V Congreso en Docencia en Educación Superior Codes y I Congreso Latinoamericano y del Caribe de Innovación en Investigación en Educación Superior LatinsoTl La Serena, Chile. 8,9 y 10 de noviembre del 2023

DOI: https://doi.org/10.15443/codes1992

Hybrid Classroom Model at Galileo University: Faculty Members' Perspectives and Experiences

Miguel Morales-Chan [0000-0002-8742-8186] Carla Sandoval [0000-0002-2812-6321] Flor Sagastume [0000-0002-7261-7945] and Milvia Rosales [0000-0002-0398-8785]

Universidad Galileo, Guatemala
amorales, c_sandoval, fsagastume y milvia.rosales @galileo.edu

Abstract. Hybrid education represents an adaptive response to the complex and multifaceted demands of the current educational environment. In this context, the Digital Education area at Galileo University developed an initiative to implement a hybrid classroom model. This model encompasses: (a) the conceptualization and design of a robust and coherent technological infrastructure to support hybrid classrooms, and (b) a comprehensive training program for faculty members, focused on hybrid teaching methodology and the efficient utilization of these classrooms. The present study, of a quantitative nature and descriptive approach, articulates and evaluates the implemented hybrid classroom model, examining its functionality from the perspective of the faculty members who actively participated in this modality. The results obtained reveal that the implemented hybrid model is highly functional. Furthermore, the involved faculty members emphasize that it has facilitated the implementation of strategies that promote meaningful learning among their students.

Keywords: Hybrid Classes, Hybrid Teaching, Hybrid Classrooms, Educational Innovation

1 Introduction

The COVID-19 pandemic has presented unprecedented challenges in the educational realm, compelling institutions to rapidly adapt to new teaching modalities. In response to this global crisis, Galileo University recognized the need to adopt a hybrid approach to teaching, with the aim of ensuring academic continuity in an uncertain and constantly changing environment.

The implementation of this approach required the conceptualization and design of a unique hybrid model that would not only address immediate needs during the emergency, such as live streaming of classes and the development of remote laboratories, but also provide a solid structure for the future.

This design had to be flexible enough to facilitate teaching to both in-person and online student groups simultaneously once a return to normality was possible. This article aims to present and examine the hybrid classroom model implemented at Galileo University by the Digital Education department, evaluating its functionality and effectiveness from the perspective of the faculty members

DOI: https://doi.org/10.15443/codes1992

2 Theoretical Framework

The implementation of a hybrid classroom necessitates specialized technological infrastructure, as well as detailed planning and logistics. Scientific literature suggests that the combination of face-to-face and online teaching can result in a more effective educational methodology than the exclusive use of either of these methods separately (Haijian et al., 2011; Jones, 2019). Hybrid education not only offers the advantage of maintaining regular attendance for in-person instruction (Alijani et al., 2014; Jones, 2019) but also provides the necessary flexibility for students to progress at their own pace. According to Horn and Staker (2015), there are four main models of hybrid and blended education: (a) rotation: this model requires at least one online instruction modality and is based on the decisions of the teachers or a predetermined schedule; (b) flex: this model focuses on online learning as the core of the educational process, allowing greater adaptability and personalization of students' schedules. Courses using the Flex model can have different staff configurations depending on the individual needs of the students; (c) à la carte: this model offers students the option to complete some courses in a traditional classroom environment and other courses remotely online; and (d) enriched virtual: this requires students to attend in-person sessions and then complete a portion of their learning experience online.

On the other hand, Bower et al. (2015) introduce an additional perspective with the concept of synchronous blended learning, defined as learning and teaching where remote students participate in face-to-face classes through synchronous enriched media technologies such as video conferencing, web conferences, or virtual worlds. This allows all students enrolled in a course to participate in shared real-time experiences, regardless of their location. Synchronous blended learning can provide students with greater access to education and, in many ways, offer more inclusive and equitable learning experiences to those who are geographically isolated or unable to physically attend classes. This inclusivity and flexibility in synchronous blended learning align with the broader understanding of hybrid education as a vital tool to meet the current demands of education.

However, as Mena-Sinche et al. (2022) point out, for proper implementation, it is necessary to overcome some obstacles related not only to technology but also to pedagogy and user adaptation. The successful integration of these models requires careful consideration of these factors, ensuring that technology and methodology are aligned with the needs and capabilities of both students and teachers.

