

THE PARADOX OF MOBILE DEVICES IN EDUCATION: PEDAGOGICAL INNOVATION, ACTIVE LEARNING METHODOLOGIES, AND CONTROL IN THE SCHOOL ENVIRONMENT

**O PARADOXO DOS DISPOSITIVOS MÓVEIS NA EDUCAÇÃO: INOVAÇÃO
PEDAGÓGICA, METODOLOGIAS ATIVAS E CONTROLE NO AMBIENTE
ESCOLAR**

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ABSTRACT

The growing presence of mobile devices in the school environment has expanded possibilities for interaction, access to information, and student participation, while also raising challenges related to regulation, attention, and the organization of educational practices. In this context, the debate surrounding pedagogical innovation, active learning methodologies, and technological control requires an understanding of how the regulation of these resources affects their integration into teaching and learning processes. Thus, the general objective of this study was to analyze how the control of mobile device use in the school environment creates tensions in the implementation of active learning methodologies and pedagogical innovation practices, considering the possibilities and limitations of integrating these technologies into educational processes. The research is characterized as qualitative and was conducted through two procedures: a bibliographic review and documentary research. The bibliographic review analyzed scientific articles, book chapters, and books related to the investigated topic, while the documentary research examined relevant national and international normative and institutional documents concerning the use of mobile devices in education. The study concluded that the control of mobile devices in the school environment creates a significant tension with the implementation of active learning methodologies and pedagogical innovation practices, particularly when regulation does not take into account the educational purposes for which these devices are used. The results indicate that the articulation among institutional control, teacher mediation, pedagogical intentionality, responsible autonomy, and student participation provides a more coherent perspective for integrating mobile technologies into educational processes, overcoming the simplistic opposition between prohibition and unrestricted use.

Keywords: Mobile devices; Active learning methodologies; Pedagogical innovation; Institutional control.

RESUMO

A presença crescente dos dispositivos móveis no ambiente escolar tem ampliado as possibilidades de interação, acesso à informação e participação discente, ao mesmo tempo em que suscita desafios relacionados à regulação, à atenção e à organização das práticas educativas. Nesse contexto, o debate entre inovação pedagógica, metodologias ativas e controle tecnológico exige compreender de que maneira a regulação desses recursos interfere em sua integração aos processos de ensino e aprendizagem. Assim, o objetivo geral deste estudo foi analisar como o controle do uso de dispositivos móveis no ambiente escolar tensiona a implementação de metodologias ativas e as práticas de inovação pedagógica, considerando as possibilidades e os limites da integração dessas tecnologias aos processos educativos. A pesquisa caracteriza-se como qualitativa, desenvolvida mediante dois procedimentos: revisão bibliográfica e pesquisa documental. A revisão bibliográfica analisou artigos científicos, capítulos de livros e livros relacionados à temática investigada, enquanto a pesquisa documental examinou documentos normativos e institucionais nacionais e internacionais pertinentes ao uso de dispositivos móveis na educação. A pesquisa concluiu que o controle dos dispositivos móveis no ambiente escolar estabelece uma tensão efetiva com a implementação de metodologias ativas e práticas de inovação pedagógica, especialmente quando a regulação não considera as finalidades educacionais de seu uso. Os resultados indicam que a articulação entre controle institucional, mediação docente, intencionalidade pedagógica, autonomia responsável e participação discente oferece uma perspectiva mais coerente para integrar tecnologias móveis aos

processos educativos, superando a oposição simplista entre proibição e liberação.

Palavras-chave: Dispositivos móveis; Metodologias ativas; Inovação pedagógica; Controle institucional.

1. INTRODUCTION

The introduction of mobile devices into everyday school life has generated new opportunities for interaction, access to information, communication, and engagement in teaching and learning processes. Smartphones, tablets, and other connected devices have become part of students' social and educational experiences, bringing opportunities for connection with active learning methodologies and pedagogical practices involving the use of technologies into the school context. However, their presence also raises concerns regarding attention, the organization of pedagogical work, student autonomy, and the need to establish limits on their use.

This technological advancement also brings legal and pedagogical challenges, particularly because the use of mobile devices in the school environment is regulated by restrictive legislation, such as Law No. 15,100/2025, which limits their use with the aim of preserving discipline. However, initiatives such as the distribution of tablets within the public school system of Ceará, combined with the work of Educational Innovation Management Agents (Agentes de Gestão da Inovação Educacional, AGIs), indicate promising approaches to mediating this tension and fostering active learning methodologies in compliance with the regulations currently in force.

A paradox therefore emerges that underpins the need for this investigation: the same devices that can serve as allies in participatory, collaborative, and student-centered teaching practices may also require mechanisms of control, restriction, and regulation within the school context. The issue, therefore, is not simply whether to allow or prohibit the use of these technologies, but rather to determine under what circumstances they can be integrated into educational objectives. Examining this relationship contributes to the current debate on pedagogical innovation and on the parameters that should guide the responsible integration of mobile technologies into the educational context.

