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COLLABORATIVE BLENDED LEARNING AND GAMIFIED CLASSROOM. A CASE STUDY IN ARGUMENTATION-BASED COSTA RICAN SOCIAL STUDIES CLASSES.

Master's thesis

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Abstract

This thesis presents a case study conducted at a private high school in San José, Costa Rica, with tenth-grade students (15–16 years). It aimed to explore how combining collaborative blended learning (CoBL) with a gamified classroom could enhance critical thinking skills in argumentation-based Social Studies classes. An observation log recorded students' engagement levels, informing their division into three focus groups to gather perceptions on critical thinking development. Subsequently, semi-structured interviews with student teams assessed CoBL assignment impact. While skill development varied, results about gamification were predominantly positive. Despite certain barriers, students viewed CoBL as effective for fostering critical thinking. Ultimately, findings suggest the implemented system—with its integrated components—offers a flexible learning environment, adaptable to diverse student needs.

Keywords: Gamification, gamified classroom, collaborative blended learning, argument-based learning, critical thinking, educational technology.

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Introduction

The new paradigm of education envisions the classroom as a space that is not confined by time or place. This implies the possibility of offering learning experiences that go beyond the limits of in-person instruction and can extend to unconventional moments and spaces, such as homes, cafés, or road trips. Consequently, education faces the challenge of becoming more flexible to adapt to a wider range of interactions and activities among students, teachers, and technology (Trilling & Fadel, 2009).

In this context, educators are encouraged to explore new forms of interaction that allow students to develop their learning in an innovative way through EdTech tools (Gómez-Trigueros, Ruiz-Bañuls & Ortega-Sánchez, 2019). In this regard, blended learning emerges as an alternative that facilitates connections between technology, learning, and the transcendence of time and space by enabling students to engage in activities that combine virtual and in-person modalities. However, various sources indicate that in contexts where learning occurs across diverse times and spaces, it is essential to incorporate peer collaboration, which should be grounded in teamwork, inclusion, and joint problem-solving (Trilling & Fadel, 2009; Fullan & Langworthy, 2014; UNESCO, 2021).

Although collaborative learning and blended learning have been extensively addressed in educational literature, the question arises as to how they can complement each other and how educational technology plays a key role in this process. Moreover, in a context where the classroom becomes a flexible space where students connect in various ways and at different times, the challenge is to establish meaningful learning methodologies that motivate students to engage in the process without causing overload or fatigue.

In response to this challenge, gamification appears as an alternative that could motivate, engage, and commit students to collaborative blended learning strategies. As a technique that integrates game elements into educational activities, gamification aims to foster more meaningful learning experiences that encourage peer collaboration toward achieving shared goals. However, its effectiveness depends on the extent to which students identify with and are driven by the gamified elements incorporated into the activities (Hamari et al., 2014; Valenzuela, 2021).

To ensure that the learning experience is meaningful for students, gamification should not be limited to the implementation of isolated techniques. Instead, it should

evolve into a long-term learning environment that shapes interactions both inside and outside the classroom, aligning fully with the course's learning objectives and the students' academic level. By doing so, the goal is to foster more enduring and intrinsic motivation, progressively leading to mastery of the elements integrated into classroom dynamics, thereby enhancing students' skills and expanding their knowledge (Hicks et al., 2015; Mozelius, 2021).

The implementation of these methodologies aims to enhance the skills specific to the Social Studies curriculum within Costa Rica's secondary education system. Historically, this subject has been taught with a memorization-based approach, focusing on the retention of facts such as dates, historical figures, characteristics, and locations (González Sánchez, 2020). However, the Costa Rican Ministry of Public Education (2016) has sought to transform how Social Studies is interpreted, asserting that:

> It advocates for approaches linked to inquiry, research, and experience so that educational action achieves the convergence of knowing, doing, and being. These approaches not only examine the spatial-temporal construction of the past but also question the present and create the conditions to envision the future. (p.16)

This shift indicates that the Costa Rican government aims to develop Social Studies as a subject that fosters skills more aligned with the demands of the modern world, particularly those related to critical thinking and problem-solving. These include inquiry skills, data and information analysis, peer collaboration, continuous assessment, and active participation in civic life—whether in individual or collective contexts, depending on the situation (Ministry of Public Education of Costa Rica, 2016).

To this end, the gamified classroom and collaborative blended learning methodologies are intended to stimulate students' critical thinking skills while aligning with the evolving vision of Social Studies education. Additionally, an argument-based learning (ABL) model was chosen, as it enables students to engage in research and inquiry-based activities that promote the creation, exchange, contrast, and evaluation of arguments. This approach aims to develop students as critical, active, and responsible citizens who can form independent judgments when making decisions related to everyday social and civic issues (Aslan, 2019; Baker et al., 2019; Soysal, 2020; Rapanta, 2024).

For this study, a case study research approach was selected to analyse a specific educational scenario—the implementation of these methodologies within a particular group of students at a private high school in Costa Rica over a defined period. This research design allows for an in-depth exploration of the interactions occurring within the

learning environment created by the teacher, focusing on a single group of participants. Additionally, it provides flexibility in the selection of data collection instruments, accommodating both qualitative and quantitative methods (Bassey, 1999).

Theoretical Overview

In this chapter, the key elements of the theoretical background of this thesis will be described. This includes, first, an explanation of how collaborative blended learning emerged from the combination of its components. Subsequently, different definitions related to gamification will be analysed until reaching a precise delineation of what constitutes a gamified classroom environment. After that, the argument-based learning (ABL) model will be examined, highlighting its intrinsic relationship with critical thinking. Finally, the research problem and questions of this study will be defined.

Blending Collaboration: Defining a learning model

Before defining what the collaborative blended learning model entails, it is necessary to analyse each of its components to clarify their meaning. First, blended learning (BL) was initially defined by Thorne (2003) as:

> An opportunity to integrate the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning. It can be supported and enhanced by using the wisdom and one-to-one contact of personal coaches (p.2).

From this definition, it can be observed how BL was initially conceptualized as the combination of online learning with elements of traditional education, particularly teacher-centred instruction, where the educator directed the learning process. This perspective aligned with the idea that formal and informal education were distinct paths; however, BL emerged as a means to unify these approaches, facilitating individual and collective learning goals in both formal and informal educational settings. This integration combined face-to-face modalities with computer-mediated techniques, reinforcing the notion of BL as an opportunity for integration (Graham, 2006; Rossett & Frazee, 2006).

From another perspective, more contemporary definitions of BL emphasize that it requires more than simply adding an online component to a traditional class. According to Vaughan et al. (2013), BL represents: “an approach that addresses the educational needs of the course or program through a thoughtful fusion of the best and most appropriate face-to-face and online activities” (p.9). This point of view places greater

emphasis on the student-centred approach, redefining the teacher's role as an evaluator, planner, and mediator of activities that best suit each group of students.

Building on this idea, Boelens et al. (2017) state that: "the design of blended learning environments brings with it four key challenges: (1) incorporating flexibility, (2) stimulating interaction, (3) facilitating students' learning processes, and (4) fostering an affective learning climate" (p.2). This perspective highlights virtuality as an element that enhances, improves, or facilitates the learning process, rather than merely substituting one modality for another. Moreover, it recognizes different BL modalities that can be tailored to students' needs. For example, the flipped classroom approach, where students prepare using digital resources before a face-to-face session, or the hybrid model, which allows for in-person interaction while maintaining access to digital tools (Karunaratne, 2023).

