' responses. In this sense, the motivated dimension shows the highest average (4.9), which means a high level of motivation among the respondents. This result agrees with the statements of Deci and Ryan (2020), who maintain that a hybrid environment that favors autonomy and competition can enhance intrinsic motivation.

The active dimension presents an average of 4.3, which marks a positive aspect but is slightly lower than motivated. This finding is consistent with the idea that physical and mental activity correlates with emotional well-being (Kern et al., 2021). Regarding its closeness to the motivated and active means, motivation can be a precursor to the active state; a fact that reinforces the need to promote motivation in various contexts.

In contrast, the frustrated dimension shows an average of 0.2, which reflects a very low level of frustration, interpreted as an indication that participants feel generally satisfied with their current circumstances. According to Seligman (2022), a low level of frustration is associated with a high level of general well-being, statements that coincide with the results observed in this research.

The secure dimension, with a mean of 4.6, also indicates a high level of trust among the participants. This finding is consistent with literature that highlights the importance of self-confidence in task execution and decision-making (Bandura, 2021). Therefore, the proximity of this measure to that of motivation points out that a state of security can reinforce personal motivation, thus facilitating the construction of meaningful learning.

Finally, the confused dimension, with a mean of 2.1, reveals a moderate degree of confusion among participants, which is not alarming, but it is essential to consider that confusion can hinder learning and adaptation (Nussbaum, 2023). In general, understanding emotions and clarifying goals are crucial to minimizing confusion and boosting levels of motivation and security.

Box 3

Table 3

Intuitive use.   M=Mean,   Mdn=Median, SD=Standard deviation

Dimension	M	Mdn	SD
Logical organization	4.5	4.3	0.4
Friendly user	4.9	4.9	0.5
Immediate feedback	4.6	4.7	0.4
Clear and simple interface	4.3	4.4	0.5
Tutorials	4.1	4.0	0.5

Table 3 presents five dimensions related to the user experience where aspects such as logical organization, user-friendliness, immediate feedback, clarity of the interface, and the availability of tutorials as guides for use are evaluated.

In the dimension of logical organization, the average is 4.5 with a median of 4.3 and a standard deviation of 0.4 that indicates users consider the structure of the content adequate although there is some variability in the responses. In this regard, Nielsen (2022) maintains that good logical organization is crucial to improve navigation and facilitate the user experience.

User-friendliness stands out with a mean of 4.9 and an identical median, indicating high satisfaction. The standard deviation is 0.5, indicating some uniformity in the responses. These facts coincide with the studies of Hassenzahl (2021) arguing that a friendly design improves user satisfaction and encourages greater use of it.

Immediate feedback, with an average of 4.6 and a median of 4.7, is another positive aspect that points out the importance of receiving responses in the interaction with the system. This data aligns with the statements of Bargas-Avila & Hornbæk (2020), who emphasize that immediate feedback maintain the user's attention and motivation in the learning process.

The interface dimension with a mean of 4.3, a median of 4.4, and a standard deviation of 0.5 highlights that there is room for improvement although most users are satisfied with it. In these sense, Garret's (2023) research supports this need, remarking that a simple interface is vital to ensure that users can perform tasks, impacting their academic performance.

Lastly, the tutorials obtain a mean of 4.1 and a median of 4.0, with a standard deviation of 0.5. This suggests that while users find the tutorials useful, there could be opportunities to enrich this offering. According to the research of Mica et al. (2022), effective tutorials are essential for a good user experience, as they make it easier to understand and learn the system.

Box 4

Table 4

Advantages of the blended learning. M=Mean, Mdn=Median, SD=Standard deviation

Dimension	M	Mdn	SD
Ideal for sharing educational resources	4.3	4.3	0.4
Promoter of collaborative work among curriculum agents	4.5	4.5	0.5
Flexibility in terms of space and time	4.1	4.2	0.5
Access to the construction of knowledge in different scenarios	4.2	4.1	0.4
Updated information	4.4	4.3	0.5
Personalized learning	4.5	4.5	0.4
Construction of knowledge through different formats	4.0	4.0	0.5

Table 4 shows how in this context, each of the dimensions contributes to a more collaborative and flexible educational environment.