The emergence of mobile devices in the school environment creates a multifaceted educational scenario in which technological advances and pedagogical challenges coexist. The tension between the potential of these tools to foster active learning methodologies and the control mechanisms imposed upon them reveals a complexity that extends beyond the simple dichotomy between permission and prohibition (Perego; Martins, 2026). In this regard, analyzing this paradox is fundamental to understanding how regulation can both foster and constrain innovative practices, requiring an approach that encompasses the institutional, cognitive, and sociocultural dimensions involved in technological mediation.

Within this context, the research was guided by the following question: How does the control of mobile device use in the school environment create tensions in the implementation of active learning methodologies and pedagogical innovation practices? Based on this question, the general objective was established as follows: to analyze how the control of mobile device use in the school environment creates tensions in the implementation of active

learning methodologies and pedagogical innovation practices, considering the possibilities and limitations of integrating these technologies into educational processes.

To achieve this purpose, three specific objectives were defined: to investigate the possibilities of using mobile devices for the development of active learning methodologies in the school context, considering their contributions to student participation, autonomy, and agency; to analyze control practices and restrictions on the use of mobile devices in the school environment, identifying their implications for pedagogical innovation and for the educational use of these technologies; and to discuss possibilities for articulating institutional control, the pedagogical use of mobile devices, and innovation, seeking to understand the conditions required for technological integration consistent with active learning methodologies.

Regarding the methodological procedures, the research is characterized as qualitative and was conducted through two procedures: a bibliographic review and documentary research. The bibliographic review analyzed scientific articles, book chapters, and books related to the topic under investigation, while the documentary research examined relevant national and international normative and institutional documents concerning the use of mobile devices in education. This methodological composition made it possible to connect the scientific literature on the subject with documents that establish standards, provide data, and present guidelines concerning the presence of digital technologies in the educational context.

The article is organized into four sections, in addition to the relevant preliminary and post-textual elements: Introduction, Theoretical Framework, Methodology, and Final Considerations. The first section presents the contextualization of the research problem, the research question, and the objectives; the second brings together the theoretical discussion on mobile devices, active learning methodologies, control, and pedagogical innovation; the third describes the approach and procedures employed in the investigation; and the fourth systematizes the main findings of the analysis, revisits the research question and the proposed objectives, and presents possibilities for future research.

2. THEORETICAL FRAMEWORK

The research was theoretically grounded in three interconnected topics. The first topic discussed the use of mobile devices in relation to active learning methodologies, emphasizing how these technologies can influence student participation, autonomy, and agency. The second topic analyzed practices for controlling mobile devices within the school environment, in light of the intersections among regulation, restriction, and pedagogical innovation. The third topic focused on pedagogical innovation and the responsible integration of these technologies, seeking to understand how to balance use and control based on pedagogical intentionality, teacher mediation, responsible autonomy, and institutional criteria consistent with educational processes.

2.1. Mobile Devices And Active Learning Methodologies: Potentialities For Student Participation And Agency

The introduction of mobile devices into the school environment transforms the ways in which students access information, interact with content, and engage in educational practices. However, this integration does not, in itself, produce educational outcomes, as its contribution depends on pedagogical intentionality, teacher mediation, and its articulation with approaches that ensure students' active participation in the learning process. The incorporation of mobile devices into everyday school life does not automatically translate into active learning. Rather, their effectiveness depends on intentional pedagogical mediation capable of guiding students toward conscious and reflective participation. According to Corrêa, Boll, and Nobile (2022), active learning methodologies associated with technological use should prioritize investigative and collaborative engagement, preventing devices from becoming merely instruments for passive consumption of information. Furthermore, Gomes et al. (2026) emphasize that student agency is enhanced when the educational environment provides gradual autonomy aligned with teacher supervision, which entails a reconfiguration of power and control relations within the school environment. In this sense, mobile devices can be aligned with practices that are investigative, collaborative, problem-based, and oriented toward knowledge production.

Perego and Martins (2026, p. 140) observe that:

The presence of digital technologies in schools has ceased to be a peripheral possibility and has become one of the central issues in contemporary education. Computers, digital whiteboards, virtual environments, applications, collaborative platforms, artificial intelligence, and mobile devices have become part of the repertoire of institutions and teachers, with varying degrees of intensity. This process has fostered the development and dissemination of approaches guided by active learning methodologies, in which students no longer occupy exclusively the position of content recipients but participate in situations involving investigation, problem-solving, production, collaboration, projects, and decision-making. At the same time, the same technological expansion has introduced problems related to fragmented attention, recreational use during classes, parallel communication, social media, unequal access, and teachers' difficulty in simultaneously monitoring the school content and what each student is doing on their device.

This shift repositions mobile devices within the educational debate, as their use can make school activities more similar to the digital practices that students already engage in in their daily lives. However, the same authors emphasize that this expansion is also associated with fragmented attention, recreational use, parallel communication, and the difficulties students face in keeping up with the content presented by teachers (Perego; Martins, 2026).