The topic of collaborative learning (CoL) has been even more extensively covered in academic literature compared to blended learning (BL), making its historical analysis more challenging. However, as highlighted in the review by Yang (2023), CoL gained prominence in the 1980s and 1990s as a learning modality fundamentally focused on solving problems collectively. This approach tended to be less structured, prioritizing student autonomy. Additionally, CoL sought to differentiate itself from cooperative learning, which was a more structured approach, where students were given specific instructions to work in small groups. Moreover, CoL is rooted in constructivist theories from authors such as Piaget and Vygotsky, as well as Freire's critical pedagogy, making it a learning modality inherently associated with critical thinking and problem-solving.

From a contemporary perspective, CoL is viewed as an active process in which various members of the academic community—students working with peers or alongside their professor—share a common goal. This aligns with 21st-century learning skills, such as critical thinking, which require collaborative efforts to explore, understand, and address problems (Warsah et al, 2021). Similarly, studies by Mandušić & Blašković (2015) and Alharbi et al. (2022) emphasize that CoL necessarily demands the commitment of all participants to apply their cognitive and metacognitive skills. This ensures effective cooperation, negotiation, and interaction throughout all processes required to achieve the shared objective, which, in many cases, may even result in a final product.

Regarding collaborative blended learning (CoBL), the combination of both approaches presents an interesting opportunity to develop a new learning modality that

seeks to integrate the best aspects of each method. According to Peerasak, Chaiyot & Sumale (2015), CoBL involves a model that blends face-to-face learning with online instruction through a variety of activities that allow students to learn content or complete tasks at any time. This approach encourages them to become active learners, motivated by the pursuit of a shared goal, which ultimately leads to engagement and collaboration in a joint learning experience (p. 2174). Similarly, Béres et al. (2012) define CoBL as:

> A social process, where all of the individual participants are responsible for their own knowledge-building […] To achieve this aim, apart from including teachers' interactive orientation scheme, we have to be able to address students' differences, integrate student centred activities, problem-based approach, high interaction rates built on features of connectivism, reflection and evaluation, as well as collaborative knowledge-building (p.3).

For this to be effectively implemented, the integration of technology in educational environments has been essential. CoBL is fundamentally about team members constructing and exchanging knowledge, as well as making sense of the problems they encounter. Techniques such as online peer review and teacher-guided feedback can be incorporated into this process (Challob et al., 2016).

In conclusion, CoBL is the result of the evolution of blended learning (BL) and collaborative learning (CL), emerging in response to technological advancements and evolving educational needs. Therefore, collaboration plays a crucial role in integrating knowledge and developing joint solutions that foster innovative and creative responses to the challenges encountered in everyday learning.

From game-related mechanics to gamified classrooms

Gamification is a topic that can be analysed at different levels, and it is a methodology not exclusive to education, as it can also be implemented in workplace and family settings. When examining gamified experiences in the educational field, the theory can be analysed through three levels: shallow gamification, deep gamification, and the construction of a gamified learning environment.

Starting with shallow gamification (ShG), this corresponds to the traditional definition of gamification, where game-related rewards such as points, badges, or rankings are applied without significantly changing the structure of the activity or the class itself (Mozelius, 2021). This approach often leads students to focus more on the amount of work they complete in pursuit of rewards rather than on improving the quality of their work (Hicks et al., 2015). Additionally, ShG is the easiest to implement, as it requires minimal effort (Mozelius, 2021). For instance, it can be applied through Kahoot,

Quizizz, or similar platforms, which already incorporate a leader board system ranking students based on performance.

Deep gamification (DpG), on the other hand, involves integrating game elements directly into the core learning processes, ensuring that the mechanisms used are meaningful and aligned with clear objectives (Mozelius, 2021). According to Hicks et al. (2015), any rewards assigned in a classroom setting should be linked to skill improvement or conceptual understanding, rather than simply encouraging repetitive behaviours. Therefore, a well-designed DpG system focuses on fostering student autonomy (Valenzuela, 2021).

Regarding additional components within DpG, Marczewski (2013, s.a.) highlights that its key aspect is intrinsic motivation, which can be analysed using the RAMP model:

1. **Relatedness** – The desire to connect with others
2. **Autonomy** – The freedom to innovate and create independently
3. **Mastery** – The process of mastering knowledge or a skill
4. **Purpose** – The need to give meaning to one's actions

Thus, if students perceive that an activity foster each of these aspects, it qualifies as deep gamification.

It can be concluded that DpG requires more planning, organization, and discipline in its implementation than ShG, which is reflected in its results. While ShG aligns with extrinsic motivation that provides instant gratification, DpG is linked to intrinsic motivation, fostering long-term engagement and both individual and collective growth (Mozelius, 2021).

After analysing the previous two levels, it is necessary to explore how gamification can be sustained long-term throughout one or more courses. This is where the concept of the gamified classroom emerges—a learning environment designed to integrate game elements and principles into educational activities. This approach involves designing classes with elements that encourage students to engage and commit voluntarily, a necessary condition for the game-like experience to take place. Unlike simply using games in the classroom, a gamified classroom seeks to transform the learning experience itself, employing game mechanics to foster motivation, engagement, active participation, and meaningful learning (Schmilinsky, 2021).

Based on the analysis of multiple studies on gamified learning environments—such as those by Ardila Navarro (2018), Ismail & Rabu (2018), Kin Meng et al. (2020),

Schmilinsky (2021), and Zhumasheva et al. (2022)—the following key aspects are required for designing a gamified classroom:

1. Intentional integration of game elements into tasks, assessments, and course progression to make them more engaging.
2. A focus on both intrinsic and extrinsic motivation, aiming to increase students' interest, enjoyment, and learning achievements while boosting their confidence and alleviating doubts.
3. Opportunities for voluntary participation and active engagement, encouraging students to take a more proactive role in their learning.
4. A redefinition of mistakes as part of the learning process, where failure is seen as an opportunity to try again and improve, reducing the negative perception of errors.
5. The promotion of skills such as problem-solving, critical thinking, collaboration, and communication in an environment that is more engaging and less intimidating than traditional methods.
6. The flexibility to use both digital and non-digital gamification strategies—a gamified classroom does not rely solely on technology.

By implementing these aspects, an entire academic course can be designed with game-based elements, enhancing students' learning experience in every session. This means that a general framework of rules is established, which students internalize, defining the roles of teachers, students, and teams, determining how game mechanics apply based on actions, and setting final outcomes for the learning process. Additionally, both shallow gamification (ShG) and deep gamification (DpG) strategies can be incorporated within this broader classroom context, aligning with emerging learning objectives.

In summary, ShG and DpG are primarily strategies applied to specific activities, enhancing learning through game elements. The key difference lies in the type of motivation they generate: (1) ShG provides immediate stimulation, fostering short-term engagement, (2) DpG aims for long-term motivation, focusing on sustained personal and collective growth. Ultimately, designing a gamified classroom enables motivation to persist over time, shaping the general framework in which an entire course operates. This allows gamification strategies to align with broader teaching and learning objectives, ensuring a comprehensive and immersive educational experience.