3 Methods

The present research adopted a quantitative descriptive methodological approach. The primary objective was to analyze the effectiveness and functionality of the hybrid classroom model designed and implemented at Universidad Galileo, specifically from the perspective and experience of the involved teachers. The study population consisted of 23 teachers from Universidad Galileo who, during the months of January and June 2022, completed the comprehensive process of both receiving the training workshop 'Hybrid Classes and the New Role of the Teacher in the Digital Age' and

DOI: https://doi.org/10.15443/codes1992

utilizing the hybrid classrooms and their respective models for teaching. Given the representativeness and manageable size of the population, it was decided to work with a sample that encompassed the entire population.

Data collection was carried out through a survey-type questionnaire created in Google Forms. The questionnaire included dichotomous and multiple-choice questions, based on a Likert scale that ranged between options such as "Strongly Agree" and "Strongly Disagree," and "Very Satisfied" and "Very Dissatisfied" for the responses.

The collected information was organized into an electronic spreadsheet, using the data generated by Google Forms as a basis. To facilitate subsequent analysis, numerical codes were assigned to the answers. The anonymity and confidentiality of the participants were maintained through the use of unique identifiers instead of their names. Appropriate statistical techniques were employed to interpret the quantitative data, focusing on identifying patterns and trends that reflected the teachers' perceptions and experiences regarding the hybrid model.

4 Hybrid Classroom Model

The implementation of hybrid classrooms at Universidad Galileo was carried out through a structured process divided into five essential stages: 1) exploration and analysis; 2) model design; 3) pilot plan implementation; 4) teacher training; and 5) deployment of hybrid classrooms.

Stage 1. Exploration and Analysis: In this initial phase, the responsible team conducted a comprehensive analysis of the needs and technical requirements. They reviewed existing literature and explored studies of hybrid models previously implemented in other institutions, such as Universidad Veracruzana de México, Universidad Industrial de Santander de Colombia, Pontificia Universidad Católica de Chile (Cid, 2021), and Universidad de Chile (Tapia, 2022).

Stage 2. Model Design: The design of the model was divided into three main areas: (a) scenarios, (b) classroom design and equipment selection, and (c) procedures. The proposed scenarios included (i) live transmission, (ii) hybrid laboratories, and (iii) synchronous hybrid classes. The classroom design focused on the integration of traditional and technological elements, allowing for effective interaction and prioritizing the digitization and live transmission of content. Table 1 shows the components and equipment defined for the configuration of the different scenarios.

Table 1. Hybrid classroom components and equipment

Components and equipment	Licencies
Kaptivo (digitizes content written on a Formica board) Formica Board Digital Camera with Integrated Speaker Lapel Microphone CPU	Kaptivo Zoom pro Zoom rooms

DOI: https://doi.org/10.15443/codes1992

TV de 65”
IPAD
Monitor de 21”
Monitor Projector
Laptop

Figure 1 shows the equipment schematic and its layout for scenarios a,b and c.

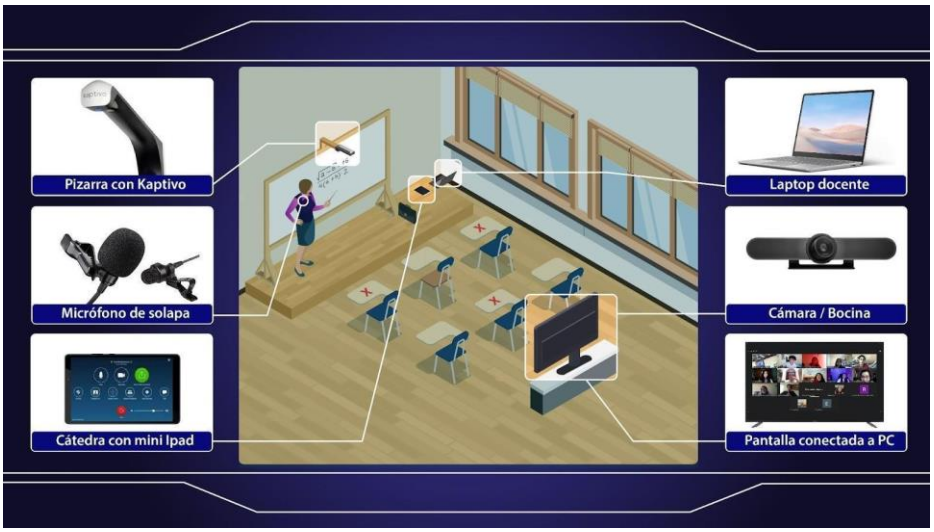

Fig 1. Schematic of equipment for hybrid classrooms and its layout for scenarios a, b and c.