The first dimension has a mean and median of 4.3 and a standard deviation of 0.4. This indicates a high perception of effectiveness in the use of the platform for the distribution of educational materials. In this vein, Rodríguez (2021) comments that the sharing of digital resources encourages collaboration and active learning between students and teachers, underlining the importance of having tools and platforms that facilitate accessibility to educational content.

The second dimension presents an average of 4.5, which indicates that users consider the modality to be very effective in promoting collaboration, as pointed out by Gómez (2022) when considering that the platforms allow interaction between different actors in the educational process; a key aspect for the development of learning communities. The high score on this dimension highlights the need for a collaborative approach in contemporary education.

The third dimension obtained an average of 4.1, which reflects a positive perception, although slightly lower compared to other dimensions. Flexibility is essential in modern learning, as argued by Pérez (2020), who maintains that the possibility of learning in different contexts and schedules enhances student performance. Therefore, while flexibility is appreciated, there could be areas for improvement.

The fourth dimension yields an average of 4.2, evidencing that the modality is effective in providing access to diverse learning opportunities. These findings coincide with López (2023) in maintaining that the diversity of learning scenarios enriches the educational experience and promotes student autonomy, showing that this ability to access multiple scenarios is crucial in current education.

The fifth dimension also shows a high score with an average of 4.4. This means that updating content is vital in a constantly changing world. As mentioned by Martínez (2021) in his study, the relevance of educational materials depends on their updating and adaptation to the current needs of the labor market. This frames the need to maintain a dynamic database that reflects the evolution of knowledge.

The sixth dimension with an average of 4.5 reveals that users highly value personalization in their educational process. Such customization can be essential to individual students' needs. These results coincide with Fernández (2022) who mentions personalized learning impacts students' academic training and performance. Therefore, the high rating in this dimension shows a positive approach towards adaptive learning.

Finally, the seventh dimension has a mean of 4.0. Although it is an adequate score, it indicates that there is room for improvement in the diversification of learning formats that are related to teachers' digital competencies. As García (2023) says in his study, multiple formats can facilitate students' understanding and interest. Consequently, it is crucial to continue exploring ways to integrate different media for knowledge construction.

In summary, the results reveal that the blended modality is highly valued in collaboration, customization, and access to up-to-date resources. However, potential areas of opportunity are also identified, especially in flexibility and diversification of learning formats. At this point, it is imperative to emphasize that the combination of these dimensions is essential to fostering an educational environment that responds to student's needs in a digital revolution.

Conclusions

In conclusion, the study on perceptions about the mixed modality reveals that this form of teaching is highly valued by its users in aspects such as use, efficiency, and intuitiveness. So, combining face-to-face and online methods facilitates more dynamic and adaptable learning according to the student's appreciation. In addition, collaboration between peers has also been favored, enhancing teamwork and the exchange of ideas and offering constant access to updated resources that significantly enrich the educational process. However, although the results are positive, areas of opportunity have been identified for good learning experiences, which lie in flexibility, specifically in planning activities and the diversification of learning formats, alluding to the possibility to personalize the educational experience further.

Declarations

Conflict of interest

The authors declare no interest conflict. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Author contribution

Flores-González Norma: Contributed to the elaboration of every single section of the article.

Flores-González, Efigenia: Work on the methodology, results and literature review sections.

Castelán-Flores, Vianey and *Zamora Hernandez Mónica:* Helped to collect data.

Availability of data and materials

The analysis of the data was done with SPSS statistical software.

Abbreviations

UNESCO	United Nations Educational, Scientific and Cultural Organization
ICT	Information and Communications Technology

| LKT | Learning and Knowledge Technologies |
| EPT | Empowerment and Participation Technology |

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