Arguments: Keys of the critical thinking

There is no exact definition of what argument-based learning (ABL) entails, which means that different models must be analysed to identify the aspects that best align with the interests and objectives of this research, including Social Studies classes. In this regard, argumentation-based models can be defined as any type of pedagogical practice grounded in the principles of dialogical argumentation, aiming to develop argumentative discourse and reasoning skills among students. For this to be effective, clear rules must be established regarding how to engage in constructive dialogue and what constitutes a valid argument, enabling constructive criticism that fosters secondary skills such as negotiation, persuasion, and inquiry. Additionally, argumentation must be viewed as both a process and a product, involving an individual dimension of construction as well as a collective generation of knowledge (Rapanta, 2024).

These models help stimulate capacities such as providing justifications, identifying data, establishing warrants, proposing theories, and recognizing qualifiers, which better position students as knowledge builders, evaluators, and critics. Consequently, they foster the development of new concepts and theories, as students must debate and justify the claims they present in class (Effendi-Hasibuan et al., 2020).

An ABL approach also encourages students to gather, analyse, and interpret data while expressing their thoughts as a result of this process, integrating argument construction as a core element. In this method, students are expected to reach their own conclusions by using critique as a central component, as they must present well-founded arguments to support their viewpoints. Furthermore, rigorous social negotiation of meaning allows students' claims and ideas to be examined against a body of interpreted data and logical reasoning, with teacher mediation playing a key role in this process (Soysal, 2020).

Argumentation-based models are closely linked to the development of critical thinking skills. They adopt a student-centred perspective, leading to direct benefits in shaping learners into critical and democratic citizens (Rapanta, 2024). This approach positions students as active contributors to knowledge construction, evaluation, and critique, guiding them to justify claims, find relevant data, establish warrants, propose theories, and recognize qualifiers when analysing concepts or problems (Effendi-Hasibuan et al., 2020).

From this perspective, learning becomes a collective process where collaboration is key to enhancing student understanding. According to Baker et al. (2019), focusing on argumentation fosters critical thinking because:

> Argumentative interactions arguably involve greater intellectual, cognitive-linguistic and interactive work on the part of student participants than in the case of more irenic exchanges, possibly involving facile acceptance and/or compromise. Thus, students who find their views contested would be led to reflect, to explain, to critically examine their opinions and creatively find counter-arguments (p.3).

In this regard, the teacher's role is crucial (according with the authors), as maintaining students' focus on evaluating and critiquing their peers' arguments facilitates deeper content comprehension. Certain teacher actions, such as legitimizing, challenging, monitoring, and providing evidence, have been associated with higher-quality implementation and, consequently, with the promotion of students' critical thinking (Soysal, 2020).

Finally, ABL supports students in developing "critical literacy," meaning the practical application of critical thinking skills. This involves an emphasis on searching for, analysing, and using evidence—a promising direction for empowering students as critical and autonomous consumers and creators of knowledge. Moreover, by engaging in social negotiation of meaning and testing ideas against data and logic, students refine their thinking and gain a clearer understanding of the strength of their own and others' arguments, ultimately enhancing their critical competence (Soysal, 2020; Rapanta, 2024).

In summary, ABL is not merely a method for delivering content but a comprehensive approach that actively cultivates critical thinking skills by engaging students in the construction, evaluation, and debate of evidence-based arguments. The processes inherent in ABL—such as analysis, inference, evaluation, and justification—are fundamental components of critical thinking.

Research problem

This research explores how to combine collaborative blended learning with a gamified classroom to enhance critical thinking skills in argumentation-based social studies classes. The study employs a case study approach with a group of tenth-grade students (15–16 years old) from a private high school in Costa Rica. The gamified classroom is designed under a deep, long-term gamification approach—an environment where students are motivated, develop their skills, collaborate with others, and clearly understand the learning objectives that this approach seeks to achieve (Marczewski, s.a.;

2013). The main research question of this thesis is: How can collaborative blended learning, in combination with a gamified classroom within an argumentation-centred approach, improve the critical thinking skills of students involved in this process?

Additional research questions that aim to complement and expand on the main question include:

1. What are students' perspectives on the development of their critical thinking skills before and after the implementation of these methodologies??
2. How do students perceive collaborative blended learning as an interactive and engaging methodology for expanding their knowledge and developing critical thinking skills?
3. How do EdTech tools facilitate the integration of collaborative blended learning within a gamified classroom?

Method

This research has been structured as an exploratory case study with a mixed-methods approach, meaning it incorporates both quantitative and qualitative methods. A case study design was selected given its extensive use in research on educational gamification, as it facilitates the analysis of the impact that implementing a particular technique has on a class, and allows for the examination of how effective the results are over time (Bassey, 1999; Gortaire-Díaz et al., 2022; López & Tucker, 2018).

As an exploratory study, the aim is to investigate the combination of various techniques that, when applied simultaneously, are considered innovative—such as a gamified environment and collaborative blended learning within argument-based classes. Moreover, the participants play a key role in the inquiry by directly contributing to the knowledge being generated. This is reflected in the exploration of outcomes related to the improvement of students' academic performance—particularly their critical thinking skills. Since this area has only recently begun to be explored, the study may yield unexpected results (Lösch et al., 2023).

Regarding the mixed-methods approach, quantitative analysis within gamified and blended learning environments is commonly used to identify traces that indicate student engagement with these strategies. Specifically, for the purposes of this study, data such as class participation levels, submission of blended learning assignments, and other variables will be used to establish categories within the sample—particularly to conform the design of focus groups. Subsequently, qualitative data collection aims to capture

perceptions and lived experiences. This approach gives a central role to the participants, allowing them to express their experiences and progress throughout the process they are involved in (Tomé-Klock et al., 2019; Torrado-Cespón & Díaz-Lage, 2022).

Sample

The case study was conducted in a private Catholic institution located in San José, Costa Rica. The selected participants were tenth-grade students, aged between 15 and 16, in accordance with the Costa Rican education system. This group consisted of 18 students, including 13 males and 5 females. The selection of these participants was based on the fact that, in this school, gamified classes in the subject of Social Studies begin one year earlier, in ninth grade. Therefore, there has been sufficient time to collect data related to student engagement with the gamified learning dynamic, and students have also been exposed to this classroom environment long enough to provide informed and experienced perspectives regarding the changes observed since the implementation of the strategy. Likewise, they are well-positioned to identify the differences introduced by the integration of collaborative blended learning as a new element within the teaching and learning process.

Data collection and Data Analysis

To begin with, since the 2024 academic year, a classroom observation log has been maintained, in which the main findings were recorded to determine students' level of engagement in the gamification process (Ardila Navarro, 2018; Ismail & Rabu, 2018; Méndez Arraiga & Ortiz-Bustos, 2022; Escuti & González, 2024). This educational setting awards extra percentage points to students who accumulate the highest experience points (EXP), both at the group and individual levels. One of the main components for earning points is classroom participation (see Table 1), although it is not the only factor considered. Assignments—some of which include elements of blended learning—are also taken into account, as well as special events in which students receive EXP points for specific achievements.