The relationship between mobility and learning is also manifested in the expansion of access to educational resources. Ribeiro et al. (2021,

p. 5) state that “the use of mobile devices proved effective by allowing students constant access to linguistic resources.” This facilitates situations in which students can access materials, perform activities, and review content at different times, reducing the need for a single, face-to-face learning experience. Thus, the device becomes a means of access and interaction, always linked to clearly defined pedagogical purposes.

Considering the potential of mobile devices, Silva (2020) and Almeida and Costa (2022) indicate that these resources foster dynamic environments that promote student autonomy and agency. Active learning methodologies supported by these devices constitute effective strategies for engagement and knowledge construction, as evidenced by practices such as the flipped classroom and collaborative learning (Martins, 2019).

Mobility can also foster self-management processes. Corrêa et al. (2019, p. 3) highlight that “flexibility in the use of mobile devices encourages students to develop self-management skills.” The possibility of selecting resources, organizing schedules, and deciding on study strategies shifts part of the responsibility for the educational process to the students themselves. In active learning methodologies, this dimension is particularly relevant because autonomy is not limited to the freedom to use tools but also involves conscious participation in decisions related to learning.

Interaction constitutes another dimension associated with the educational use of mobile devices. Silva (2022, p. 40) states that these resources enable students to “interact with content and peers in real time,” contributing to collaborative and interactive practices. This characteristic can foster activities involving collective

production, communication, information sharing, and the joint construction of responses. Thus, mobile technology acquires pedagogical significance when it expands the forms of interaction envisaged by the activity rather than merely replacing conventional resources.

Table 1 below systematizes the main dimensions through which mobile devices can be related to active learning methodologies, simultaneously highlighting their pedagogical contributions and the conditions required for their use to foster student participation and agency.

Table 1. Mobile Devices and Active Learning Methodologies: Pedagogical Dimensions, Contributions, and Conditions of Use

Pedagogical dimension	Contribution of mobile devices	Relationship with active learning methodologies	Condition for pedagogical use
Access and mobility	Expanded access to educational content and resources across different spaces and times	Fosters investigation, research, and continuity of activities	Selection of resources aligned with learning objectives
Autonomy and self-management	Possibility of organizing time, resources, and study strategies	Encourages participation in learning-related decisions	Teacher guidance and progressive development of autonomy

Interaction and collaboration	Communication and real-time information sharing	Fosters collaborative activities and collective construction	Proposals that require meaningful interaction among students
Personalization	Adaptation of resources, rhythms, and forms of access to content	Enables differentiated learning experiences	Pedagogical mediation and monitoring of the student's learning pathway
Student agency	Expanded possibilities for production, research, and decision-making	Reinforces the student's active role in the educational process	Investigative, problem-based, and goal-oriented activities
Pedagogical mediation	Integration of different digital resources and languages	Supports active and contextualized practices	Teacher planning, criteria for use, and monitoring
Limitations and risks	Distraction, recreational use, unequal access, and monitoring difficulties	May compromise participation and active learning	Clear rules, pedagogical guidance, and intentional use
Access and monitoring	Access-related difficulties and challenges in monitoring	May affect participation and active learning	Clear criteria and continuous pedagogical monitoring

Source: Prepared by the author based on Ribeiro et al. (2021), Corrêa et al. (2019), Silva (2022), Botelho et al. (2024), Corrêa, Boll, and Nobile (2022), Perego and Martins (2026), Gomes et al. (2026), and Cajado et al. (2026).

Botelho et al. (2024) also relate mobile devices, active learning, and student autonomy. The authors analyze the use of these technologies in conjunction with active learning methodologies and identify possibilities related to access to information, personalized learning, and self-management, while also highlighting limitations associated with infrastructure, teacher training, and inequalities in access. In this sense, the technological resource needs to be understood within the concrete conditions in which pedagogical practice takes place.

The incorporation of mobile devices into active teaching and learning methodologies requires particular attention to the essence and characteristics of the proposed activity. It is fundamental to consider how each activity relates to the use of these technologies, taking into account its purpose and the ways in which they can enhance interaction and participant engagement. Corrêa, Boll, and Nobile (2022) provide a detailed discussion of the interconnections among digital culture, mobile media, and active teaching methodologies. The authors argue that the integration and articulation of these components are fundamental, as they can significantly contribute to restructuring and improving learning experiences. The discussion emphasizes how these innovative tools and approaches can transform the educational process by providing new forms of interaction and student engagement. The device or technological resource in question assumes a more robust and effective educational role when it is associated with contexts that require investigation, collaboration among individuals, knowledge production, and decision-making, rather than being limited to individual use aimed merely at content absorption. This enriched approach enables a more dynamic and interactive learning experience.