The procedures encompassed the training of collaborators, the development of information and communication resources[1], and the definition of processes for the request and allocation of hybrid classrooms.

Stage 3. Implementation of Pilot Program: The implementation of the first of the five planned classrooms was carried out, involving a group of 10 teachers in the initial delivery of hybrid classes. After making adjustments and improvements, the rest of the classrooms were installed.

Stage 4: Teacher Training: The teachers' training was conducted through a boot camp-style workshop, in a hybrid mode, lasting 4 hours. This workshop was designed to equip the teachers with the necessary skills and knowledge to effectively utilize the hybrid classrooms. Stage 5: Deployment of Hybrid Classrooms: Finally, the installed hybrid classrooms were made available to the different faculties, marking the culmination of the implementation process.

[1] https://www.galileo.edu/page/continuidad-academica/salones-para-clases-hibridas/

DOI: https://doi.org/10.15443/codes1992

5 Results

Of the 23 teachers who made up the total sample for this study, 21 (91%) participated by responding to the survey. From their responses, the following information was obtained:

5.1 Demographic Data

The survey was answered by 21 teachers, representing 91% of the total sample. Within this group of participants, 47.6% were women and 52.4% were men. The surveyed teachers fall within an age range of 31 to 51 years, with an average teaching experience of 12 years. Additionally, they belong to six different academic entities, covering areas of training such as technology, administration, technical fields, and operations research.

5.2 Teacher experience and perspective

5.2.1 Training plan

Figure 2 shows results for the item: Do you consider that the workshop "Hybrid classes and the new role of the teacher in the digital era" helped you implement the hybrid teaching methodology?

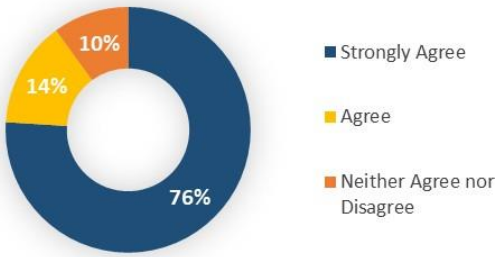

Fig. 2 Effectiveness of training to implement the hybrid teaching methodology

Figure 3 shows results for the item: Do you consider that the workshop "Hybrid classes and the new role of the teacher in the digital era" helped you to efficiently use the hybrid classroom?

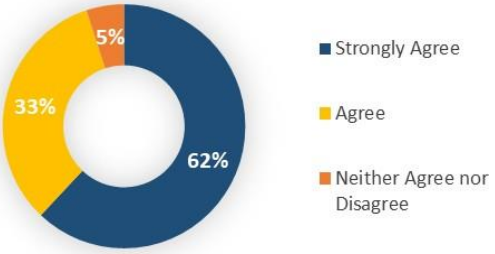

Fig. 3 Efficient use of the hybrid classroom

DOI: https://doi.org/10.15443/codes1992

5.2.2 Model implemented

Figure 4 shows the results to the question: "Do you believe that the equipment and its arrangement in the hybrid classrooms facilitate your teaching in this model?" According to the provided data, 52% of the teachers indicated they "Agree," 43% were "Strongly Agree," and a minority, 5%, expressed being "Neither Agree nor Disagree." The data obtained reflects that the majority of teachers have experienced ease in delivering their classes through the installed equipment.

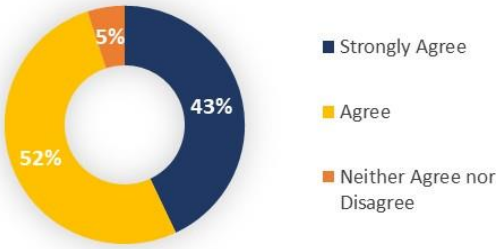

Fig. 4 Ease of use of equipment in hybrid classrooms

Figure 5 shows results to the question: Do you consider that the use of hybrid classrooms has allowed you to implement your strategies for meaningful learning in your students?