In this regard, the team-based tournament sums the accumulated points of each student within a team, awarding additional points to the three highest-performing teams. Individually, five students can win, with the condition that only one student per team may receive the reward (the one with the highest score). Moreover, as students gain EXP, they level up, granting them access to "powers" that alter certain classroom rules and to unlock avatar customization features on a dedicated gamification website managed by the

teacher. A total of seven competitions have been recorded, each representing a thematic unit from March 2024 to April 2025.

Table 1. Scoring system for oral participation in gamified Social Studies classes.

Parameter observed in student	**EXP points awarded**
Voluntarily sharing a fully developed argument (optimal level)	200
Voluntarily sharing a partially developed argument	100
Successfully completing a mandatory participation	100
Adding a complement to a peer's contribution	100
Providing an in-depth comment on the topic being discussed	100
Partially completing a mandatory participation	50
Sharing a brief comment	50
Mentioning a term that helps expand or exemplify the topic	25

Once the results from the classroom observation record have been analysed, they will serve as the basis for dividing the sample into three subgroups, which will then determine the composition of focus groups with six members each one. The first subgroup will consist of students who are most engaged in the gamified system. The second category will include students with a moderate level of participation—those who tend to engage only at specific moments within the environment. Lastly, the third subgroup will represent students with the lowest levels of participation.

The goal of the focus groups is to gather key information on how the methodologies employed have contributed to the improvement of learners' critical thinking skills, as well as to identify the strengths and weaknesses of these processes. As a data collection tool used in gamification research, it has facilitated the analysis of a wide range of participant perceptions in areas such as motivation, engagement, satisfaction with the educational tool, and adopted attitudes. This method helps generate identification among participants within each subgroup concerning the topics under discussion and fosters meaningful dialogue. In doing so, it becomes possible to identify patterns in student behaviour within the educational dynamic, which is particularly valuable for exploratory approaches like the one adopted in this study (Helmefalk & Rosenlund, 2020; Rincon-Flores et al., 2023; Agudelo Giraldo & Echeverry Gómez, 2024; Gaibor Mestanza et al., 2025).

Each focus group will be guided by four open-ended questions, tailored to the profile of the students within each subgroup. Firstly, the subgroup with the highest level of participation will focus on topics such as the development of skills, concrete examples of classroom experiences, and reflections on their involvement. The intermediate group

will address similar themes but will emphasize the aspects that most motivate them to participate, as well as those that discourage their engagement. Finally, the last category will also assess whether these methodologies have supported the improvement of critical thinking skills; however, its questions will adopt a more critical lens, aiming to identify the shortcomings of the system—particularly in its failure to adequately integrate certain students into the learning environment (see Appendix A).

As a final instrument, semi-structured interviews will be conducted with the nine teams (pairs) that make up the gamified dynamic. The aim of this tool is to explore how students are collaborating on blended learning assignments, how technology has served as a means to complete these tasks, and in what ways they feel this type of cooperation has supported their critical thinking skills. Specifically, three collaborative blended learning strategies assigned in 2025 will be analysed:

1. **Gamification Missions**: Collaborative tasks that award EXP points, to be completed at home and used instrumentally to highlight, exemplify, or expand on topics covered in class. In total, two sets of missions have been assigned during this academic year.
2. **Group Research on Colonialism and Neo-colonialism in Africa**: This involved the creation of a group report in which students had to assume the role of UN decolonization committee members to analyse the current status of African countries in relation to foreign dependency, considering their colonial history and the present influence of global powers. During this process, the group was required to delegate tasks and use various technological tools to meet the project goals. Finally, the report had to be presented in class, commented on, and discussed by both the teacher and their classmates.
3. **Role-Playing Game About the Wall Street Crash:** This was a collaborative activity that involved simulating the Wall Street stock market during the context of the 1930s economic crisis, but using fictional companies and scenarios. Before the class, students were provided with profiles of each of these companies, and based on this information, they had to develop a strategy to prioritize the purchase of shares. On the designated day, the stock market was opened, and the learners were able to acquire shares in the companies. Through various situational updates introduced in successive rounds, stock prices could rise or fall. Eventually, a market crash occurred, which was followed by a class discussion where students

were expected to relate the simulated events to the actual historical crash of 1929. The primary goal of the activity was to understand how stock markets works, the concept of speculation (such as the creation of bubbles), and the mechanisms behind market collapses.

This type of strategy, as shown in similar studies, has enabled close interactions between researchers and participants, fostering a flexible dialogue environment that gathers perceptions and experiences regarding the research problem, the academic development throughout the process, and the advantages or disadvantages of how the educational strategies were implemented (Bal, 2019; Rouissi et al., 2020; Robledo-Cordoba, 2022; Zhumasheva et al., 2022; Koç & Sütçü, 2023; Agudelo Giraldo & Echeverry Gómez, 2024).

The semi-structured interview is organized around five key themes: gathering perspectives on the benefits of collaborative blended learning for developing critical thinking skills; methods of task distribution and strategies used to achieve the proposed objectives; critiques and experiences related to the use of technology for these purposes; main challenges of working in a blended and collaborative format; and the ways in which gamification motivates students to engage in these activities (see Appendix B).

Ethical considerations

Since information is being collected from minors, an informed consent form was prepared to notify parents of the potential participation of their children in the study. This form guarantees the following aspects:

1. Learner participation will remain anonymous; pseudonyms will be used.
2. No sensitive personal data that may compromise the privacy of participants will be collected. All materials will be reviewed to ensure compliance with this requirement.
3. Participation is entirely voluntary, and learners may withdraw from the study at any time, in accordance with the principle of ensuring participants' comfort and well-being.
4. Students will have access to their recorded responses should there be any questions regarding their content.

Additionally, given that the researcher is also the social studies teacher of the selected group, it is crucial to ensure neutrality. This means that participation in the study will not affect students' academic records, and the research process will remain separate from formal evaluation. For instance, the acknowledgment of the use of artificial

intelligence, which will be analysed from an ethical and critical perspective, recognizing both the potential benefits and limitations of these tools.

Results and Discussion

Regarding the distribution of students into focus groups based on the observation log, the amount of experience points (EXP) each student had accumulated by the end of April 2025 was taken into account. This classification considered all EXP points earned through participation, missions, and special events accumulated since the beginning of March 2024. The results of the distribution, based on the level of engagement within the gamified environment, are presented in Table 2.

Table 2. Learners' distribution into focus groups according to their accumulated experience points.

Focus Group 1		**Focus Group 2**		**Focus Group 3**	
Student	**EXP points**	**Student**	**EXP points**	**Student**	**EXP points**
1D	15875	2D	8300	3E	6300
1C	11825	2V	8100	3I	6150
1J	10800	2J	7775	3G	5000
1M	10650	2E	7200	3S	4500
1Z	8725	2I	6850	3C	2525
1W	8550	2S	6550	3A	2475

Notes: The acronyms used correspond to a method of easy recognition of each participant by the researcher and to maintain anonymity.