This perspective is significantly aligned with the discussions presented by Gomes et al. (2026), which address topics such as pedagogical innovation, teacher mediation, the use of assistive technologies, and collaboration-based team learning. Within this specific context, innovation does not result merely from the introduction or existence of any particular technology, but rather from the restructuring of pedagogical interactions and changes in the conditions that enable students to participate actively in the educational process. The teacher's role as a mediator remains fundamental for defining learning objectives, providing appropriate guidance for the proposed activities, selecting the most suitable resources, and creating the conditions necessary for technology to be integrated into the educational process in a meaningful manner and in alignment with pedagogical objectives.

Cajado et al. (2026), when examining different school contexts characterized by the use, on the one hand, and the absence, on the other hand, of cell phone use, meaningfully articulate concepts related to educational technologies. In addition, they address interdisciplinarity and discuss strategies aimed at promoting student participation and supporting the recovery of student learning. Their research emphasizes that the debate concerning mobile devices should not be merely restricted to the dichotomy between their use and prohibition, since this issue encompasses the development and definition of pedagogical practices capable of structuring and regulating the presence of these devices within the school context. Thus, active learning methodologies constitute an important reference for understanding mobile devices, which can be viewed as tools subordinate to educational objectives, pedagogical mediation, and students' active participation in the learning process. These approaches not only emphasize the function

of the devices but also highlight the central role of the student within this educational context.

2.2. Control Of Mobile Devices In The School Environment: Between Regulation, Restriction, And Pedagogical Innovation

The presence of mobile devices in the school environment has required educational institutions to establish more precise definitions regarding their uses, limits, and purposes. The issue is not limited to authorizing or prohibiting these devices, as it involves pedagogical, administrative, and educational decisions. In this context, regulation needs to consider students' characteristics, educational stages, and the objectives of the proposed activities. Pereira and Maciel (2025) emphasize that the debate surrounding the prohibition of cell phones is associated with contemporary educational challenges and with the ways in which institutions respond to technological transformations.

Among the various approaches to technological control in the school context, there is a need to rethink regulation not merely as a punitive measure, but as a pedagogical strategy capable of organizing the use of devices in accordance with educational objectives (Santos, 2025). This focus implies recognizing that restrictive control, although it may reduce distractions, may also hinder the innovative potential of mobile technologies, particularly when it is disconnected from educational processes aimed at developing students' digital autonomy (Pereira; Maciel, 2025). The convergence of guidance, teacher training, and evaluation of use emerges as a *sine qua non* condition for control to be productive and promote effective transformations in educational practices (Coelho, 2026).

Law No. 15,100/2025, which regulates the use of mobile devices in basic education, establishes provisions prohibiting their use for non-pedagogical purposes. Although this provision justifies efforts to maintain order in the school environment, it has been interpreted as a barrier to innovation because it restricts flexibility in teachers' use of these devices (Souza Júnior, 2025; Santos, 2023). The lack of clear criteria creates uncertainty that frequently results in rigid prohibitions, limiting the educational use of these devices.

Brazilian regulations have established specific responsibilities for public and private schools, assigning educational institutions the task of defining criteria for the use of these devices. Decree No. 12,385/2025 determines the development of strategies for guidance, teacher training, pedagogical use, and the safekeeping of devices. Among these provisions is the establishment of "criteria to guide the pedagogical use of personal portable electronic devices" (Brasil, 2025, Art. 4). The regulation, therefore, does not establish merely a prohibitive logic, but also recognizes the need to organize the presence of these resources from a pedagogical perspective.

This perspective makes it relevant to distinguish disciplinary control from pedagogical regulation. The former tends to focus on containing behaviors considered inappropriate, whereas the latter seeks to establish conditions under which technology can be used in accordance with previously defined educational objectives. Decree No. 12,385/2025 itself provides for institutions to establish "guidance strategies for students and their families" (Brasil, 2025, Art. 4). Guidance, in this sense, forms part of the regulatory process and expands institutional responsibility beyond mere supervision.

However, it was observed that public digital inclusion programs, such as the distribution of tablets to students in the Ceará state education system, together with the work of Educational Innovation Management Agents (AGIs), play a crucial role in mediating between legal regulations and pedagogical demands. AGIs provide teacher training, monitoring, and support for the pedagogical use of technologies, fostering teacher and student engagement in the effective use of active learning methodologies, even in view of the limitations imposed by legislation (SEDUC-CE, 2024; Ribeiro; Silva, 2022; Almeida; Ferreira, 2023).

The need to establish limits is also supported by evidence concerning the amount of time spent using digital devices for school-related activities. According to the OECD (2023, pp. 194–195), “students who spent between five and seven hours per day on these devices performed worse than those who used them between three and five hours.” The same source reports that “among students who used the devices for more than seven hours per day, performance was even lower.” These data do not establish a simple causal relationship between technology and learning, but they reinforce the need to discuss the intensity, purpose, and organization of use.