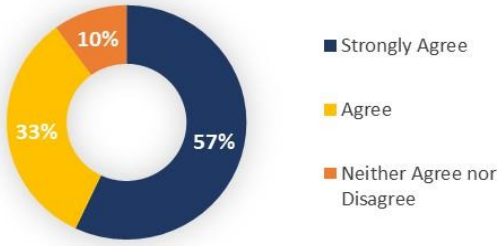

Fig. 5 Implementation of strategies in hybrid classrooms to generate meaningful learning

6 Discussion

The experience of the participating teachers in the implementation of the hybrid classroom model at Universidad Galileo offers an enriching perspective on the effectiveness and applicability of this educational approach. According to the teachers, the arrangement and functionality of the equipment in the hybrid classrooms facilitated and simplified the delivery of their classes, reflecting a successful

DOI: https://doi.org/10.15443/codes1992

alignment with the pedagogical and technical needs identified at the beginning of the study.

In accordance with existing literature (Mena-Sinche et al., 2022), the teachers emphasized the importance of the training provided through the workshop. This training not only facilitated the proper incorporation of the hybrid model into their pedagogical strategies but also promoted active and meaningful learning. The relevance of overcoming technological and pedagogical obstacles, as emphasized in the literature, is reflected in the positive experience of the teachers with the implemented model.

Furthermore, the teachers' interpretation of student participation and engagement in the hybrid classrooms adds a valuable dimension to the evaluation of the model. The teachers observed that the students were motivated and committed to actively participating in the classes without detecting a lack of interest or participation (Haijian et al., 2011, as cited in Jones, 2019). This observation reinforces the idea that hybrid classrooms can offer a dynamic and engaging learning experience.

The concordance with existing literature and the practical experience of teachers and students suggest that this model represents a significant contribution to educational innovation in the current context.

7 Limitations and Future Research

One of the notable limitations of this study lies in the lack of inclusion of the perspectives of the students who participated in the hybrid classes. Although valuable insight was gained into the teachers' experience and perception regarding the hybrid classroom model, the students' view remains unexplored. Investigating the experience and perception that the students had with the virtual classroom model could provide a more comprehensive and nuanced understanding of the model's efficacy and applicability.

The successful implementation of the hybrid classroom model at Universidad Galileo opens the door to its expansion to more teachers and academic entities. Continuous evaluation of this expansion and adaptation of the model to different contexts and needs will be crucial for its ongoing success. A future line of research could focus on evaluating the perception of use and utility of the hybrid classroom model from the students' perspective. This would allow for a deeper understanding of how students experience and value this educational approach, complementing the perspective of the teachers.

Acknowledgments

The authors would like to express their gratitude for the support of the PROF-XXI project, funded by the European Commission under the Erasmus+ program (609767-EPP-1-2019-1-ES-EPPKA2-CBHE-JP)

References

Alijani G. S., Kwun O., and Yu Y. (2014) *Effectiveness of blended learning in KIPP New Orleans' schools*. Academy of Educational Leadership Journal, 18(2), 125–141

DOI: https://doi.org/10.15443/codes1992

Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J. W., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: Outcomes from a cross-case analysis. Computers & Education, 86, 1-17.

Cid, C. (2021). *Clases híbridas: hacia una experiencia universitaria.* Centro de Desarrollo Docente UC. Pontificia Universidad Católica de Chile.

Haijian C., Hexiao H., Wang L., Chen W., Kunru J. (2011). *Research and application of blended learning in distance education and teaching reform*. International Journal of Education and Management Engineering, 1(3), 67–72.

Horn, M. and Staker, H. (2015). *Using disruptive innovation to improve Schools*. Jossey-Bass. Vol. 1

Jones S. (2019). *The Implications of Blended Learning in Today's Classroom: A Look into the History, Views, Impacts, and Research Look into the History, Views, Impact and Research. Educational Technology Commons*.

Mena-Sinche, D., Vélez-Marín, J., & Prieto-López, Y., (2022). *Sistematización teórica de modelos pedagógicos híbridos adaptados a las necesidades de los sistemas educativos en tiempo de COVID*. 593 Digital Publisher CEIT, 7(1-1), 76-94.

Reimers, F. (2021). *Educación y COVID-19:Recuperarse de la pandemia y reconstruir mejor*. Oficina Internacional de Educación de la UNESCO.

Renata (Red Nacional Académica de Tecnología Avanzada) (s.f.). Noticia: *UIS, primera universidad colombiana con el 100% de sus salones dotados con aulas híbridas*.

Tapia, M. (2022). Noticia: Nuevas salas híbridas: U. de Chile dispone de infraestructura de última generación para este 2022. Universidad de Chile.

Universidad Veracruzana de México (s.f.) *Educación híbrida*. https://www.uv.mx/celulaode/aulas-hibridas/tema-1.html