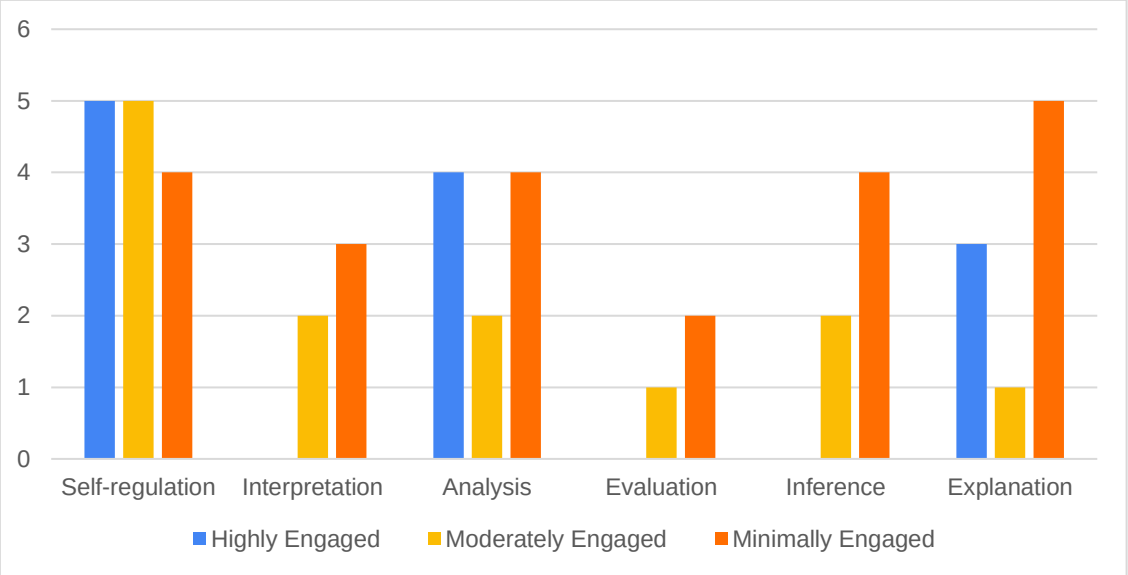
The next step involves dividing and discussing the results in relation to the research problem. For this purpose, both the focus groups and the semi-structured interviews conducted with each team will be used. As a clarification, to facilitate the understanding of the information, the team nomenclature will be based on the initials of the students in each group. For example, when referring to 1D2E, it designates the team composed of those two students.

Influence of gamification on critical thinking.

To frame these results, students' perceptions of their critical thinking were considered from the perspective of argument-based learning (ABL). Furthermore, the analysis was divided according to the frequency with which the following skills were mentioned—either explicitly or implicitly: Self-regulation (monitoring and correcting one's own learning), Interpretation (understanding and communicating the meaning of something), Analysis (identifying relationships between ideas and arguments), Evaluation (assessing the credibility of sources and arguments), Inference (drawing

reasonable conclusions), and Explanation (clearly and comprehensively communicating one's ideas). The trends observed in each focus group are presented in Figure 1.

Figure 1. Number of times specific critical thinking skills were referenced as being improved through gamification.



The trend in the group with the highest level of involvement in the gamified environment leaned mainly toward self-regulation and analysis, followed by explanation. This was illustrated by student 1J, who expressed:

> When I try to participate constantly, I can review whether my questions are well-structured, and I also get feedback that helps me perform better in assessments. Now, I try to be more aware of my abilities; I often compare how I used to do things last year with how I do them now. I try to improve especially my arguments—making them more complete, more detailed. Before, they were shorter, and it was hard for me to draw conclusions.

Similar ideas were expressed where these three aspects overlapped, suggesting that students in this group may have a clearer understanding of the learning objectives within ABL. This, in turn, allows them to stand out and devise strategies to further enhance these skills—an idea emphasized by Soysal (2020), particularly in terms of the teacher's role in guiding improvement and fostering an expectation for a critical approach when constructing arguments.

In the focus group composed of students with an intermediate level of involvement, there is a strong emphasis on self-regulation, with a balanced presence of inference, interpretation, and analysis. In contrast, evaluation and explanation appear less frequently. This may be related to the fact that these learners are concerned with

improving their learning in order to catch up with others who are at a higher level of performance. Likewise, it could be attributed to their ability to extract multiple ideas, yet occasionally struggling to explain them clearly, which in turn prevents them from earning the total expected EXP points.

Supporting this interpretation, student 2V shared the following: “I’ve improved my level of critical analysis. Before the gamification, I used to copy answers verbatim. Now I try to write own ideas, and when we correct and complement each other’s work, I adjust my answers to improve their quality.” Similarly, 2E stated: “It has helped a lot with my ability to interpret information, since the competitiveness makes us think carefully about our responses, because better quality usually means more points.” Both participants highlight the connection between response quality and achievement, as they aim to make progress within the gamified environment. This aligns with how ABL supports critical literacy, as described by Soysal (2020) and Rapanta (2024), positioning it as a method that encourages learners to constantly review their ideas in order to refine their thinking and understand the strengths of both their own arguments and those of others.

Finally, the group with the lowest level of involvement displayed a more balanced and varied distribution of the mentioned skills, with explanation, inference, and analysis standing out the most. It is noteworthy that students in this group made fewer references to their own academic progress, which could be associated with the fact that they also tend to have lower overall academic performance in the class. In this context, motivational aspects become crucial, as emphasized by students 3E, 3G, 3I, and 3C, who highlighted factors such as working with a partner, engaging in more kinesthetic activities, personal interest in the topic (particularly history), and the everyday relevance of the themes. These elements allow them to find moments to become active contributors to the learning process, as suggested by Effendi-Hasibuan et al. (2020), and to gradually develop their critical thinking skills.

On the other hand, the limited mention of self-regulation may reflect their lower participation in gamified classroom dynamics. This has been discussed by various authors, such as Ardila Navarro (2018), Ismail & Rabu (2018), and Schmilinsky (2021), who argue that this process fosters a sense of progress, encourages students to assume a proactive role in class, reframe mistakes as learning opportunities, and boost their confidence as learners.

In another aspect, students from the different focus groups were asked to identify activities in which they had participated that they believed had particularly helped to

enhance their critical thinking skills, as well as to highlight the specific areas in which this impact was most evident. The themes identified were organized and are presented in Figure 2.

Figure 2. Mention of kind of activities or situations that have increased students' critical thinking.

In the case of the first focus group, students perceive critical thinking in relation to the complexity of the activities, the emotional and thematic context, and the capacity to collaborate and debate ideas. Here, role-playing games and historical simulations are particularly emphasized. For instance, 1W mentioned the role-play on Africa, 1C referred to a board game about the Middle Ages, and 1M highlighted the stock market simulation. These activities are part of the motivational strategies implemented periodically in the gamified environment (Mozelius, 2021; Valenzuela, 2021; Marczewski, 2013, s.a.).

Additionally, some students noted that the self-regulation of learning is fundamental. For example, 1D and 1J pointed out that interest in the topic can lead them to enhance their skills and become more aware of their progress. This aligns with what 1M and 1C mentioned regarding the importance of contrasting ideas to improve their learning, especially their argumentation skills—a key aspect of socialization in ABL, as highlighted by Baker et al. (2019).