The issue, therefore, is not whether to regard the mobile device as intrinsically beneficial or harmful to education. Educational outcomes depend on the conditions under which its use occurs, the purpose of the activity, teacher mediation, and the rules established by the school. Santos (2025, p. 2) states that “pedagogical intentionality in the incorporation of digital technologies thus emerges as a central issue.” Along the same lines, the author argues that planned use should be articulated with teacher training, infrastructure, and the development of innovative pedagogical

practices. Table 2 below systematizes the relationships among forms of control over mobile devices, their institutional purposes, and their possible effects on pedagogical innovation.

Table 2. Control of Mobile Devices in the School Environment: Regulation, Restriction, and Conditions for Pedagogical Innovation

Dimension	Form of Control	Institutional Purpose	Pedagogical Implications
Guidance	Information for students and families	Establish responsibilities and expectations regarding use	Fosters a shared understanding of the rules
Teacher training	Training for pedagogical use	Prepare teachers to integrate technology into educational practices	Expands planning and mediation capabilities
Pedagogical regulation	Definition of criteria for use	Link devices to learning objectives	May foster planned and contextualized uses
Restriction	Limitation or prohibition at certain times	Reduce distractions and uses incompatible with activities	May organize classroom dynamics but requires pedagogical alternatives
Device safekeeping	Collection or storage during defined periods	Prevent unauthorized use	May reduce interference, depending on the purpose and duration of the measure
Teacher mediation	Monitoring of activities	Guide digital behavior and task	Relates control, autonomy, and

	performed on devices	development	student participation
Evaluation of use	Assessment of pedagogical effects	Identify the appropriateness of the strategies adopted	Allows rules to be revised according to observed educational outcomes

Source: Brazil (2025); OECD (2023); Pereira and Maciel (2025); Santos (2025); Coelho (2026); Gomes et al. (2026); Cajado et al. (2026); CGI.br (2024); Valente (2020).

The effectiveness of control measures is also related to the presence of well-defined criteria aligned with the pedagogical approach. Coelho (2026) highlights the importance of assessing what actually changes in school practices when mobile phones are banned, based on the experience of several schools that have undergone such restrictions. Control, by itself, is not sufficient to ensure higher pedagogical quality, particularly when there are no strategies to promote student participation and the organization of activities.

According to Cajado et al. (2026), the issue of mobile phone use and misuse is situated within a context in which other educational approaches may help restore learning. This perspective shifts the discussion from a simple dichotomy between the presence and absence of devices toward an investigation of the educational practices surrounding them.

By integrating pedagogical innovation, teacher mediation, assistive technologies, and team-based learning, Gomes et al. (2026) emphasize that technological mediation must be linked to the pedagogical and institutional conditions under which it takes place.

The digital participation of children and young people outside school is another important aspect of this discussion.

According to data from CGI.br (2024), the Internet is deeply embedded in the daily lives of this population, making it ineffective to regard digital experience as something unrelated to school education. Therefore, the school also assumes an educational role with regard to the responsible, critical, and purposeful use of technologies. From this perspective, regulation may have an educational dimension by establishing criteria for use, encouraging reflection on digital practices, and contributing to an understanding of educational objectives.

Valente (2020) contributes to this discussion by situating technologies within the context of changes in information and learning processes. The incorporation of digital tools transforms ways of accessing, interacting with, and producing knowledge, but it does not eliminate the need for pedagogical planning. The device itself is not a methodology. Its role varies according to the proposed activity, teacher mediation, and students' active engagement in the knowledge-construction process.

Thus, the control of mobile devices at school should be understood as a balance among regulation, prohibition, and pedagogical integration (Brazil, 2025; OECD, 2023). Cajado et al. (2026), CGI.br (2024), and Valente (2020) demonstrate that it is not merely the physical presence of devices that matters, but rather the institutional and pedagogical conditions that enable their use. When control is accompanied by monitoring, teacher training, planning, and mediation, it can structure periods of use and non-use. However, when it is limited solely to prohibition, it may restrict

learning experiences involving the use of technologies. It is within this tension that the paradox of mobile phones at school emerges: their use must be regulated without allowing regulation to hinder innovations in teaching (Santos, 2025; Pereira; Maciel, 2025; Coelho, 2026; Gomes et al., 2026).

2.3. Pedagogical Innovation And Responsible Integration Of Mobile Devices: Possibilities For Balancing Use And Control

The discussion of pedagogical innovation and mobile devices requires moving beyond the understanding that the presence of technologies, in itself, constitutes innovation. The incorporation of these resources into educational processes depends on the purposes attributed to their use, the teaching strategies employed, and the mediation provided by teachers. In this sense, technology can expand learning experiences, but it can also introduce new forms of distraction, dependence, and inequality. The central issue therefore shifts from the mere presence of devices to the pedagogical, institutional, and training conditions that guide their use.

Pedagogical innovation, when integrating mobile devices, should be understood as a dynamic process that requires careful planning and explicit alignment with curricular goals. Bannell (2017) problematizes the fact that the mere adoption of technology may exacerbate inequalities if it is not accompanied by inclusive and critical educational actions. Desmurget (2021) complements this perspective by highlighting the "hidden factors" underlying technological impacts, emphasizing that increased screen time does not necessarily correspond to significant educational advances. Thus, qualified teacher mediation constitutes a central axis for

directing the use of devices, avoiding uncritical digitalization and promoting dialogical and contextualized learning (Santos et al., 2026).

This perspective highlights the need to understand technology as an element integrated into educational experiences rather than as an end in itself. Bannell (2017) specifically problematizes this relationship by questioning whether educational technology expands or reduces human experience and whether it contributes to preserving the world and reducing inequalities or, conversely, to increasing them. This reflection is particularly relevant when mobile devices are incorporated into school practices, as their use needs to be analyzed according to the effects produced on the educational experience, student participation, and the relationships established throughout the learning process.

Experiencing the world, in the fullest sense of the word, in all the forms it can take, including aesthetic and ethical dimensions, means expanding the many ways of being in the world. It also means preserving a world in which one can have experiences. Does Educational Technology help expand human experience or reduce it? Does it help preserve the world and reduce educational and social inequality, or does it increase such inequality? (Bannell, 2017, p. 49).

The careful integration of devices also requires consideration of effects that may go unnoticed in everyday school life. Desmurget (2021) warns that the effects of digital technologies are complex and that certain factors may operate in less visible ways. This perspective

indicates that pedagogical innovation should not be synonymous with increased screen time, particularly in the absence of clearly defined educational goals. Teacher mediation is therefore the condition that enables the device to be integrated as a teaching resource rather than merely as an additional element in the school routine.

[...] the issue of the impact of digital technology is far from trivial, since the complexity and interactivity of the functional channels involved facilitate the concealment of the impacts produced. But that is not all. The case becomes even more complex when the existence of possible "hidden factors" is taken into account, acting secretly, without regard to established knowledge (Desmurget, 2021, p. 60).

Pedagogical innovation, in this sense, involves planning, intentionality, and the integration of technology, curriculum, and teaching approaches. Santos et al. (2026) associate innovation with the reassessment of teaching strategies and teacher mediation in the integration of technology. These practices, therefore, do not occur spontaneously, and Botelho et al. (2024) discuss mobile devices in active learning and student autonomy, while Rocha and Nobre (2024), in analyzing the relationships between technology and pedagogical innovation in basic education, help situate these resources within contexts that require instructional organization and student engagement. The issue, therefore, is not to increase the use of devices indiscriminately, but rather to decide when, how, and for what purposes they should be used.

Santos et al. (2026, p. 02) state that:

Pedagogical innovation in the contemporary educational context requires a profound review of teaching strategies so that the use of digital technologies promotes truly meaningful and dialogical learning. It can be observed that this change requires teachers to act as mediators capable of integrating technological tools into the curriculum in an intentional and planned manner to achieve clear educational objectives, preventing innovation from being reduced to the mere digitalization of traditional materials.

Given these conditions, the articulation among innovation, autonomy, mediation, and control can be systematized in Table 3 below.

Table 3. Dimensions for the Responsible Integration of Mobile Devices in the School Environment

Dimension	Guideline for Educational Practice	Relationship to Pedagogical Innovation
Pedagogical Intentionality	Define educational objectives before using the device.	Links technology to the curriculum and learning purposes.
Teacher Mediation	Guide, monitor, and assess activities carried out using mobile devices.	Promotes planned practices and prevents merely instrumental use.
Student Participation	Encourage critical, creative, collaborative,	Expands students' engagement in learning

	and responsible use of technology.	processes.
Responsible Autonomy	Develop the capacity for choice and self-regulation when using digital resources.	Relates student autonomy to education for the conscious use of technology.
Institutional Regulation	Establish clear criteria regarding the times, purposes, forms, and limits of use.	Organizes the use of technology without reducing school policy to simple prohibition.
Digital Safety and Citizenship	Foster ethical, responsible, and safe practices in digital environments.	Integrates technological education with individual and collective responsibility.
Balance between Use and Control	Articulate guided freedom, institutional limits, and pedagogical objectives.	Enables the reconciliation of pedagogical innovation, school organization, and responsibility.

Source: Bannell (2017); Desmurget (2021); UNESCO (2023); Santos et al. (2026); Botelho et al. (2024); Rocha and Nobre (2024); Moran (2001; 2015); Quiroga and Bessa (2024).

The perspective presented in the figure is consistent with the understanding that the adoption of technology does not occur spontaneously but rather constitutes a process that requires pedagogical and institutional criteria capable of structuring the various forms of use.

According to Moran (2001), the Internet simultaneously constitutes a channel for research, communication, and the performance of tasks and services, thereby expanding the possibilities for interaction provided by digital technologies. In the educational environment, this diversity requires guidance so that the resource is used in

accordance with clearly established educational goals, rather than merely because the equipment is available. Regarding the usability of the Internet and its extensions, Moran (2001, p. 25) states: “The Internet is a research medium, whose keyword is “search.” It is also a communication medium, with tools such as “chat,” “e-mail,” and forums. But, fundamentally, the Internet is becoming a major business medium, a space where new virtual, online services are emerging”.