The moderately involved group is characterized by recognizing critical thinking as a useful tool when there is a structured class, diverse approaches, and the ability to apply knowledge in new contexts, generally mediated by a source of motivation. In this regard, 2E and 2V value the class as a dynamic environment where there is more freedom compared to other classes. Like the previous group, they also appreciate simulations that allow them to apply knowledge in realistic settings (as mentioned by 2D and 2J).

As another point for this focus group, 2E, 2I, and 2S clarified that none of this would be possible without a clearly structured system composed of distinct stages—an

element widely emphasized by several authors of the gamified systems. Among all these stages, the socialization of results was particularly highlighted.

Lastly, the third focus group places greater value on the impact of critical thinking beyond the classroom, connecting it to greater personal confidence and communication skills, often attributed to teacher support. Some students, such as 3I, 3S, and 3G, emphasized that certain activities—such as the socialization of results and the playful elements—have helped them improve their skills in contexts unrelated to Social Studies, such as applying these abilities in other subjects, using them in family situations, or confidently expressing ideas in social settings with friends. This aligns with Rapanta's (2024) discussion of ABL's promotion of democratic and critical citizenship, where knowledge is not confined to the academic sphere but is practiced in everyday life.

Finally, for students like 3A, 3S, and 3E, the teacher's pedagogical mediation has been essential in various areas, including feedback, the simplification of complex topics, and the promotion of different argumentative strategies to provide students with a variety of tools to support their ideas. These elements are closely aligned with Soysal's (2020) proposal that emphasizes the crucial role of the teacher in ABL—challenging and motivating students in the development of critical thinking skills.

Challenging the purpose of gamified classroom

As part of the evaluation of the gamified system, students were asked to identify the strengths and weaknesses of the learning environment applied in the classroom. The goal was to determine which aspects most motivated them to engage with the class, which ones were perceived as barriers to participation, and to analyse what changes in the educational dynamics could promote a deeper connection with the system.

First, students from the most involved group highlighted that the system strongly promotes motivation, particularly through the structure of levels and rewards. In this regard, student 1J emphasized how the tracking of participation helps him verify his own learning, while 1M explained how she works on improving her arguments in order to earn more points and advance through the levels more quickly.

Additionally, other participants underscored the importance of collaboration. For instance, 1C and 1M mentioned the mutual benefit of their actions for the common good. The practical-emotional nature of the proposed activities was also highlighted. Student 1W noted: "Gamification includes aspects that resemble real life, like work-related incentives... These activities are very contextual, and learning goes beyond what is written in textbooks." All of these aspects are supported by the RAMP model proposed by

Marczewski (2013, s.a.), which identifies Relatedness, Autonomy, Mastery, and Purpose as key elements to foster student engagement.

In contrast to the previous group, the least involved participants were consulted regarding the key aspects that made it difficult for them to engage with the gamified environment. Subsequently, focus groups 2 and 3 were asked what changes they would propose to enhance integration. Although the system is perceived as innovative and motivating, its effectiveness can be limited by emotional barriers, as illustrated by student 3E, who expressed self-doubt in his arguments, which restricts his willingness to participate. Similarly, 3A noted that being the centre of attention causes his anxiety. These cases underscore the need to strengthen the motivational approach that views errors as opportunities for progress rather than as judgments.

Other challenges include inequitable accessibility. For instance, 3S stated: "There are usually many people wanting to speak... the random selection discourages us", pointing to randomness as a demotivating method for assigning speaking turns. In this regard, students suggested prioritizing those who have participated less, especially towards the end of the units. This reflects a sense of fairness aimed at benefiting those who have been less favoured by the results. Supporting this, 3I proposed alternating between voluntary and mandatory participation, to balance the voices of more active students with the inclusion of those who tend to remain silent.

Furthermore, several learners agreed that the current system of power usage is restrictive. Students 3C, 2I, and 2E proposed transforming these powers into "wildcards" that can be activated at strategically chosen moments by each learner. This modification could enhance not only participation but also the capacity to set clearer learning goals.

Additionally, when gamification is not accompanied by clear instructions, it can be perceived as burdensome, confusing, or disorienting—issues raised by 3I, 3S, and 3A. To address this, 3C suggested that the log of participation and points should be accessible at all times through the institutional platform (Teams), rather than only during class. This would enable students to adjust their strategies and monitor their progress continuously. These findings highlight the importance of clearly defining how gamified dynamics function and adapting them to ensure no student is left behind.

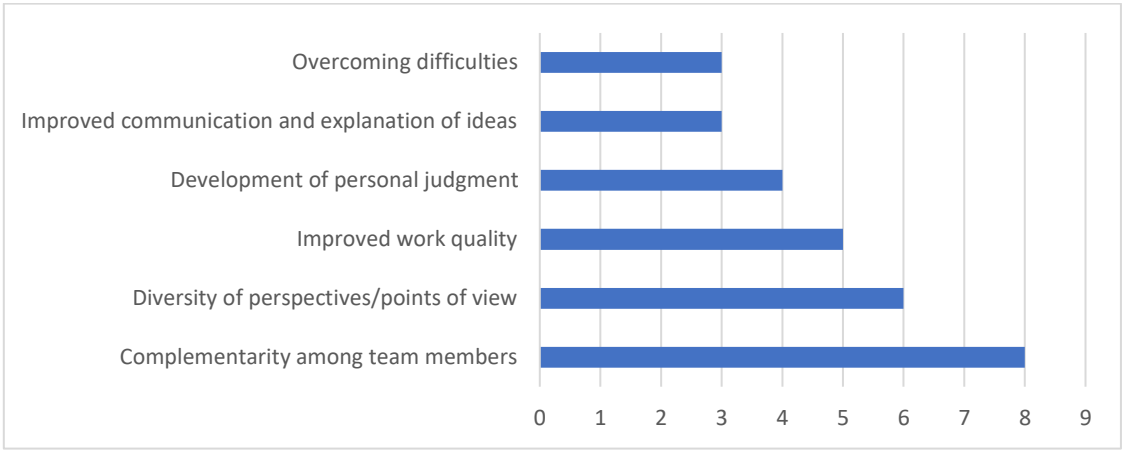
Finally, special events were highlighted as one of the most engaging and valuable strategies. As a result, students such as 3G and 2D proposed increasing and diversifying these events, incorporating roundtables, debates, or collaborative reflection activities. Similarly, 3G suggested the use of more concise missions with open-ended or branching

questions that allow learners to personalize their learning journey and avoid the feeling of overload. Ultimately, all these elements emphasize the need to perceive a gamified environment as a flexible system, one that can adapt to the diverse realities and needs of its target population.

Collaborative blended learning and critical thinking

In order to clarify the various factors surrounding CoBL as a strategy that incorporates game-based components and promotes critical thinking, semi-structured interviews were conducted with teams composed of two students each. The aim was to identify the strengths and weaknesses of these types of assignments, both from the gamified learning environment and the ABL perspectives. The first inquiry focused on how CoBL supports the development of critical thinking skills (see Figure 3).