The integration of mobile devices is also related to active learning methodologies, in which student participation requires learning situations organized to foster interaction, production, and collaboration. Moran (2015) emphasizes the articulation between physical and digital spaces and the need to balance different forms of communication in the educational process. This understanding shifts the debate from an opposition between allowing and prohibiting toward a discussion of criteria for use, teacher monitoring, and responsible student participation. Regulation, in this sense, can function as an organizing element of pedagogical practice when articulated with clear objectives.

What technology brings today is the integration of all spaces and times. Teaching and learning occur through a symbiotic, profound, and continuous interconnection between what we call the physical world and the digital world. [...] Teachers need to continue communicating face-to-face with students, but also digitally, through mobile technologies, balancing interaction with everyone and with each individual (Moran, 2015, p. 16).

At the intersection of digital technologies, subjectivity, and supervision, it is becoming increasingly evident how important this combination is. While Quiroga and Bessa (2024) draw attention to smartphones and social media, further developing this discussion, UNESCO (2023) presents a definition of educational technology that emphasizes choices related to the purposes, people, and circumstances of use. In this regard, the presence of mobile devices in schools should not be analyzed solely in terms of whether they are permitted or prohibited, but rather according to how, why, when, and for what purposes these instruments become part of educational practices. It is through this balance among innovation, pedagogical intentionality, participation, and responsibility that the proposal synthesized in Figure 1 below can be understood.

Figure 1. Pedagogical Innovation and the Responsible Integration of Mobile Devices



Source: Based on UNESCO (2023)

The responsible integration of mobile devices is portrayed as an interweaving of purposeful innovation, conscious and intentional use, balance and responsibility, participation, and student agency. These aspects shift the analysis away from a simplistic opposition between technology and control toward a perspective centered on pedagogical mediation, in which the device is no longer regarded merely as an element of limitation or unrestricted freedom, but

rather as a resource whose educational value varies according to the objectives, strategies, and context of its application. Thus, responsible integration leads to the understanding that technology is not neutral in relation to education and that criteria must be established that take into account learning, participation, safety, autonomy, and responsibility.

3. METHODOLOGY

It is necessary to investigate the paradox surrounding mobile phones in education through a methodology capable of capturing the interactions among pedagogical innovation, active learning methodologies, and control within the school environment. This is a phenomenon with pedagogical, institutional, social, and technological dimensions, which cannot be understood solely in terms of the use of technological devices in the classroom, but also in terms of the meanings attributed to such integration and the norms and guidelines governing their use. Therefore, establishing procedures that are appropriate to the research problem is essential to ensure that the analysis is scientifically grounded and that a coherent connection is maintained among the object of study, the objectives, and the evidence analyzed.

The research adopts a qualitative approach, as it prioritizes the interpretation of educational phenomena based on their meanings, relationships, contexts, and particularities. In the current context of scientific research, this perspective is widely employed in the Human and Social Sciences, as it enables the examination of complex phenomena that cannot be fully understood solely through quantitative measurements. According to Denzin and Lincoln (2018), qualitative research consists of interpretive practices that enable the

exploration of phenomena within their contexts, while Alexandre (2021) emphasizes that the methods employed must be appropriate to the nature of the problem under investigation.

Two research methods were employed: a literature review and documentary research. A literature review makes it possible to organize and assess the existing scientific knowledge on a given subject, facilitating the articulation of different theoretical approaches and the identification of arguments relevant to the research question. For this study, this procedure was supported by the examination of scientific articles published in academic events and journals, book chapters, and books addressing mobile devices, active learning methodologies, pedagogical innovation, and technological control in education. According to Almeida (2021), the systematic organization of sources is crucial for the construction of scientific knowledge.

Documentary research, in turn, was employed to analyze institutional documents and publications produced by national and international organizations directly related to the topic under investigation. The documents examined included Brazilian Decree No. 12,385 of February 18, 2025; the TIC Kids Online Brasil 2024 survey conducted by CGI.br; the OECD report entitled *PISA 2022 Results: Learning During and From Disruption*; and the *Summary of the 2023 Global Education Monitoring Report* published by UNESCO, entitled *Technology in Education: A Tool on Whose Terms?*. Documentary research makes it possible to examine documents that record norms, guidelines, information, and institutional positions, thereby helping to contextualize the object of study and to confront different dimensions of the reality under investigation (Salge, Oliveira, & Silva, 2021).

The strategy of combining a literature review with documentary research was an appropriate methodological choice, as both procedures performed complementary roles in the analysis developed. The literature review enabled the construction and examination of the scientific production concerning the research problem, while documentary research enabled the analysis of normative, institutional, and educational documents addressing the use of technologies in the context under investigation. This articulation strengthened the qualitative inquiry by establishing relationships between theoretical formulations and documentary evidence without reducing the phenomenon to a single source of information, in accordance with the methodological principles presented by Denzin and Lincoln (2018), Alexandre (2021), Almeida (2021), and Salge, Oliveira, and Silva (2021).

4. FINAL CONSIDERATIONS

The discussion of the paradox surrounding mobile devices in education goes beyond the simple institutional decision to allow or prohibit the use of mobile phones and other digital resources in schools. The introduction of these technologies transforms the ways in which students interact, communicate, access information, and participate, while also creating challenges related to attention, instructional organization, and institutional control. The research is therefore relevant insofar as it investigates this tension between innovation and regulation, considering that mobile devices acquire educational meaning only when aligned with teaching objectives, the methodologies employed, and teacher mediation.

It is worth emphasizing that pedagogical innovation does not require the constant presence of mobile devices, but rather requires

technology to be available when its mediation is intended to transform teaching practices and learning processes. Overcoming the tension inherent in this dynamic requires clear guidelines for the guided use of digital media, framing the debate on screen-related boundaries as a collective exercise in digital responsibility.

Throughout the analysis, it was possible to answer the research question: “How does the control of mobile device use in the school environment create tensions in the implementation of active learning methodologies and pedagogical innovation practices?” It was found that control can help organize time, spaces, behaviors, and conditions of use, but it can also limit educational experiences when applied without appropriate criteria. The tension identified, therefore, does not originate from control itself, but from how such control is conceived and related to educational goals, methodological approaches, and the actual circumstances in which technologies are used.

The general objective was achieved insofar as the analysis made it possible to understand that the relationship among mobile device control, active learning methodologies, and pedagogical innovation cannot be reduced to a simple opposition between allowing and prohibiting their use. The three specific objectives were also achieved: the possibilities of using devices in practices that promote participation, autonomy, and student agency were examined; the limitations and forms of control within the school context were investigated; and alternatives for articulating institutional regulation, pedagogical use, and innovation were discussed. Accordingly, the study advocates a relational understanding of the phenomenon, in which technology, teaching practice, and school organization cannot be considered in isolation.

Regarding the first component of the theoretical framework, the analysis demonstrated that mobile devices become allies of active learning methodologies when employed for educational purposes, enhancing student participation, collaboration, communication, and agency. The analysis also showed that the mere availability of technology does not guarantee changes in pedagogical practices. Educational use is associated with teacher mediation, the way activities are organized, and the ability to connect digital resources with learning objectives. Thus, technology constitutes a resource whose contribution to education depends on the circumstances in which it is integrated into the teaching and learning process.

The second component brought to light the ambivalence of control practices within the current educational debate. Regulation may establish boundaries that are necessary for organizing the school environment, maintaining attention, and promoting coexistence, but generalized prohibitions may reduce opportunities for the pedagogical use of devices. In the third component, the analysis enabled a shift toward a perspective of balance between use and control, highlighting the need for pedagogical intentionality, teacher mediation, responsible autonomy, digital citizenship, institutional criteria, and student participation. The issue, therefore, is not a choice between unrestricted freedom and total prohibition, but rather between coherent ways of integrating technology into educational practices.

Another avenue for continuing this research is to conduct empirical studies across different stages and school networks within basic education, investigating the perceptions and experiences of teachers, students, school administrators, and families regarding policies restricting the use of mobile devices. There is also room for

comparative studies involving institutions that adopt different regulatory models, longitudinal investigations into how these policies affect pedagogical practices, and research focused on teacher education for the responsible educational use of mobile technologies. These perspectives may contribute to a broader understanding of the institutional and pedagogical conditions required to align regulation, innovation, and active learning methodologies.

The analysis of the paradox surrounding mobile devices in education reveals that the central challenge does not lie in the simple decision to allow or prohibit their use, but in understanding how these technologies can be integrated coherently with pedagogical objectives and institutional dynamics. When imposed rigidly and disconnected from educational planning, control over these devices tends to restrict potentially enriching learning experiences. Conversely, the absence of clear boundaries may compromise the organization of the school environment and hinder effective teacher mediation. Thus, the articulation among regulation, teacher mediation, students' responsible autonomy, and active participation constitutes a necessary arrangement for overcoming this impasse.

This balance enables mobile devices to become tools that expand student agency and support active learning methodologies without relinquishing the structure required for the harmonious functioning of the school environment. The development of institutional policies that promote such integration requires attention to the specific characteristics of each educational community, ensuring adequate teacher training and the creation of environments that encourage critical and conscious use of technology.

Finally, it is acknowledged that pedagogical innovation involving mobile devices is an ongoing process whose effectiveness depends on the alignment of clear objectives, reflective practices, and continuous adaptation to technological and cultural changes. Developing this alignment is a fundamental step toward ensuring that the possibilities offered by mobile technologies are fully harnessed to strengthen contemporary educational practices.

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