Figure 3. Benefits mentioned by students regarding CoBL and critical thinking



Several teams highlighted that interacting with different viewpoints leads to a more comprehensive understanding and encourages the consideration of multiple possibilities, which ultimately results in improved outcomes. In this regard, team 1D2E noted: “We complement each other or choose the ideas that best align with what is being asked.” Participants also acknowledged that individual strengths are combined to overcome weaknesses and to approach tasks in a more holistic way. Team 3I3C stated: “When solving problems, we look at different perspectives, consider more options, and develop a more critical point of view.” This insight aligns with Béres, Magyar, and Turcsányi-Szabó (2012), who emphasize how reflection and the evaluation of ideas are essential in the collaborative construction of learning.

Another key theme raised by the teams is that collaboration enhances the ability to communicate and explain complex ideas. For instance, team 1C1M remarked: “Some may have ideas but don’t know how to develop them, so others with more practice can

help and improve the explanations. We would revise them until reaching an optimal quality." In this context, working together demands clarity and the ability to articulate thoughts so that others can understand and build upon them. This supports the view that dialogue is necessary to achieve shared goals, as underscored by Mandušić & Blašković (2015) and Alharbi et al. (2022).

The next component concerns how the teams organize their work to achieve the highest possible quality and, consequently, to effectively develop their critical thinking skills. In this regard, three typical modes of organization were identified, with their frequency of occurrence. Specifically, these three modalities are:

1. By tasks, where the workload is divided and each student usually completes an equal portion of the assignment (46%);
2. By roles, where the responsibilities are assigned based on specific functions within the team and the demands of the task (31%);
3. By objectives, in which team members work collaboratively step-by-step to complete each instruction as a group (23%).

The most common strategy is the division of tasks or sections, which is justified by teams as a way to manage workload and ensure that all components of the assignment are covered. Responsibilities are typically distributed evenly. This approach is particularly common in larger groups. For instance, team 2V3A explained: "We also distribute tasks based on difficulty. For assignments that require more than one step, we usually balance the workload, such as the number of questions." This analysis reveals that this method lacks a single standardized format and its effectiveness depends largely on the individual profiles of team members. However, during the discussion of this modality, several teams agreed that a major drawback is the lack of cohesion in the final product. When responsibilities are too segmented, the work may lack a unified structure and fail to reflect critical thinking. This issue aligns with the findings of Baker et al. (2019), who argue that such division can disrupt the dialogical nature of problem-solving, thereby weakening the critical reasoning process.

Another trend observed mainly in teams of three to five members is the use of more formal—though often flexible—role assignments. In this context, roles such as coordinator, writer, or presenter emerge to structure the group work. An interesting observation is how hierarchical rigidity is often challenged. For example, team 3G3S stated: "Everyone contributes to each other's roles; no one really takes on a fixed leader position." This reflects a constant flow of information and input among members,

aligning more with the idea of social negotiation proposed by Soysal (2020) and Rapanta (2024).

The missions were the context where the greatest variety of strategies was observed. Since these are assignments completed in pairs, organization was perceived as more manageable. Specifically, students reported role-based approaches (e.g., one as argument builder, the other as reviewer), as well as task-based methods (e.g., "you do this part today, I'll do the next one next time").

A particularly notable approach was goal-oriented distribution, as explained by team 2I2S: "We go step by step according to each objective. We both read the information, watch the videos or use any other available resources, then each of us proposes her own answer. After that, we compare and choose the best responses." This reflects a high level of collaboration, which is consistent with Challob et al. (2016), who emphasize the importance of students constructing and exchanging knowledge in order to make sense of the challenges they face.

Another key aspect explored in the interviews was the detection of difficulties when engaging in CoBL activities. Four main issues were identified with their percentage of occurrence: Coordination and communication problems (32%), lack of commitment or missed responsibilities (28%), clash of ideas (24%), and time management challenges (16%).

Coordination and communication issues were identified as the most recurrent challenge, especially in larger groups. Specific concerns included lack of response, delayed replies, or the difficulty of aligning all members around a common goal—factors that hindered progress. For instance, team 2J3E highlighted communication barriers where, "when we finally manage to connect, it's already too late." Similarly, 3I3C noted that without a fluid exchange of information, "it is almost impossible to set clear goals." These scenarios indicate that true collaborative work cannot exist if some members are excluded from the joint learning process.

A second major challenge involved non-compliance or lack of commitment from some team members, which led to uneven workload distribution and delays, becoming a significant source of frustration. Several students, including 3G3S, 1Z2D, and 1J1W, expressed feelings of anger and helplessness when they had to complete the responsibilities of others who simply refused to contribute. This reality contradicts the principles outlined by Peerasak, Chaiyot & Sumale (2015), who assert that CoBL requires

active participation and supports flexibility in task completion, suggesting that excuses for disengagement should be minimal in such learning environments.

However, this lack of involvement can also be linked to the difficulty of coordinating schedules, especially in the context of missions. Team 2V3A pointed out that internal disorganization often leads to assignments being left until the last minute. Likewise, 1C1M explained that extracurricular activities frequently take place at incompatible times, limiting the possibility of distributing tasks more efficiently across team members.

Lastly, some teams noted that while diverse perspectives are valuable, reconciling conflicting viewpoints requires considerable time and effort. As such, disagreements and "clashes of ideas" can slow decision-making and prolong discussions. Teams 3G3S and 1C1M identified issues such as discarding ideas under pressure, or having to rely on last-minute decisions due to time constraints. These limitations undermine the collaborative ideals proposed by Warsah et al. (2021), Mandušić & Blašković (2015), and Alharbi et al. (2022), which emphasize the importance of effective cooperation, negotiation, and interaction in achieving a shared objective and producing a high-quality final product.

Another relevant aspect to investigate was the influence of gamified elements on students' motivation to effectively complete CoBL assignments. The first common trend revealed that the possibility of earning more points often encouraged students to put in greater effort. Team 1D2E summarized this by stating: "It's a way to ensure our work is well done so we can get the highest number of points possible."

In addition, game elements promote a shared sense of competition and the desire to stand out. As a result, comparisons with peers or aspirations to reach the top rankings serve as incentives for team members to collaborate and enhance their learning. For example, 1J1W mentioned: "Being competitive works in our favour, since we set goals to earn as many points as possible and stay at the top." In this way, students commit to shared objectives and progressive improvement in their learning (Mandušić & Blašković, 2015; Alharbi et al., 2022).

A second frequently mentioned factor was that gamification encourages greater effort in preparation and work quality. Beyond simply completing assignments, game elements stimulate a pursuit of excellence, aligning with Marczewski's RAMP model. Moreover, teams 2J3E and 2I2S emphasized that peer feedback and teacher feedback were essential to achieving academic success, which is a critical feature in CoBL activities, as noted by Challob et al. (2016).

Third, gamification drives the definition of strategies and learning goals to maximize benefits. In this regard, students actively plan and organize to seize opportunities for additional rewards. For example, team 1Z2D described the use of specific "powers" that require pre-set objectives in order to receive a benefit, while 2V3A pointed out the chance to earn double points when submitting missions within the first week after they are assigned. These examples underscore the value of establishing shared goals, which is fundamental to the success of collaborative learning activities (Hamari et al., 2014; Valenzuela, 2021).

Finally, students reported the development of a “collective benefit” mindset within their teams, where individual success contributes to group success. In this sense, students perceive their actions as having a positive impact on their peers. Supporting this idea, team 3G3S stated: “We usually think as a group, avoiding selfishness—we try to benefit from each other’s actions.” This can be interpreted as an ultimate goal of CoBL, where sustained cooperation throughout the process leads to the achievement of a shared objective, in this case, earning the highest number of possible points (Mandušić & Blašković, 2015; Alharbi et al., 2022).

Role of technology in collaborative blended learning

Aligned with the third research question, it is important to understand how each team involved in the study uses technology to complete CoBL activities with the highest possible quality, as well as the challenges and opportunities associated with such use.

One of the main trends identified was that WhatsApp was the preferred communication application within teams. It was commonly used for chatting, sending voice notes, sharing files, coordinating tasks, and, in some cases, for calls or even watching videos together. According to team 2I2S, this app enables fluid and rapid communication for coordinating tasks, exchanging ideas, and resolving questions—an essential aspect of collaborative work. Similarly, teams such as 3G3S supported the idea that asynchronous communication methods tend to prevail, primarily due to the difficulty of aligning schedules for synchronous interaction.

Another prominent theme was the extensive use of Artificial Intelligence (AI), mainly as a support tool, though approached with caution. Tools such as ChatGPT, Deepseek and Gemini were frequently used for tasks like generating ideas, summarizing texts, improving writing, retrieving definitions, complementing information, and searching for sources. However, there was a widespread awareness of their limitations,

and several participants expressed concerns about the risk of losing critical thinking or reducing work quality due to overreliance, as highlighted by teams 3G3S and 1C1M.

Additional uses of AI included processing information (summarization), offering starting points for discussion, recalling data, defining technical concepts, and improving formal aspects of written work such as grammar and spelling. In this regard, team 2J3E noted: “It helps us complement our ideas or propose a point of view that we may have missed in our work; it’s also used to summarize topics.” However, some students—such as those from 2V3A and 2I2S—felt that AI-generated responses can be rigid, confusing, mediocre, or unreliable, which necessitates additional verification.

Regarding Google Docs or other collaborative editing platforms, teams acknowledged their potential for simultaneous multi-user collaboration, which facilitates real-time knowledge construction and visibility of progress. However, digital literacy issues were noted as a barrier to broader adoption, and, as team 1C1M pointed out, poor organization in these platforms can lead to chaos or hinder effective debate when the discussion shifts to the digital environment.

Finally, it is considered that teachers must play a key role in providing digital literacy feedback and coordinating virtual spaces (Challob et al., 2016). Many of the observations reported by students reveal a lack of proper preparation for technology use. For example, the widespread use of WhatsApp, despite being a social network not explicitly designed for educational purposes and one that can easily become a source of distractions, suggests a need for more structured digital strategies. This concern also applies to Google Docs, where students expressed a limited understanding of its full potential as a collaborative tool.

Conclusions

This study has demonstrated that a gamified learning environment grounded in an ABL approach, and supported by CoBL assignments, can effectively foster the development of students’ critical thinking skills. This is particularly evident among groups that were more actively engaged with the system, with comparatively lower impact observed in groups facing greater difficulties in integration.

In this context, there is a clear understanding of what it means ABL, as participants frequently expressed concern about evaluating the quality of their arguments and gradually improving them. Moreover, they consistently referred to how both the gamification elements and the CoBL activities enhance the development of their ideas and how this, in turn, impacts other critical thinking skills. This ultimately leads to the

establishment of strategies aimed at achieving mastery in the competencies being fostered.

A notable finding was that self-regulation emerged as a critical thinking related skill perceived to have developed the most following the implementation of the gamified environment. Students' reflections across various topics revealed a consistent concern for their academic performance, with many striving to set new learning goals through the achievement of special events, the acquisition of in-game powers, or collaborative work. Even among students with lower levels of engagement, the proposed changes revealed a genuine intent to improve and become more actively involved.

However, due to the limitations of this study, it was not possible to implement corrective actions that might improve the engagement of students with medium or low levels of involvement. Thus, it is recommended that future research explore gamified learning environments through longer-term interventions or alternative methodological frameworks that allow for the observation, implementation, and evaluation of adjustments to determine whether such changes lead to meaningful improvements.

Another limitation is that, in contexts where gamified classes have been established for several school years, it is possible to use multiple groups and compare mastery levels, rather than relying on a single case study group. This would allow for the observation of a wider range of student profiles, the assessment of whether mastery of both critical thinking skills and gamified elements improves over time, and the gathering of initial impressions from the levels where these strategies are first introduced, which could then be contrasted with the conclusions drawn from groups nearing graduation.

An important key takeaway is that gamified learning environments have proven to be flexible educational systems, capable of constant adaptation in response to evolving learning objectives. This study encourages further research not only within the field of Social Studies, but also across other subject areas and different target population (e.g.: adults or kids), to assess the applicability and impact of such approaches in diverse educational contexts.

Lastly, regarding CoBL assignments specifically, it is evident that students require greater scaffolding and guidance to achieve the intended learning outcomes more effectively. In this sense, it is crucial to provide clearer criteria for task execution and to create structured spaces that facilitate authentic collaboration. Moreover, there is a pressing need to advise and train students on how to leverage technology to enhance their collaborative work, both in synchronous and asynchronous settings.

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Authors' Declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.

Andrés Felipe Godínez Mora

31/05/2025

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Appendices

Appendix A. Focus Groups' guide of topics.

Focus Group 1: Highly Engaged Students

1. How has your active involvement in the gamified activities helped you improve skills like arguing your points of view, solving problems, or analysing reliable information?
2. Can you describe a specific activity or situation in which you achieve to think critically or approach a problem differently in classes or assignments?
3. What specific elements of the gamified system have most supported your development of critical thinking skills?

Focus Group 2: Moderately Engaged Students

1. Before and during your participations in class, have the gamified environment helped you develop skills like identifying reliable sources, solving problems, or supporting your opinions with reasons?
2. What elements of the Social Studies classes has made you reflect more or helped you see a problem from different angles?
3. What could make you want to engage more frequently in these activities?

Focus Group 3: Minimally Engaged Students

1. What factors have made it hard for you to engage in the gamified activities?
2. Do you think these types of activities can help students improve in skills like defending an argument, solving academic problems, or judging whether information is trustworthy? Why or why not?
3. When you did participate, did you feel any change in the way you approached questions or tasks that required deeper thinking?
4. What changes would make these activities more useful or relevant for developing your skills?

Appendix B. Guide for the semi-structured interview.

1. Thinking about the collaborative missions and the research project, how did working together help you analyse information more critically or solve problems more effectively?
2. How did your team organize and distribute roles during the assignments, trying to ensure your final work was well-argued and based on reliable information?
3. What technological tools did you use to complete the tasks—including, if applicable, any use of artificial intelligence—and what is your opinion on how those tools supported or hindered a critical learning?
4. What difficulties or limitations did you experience when participating in these types of collaborative blended learning activities—whether related to teamwork, time management, or the complexity of the topics?
5. How did the gamified elements of the class—such as EXP points, powers, or special events—affect your motivation to complete these assignments thoroughly and responsibly.

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