

Cell Phones as Classroom Impact on Behavior, Attention, and Distractors: A Comparative Study of Students' Perceptions and Teachers' Observations

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ABSTRACT: This comparative study examines the perceptual dissonance between high school students' self-perceptions and teachers' observations regarding smartphone distraction and classroom engagement. Survey data was collected from students (aged 14-18) and educators using a baseline survey, a digital detox intervention, and post-intervention evaluations. Initial findings revealed a student psychological defense mechanism: the majority self-reported an illusion of multitasking efficiency. However, control questions exposed that over 60% face chronic distraction while studying. To highlight the following findings, research shows that students are affected in their attention when having the device with them. (This blind spot was shattered during the disconnection activity, after which 80% of students admitted their attention significantly improved without a phone, though 63% immediately relapsed into checking notifications. Conversely, 80% of teachers reported daily chronic student distraction, illustrating a role-based divergence in institutional perceptions. Despite these differences, a critical point of convergence emerged: both groups acutely recognize mobile notifications as a primary distractor (>60% students, >80 teachers). Grounded in developmental neuroscience, these findings demonstrate how adolescent device compulsion neurobiologically compromises the executive functioning necessary for attentional control. This study underscores the urgent need for structural classroom policies that address the cognitive costs of task-switching in secondary education.

KEYWORDS: m-learning, attention, behavior, distractor, decline in academic performance, students' perception, teachers' observation.

How to cite: Santos Ayala Acuña, M. A., & Carrillo Guerrero, R. M. (2026). Cell Phones as Classroom Impact on Behavior, Attention, and Distractors: A Comparative Study of Students' Perceptions and Teachers' Observations. *World Conference on Science, Innovation and Human Progress*. Futurity Research Publishing. <https://doi.org/10.5281/zenodo.21620605>

Introduction

Education is a discipline in constant evolution; in its pursuit of standardization, the need to adapt to changing environmental demands has become increasingly evident. In this digital era, where hyperconnectivity is ever more pervasive and routine, a profound impact on the educational field was only expected. The integration of technology has shifted from merely a supporting tool or resource in the classroom teaching-learning process to an integral component of students' identities. Consequently, this shift has transformed classroom dynamics, demanding a fundamental rethinking of pedagogical practice.

To be more specific, in the context of technology integration, mobile learning (m-learning), defined as a set of practices mediated by mobile technology, allows educational experiences to occur in any situation, place, and moment, meeting urgent learning needs through high interactivity (Matienzo, 2020). However, this integration becomes a double-edged sword; many different academic papers and research show how the mobile phone serves as a powerful distractor and has been linked to alterations in cognitive control and emotional regulation (Muñoz, 2023, p. 304)

The challenge educators face in the classroom in capturing and maintaining students' sustained attention is increasingly complex. According to a study regarding the quality of sustained attention, it was found that the majority of students exhibited some form of impairment, which was more common and severe among youth aged 16 to 19 (Aburto Rodríguez & Durón Parajón, 2024). This decline in sustained attention capacity can be attributed to overexposure to brief, frequent stimuli on social media.

Just as attention has been affected, other areas of student development have shown a significant shift, such as the socio-emotional domain; this may even go unnoticed by the students themselves or by other stakeholders in the academic sphere. Recognizing the impact of this issue can facilitate better decision-making regarding the changes and/or adjustments that should be considered in educational models.

To operationalize this research paper, three distinct survey instruments were deployed, two of which target the students' demographics to capture longitudinal shifts in awareness. The initial student survey was designed to establish an empirical baseline, exploring their overt perceptions regarding mobile phone usage patterns and their self-assessed impact on academic life. Subsequently, a pedagogical intervention was implemented, requiring students to undergo a prolonged, structured period of technological disconnection. Upon the conclusion of this digital detox, a secondary student instrument was administered to evaluate how this experiential absence altered their perceptions of device dependency. Crucially, this second instrument mirrored key structural variables from the initial baseline survey, allowing for a direct pre- and post-intervention analysis of their digital behavior. Finally, a third survey was administered to high school faculty, capturing educators' observations of student

behaviors surrounding electronic devices—principally smartphones. This tripartite data structure establishes the empirical foundation necessary to contrast the lived realities and perceptions of both primary actors within the instructional environment.

Research Aim

This study aims to compare high school students' perceptions of mobile phones as classroom distractors with educators' direct observations regarding the impact of device usage on student attention, engagement, and academic performance. To achieve this, the research employs a mixed-methods approach using comparative descriptive and quasi-experimental designs. Data collection was structured across three distinct phases. Initially, a baseline group of high school students ($n = 46$) was surveyed to assess their initial perceptions regarding the potential negative effects of mobile phone use on their academic development.

Following this baseline assessment, the student cohort underwent a structured period of digital disconnection (a "digital detox"). Post-disconnection, a broader sample of students completed a secondary evaluative survey to capture shifts in awareness and perception following the lived experience of device separation. To establish a comparative framework, a third survey was administered to educators ($n=33$), capturing their observations and pedagogical insights regarding the influence of smartphone usage on classroom behavior and academic outcomes.

The pervasive integration of mobile devices within educational environments has increasingly intensified institutional concern. While educators frequently report that smartphones severely compromise student concentration, active participation, and macro-academic achievement, students conversely minimize these liabilities. Adolescents often perceive device interactions as harmless or minor, exerting negligible negative impacts on their learning, and frequently reframe smartphones as vital educational tools. This profound perceptual discrepancy raises critical scholarly questions regarding how both cohorts conceptualize the cognitive and behavioral role of mobile devices in modern learning environments.

Research Questions

Q1: How do high school students perceive the impact of cell phone use on their academic performance and classroom engagement?

Q2: How do teachers perceive the impact of cell phone use on students' attention, participation, and academic performance?

Q3: What similarities and differences exist between students' perceptions and teachers' observations regarding cell phone use in the classroom?

Research Results

After analyzing the survey data, several compelling trends emerged regarding student self-perception, captured through an empirical lens. To address the first research question (Q1), the baseline data initially highlighted how rarely students consider mobile devices to be a primary distractor. Respondents overwhelmingly believed they maintained autonomous control over their attention, operating under the assumption that media multitasking does not negatively affect their academic focus [Figure 1]. Students strongly claimed that cell phones do not cause classroom disruptions or diminish their attentiveness. This aligns with existing research indicating that, for students, the smartphone is perceived primarily as a vital tool for interaction, exploration, and immediate information retrieval rather than as an obstacle to learning (Matienzo, 2020).

However, a series of control questions were intentionally placed throughout the initial survey to bypass these internal defense mechanisms, which often manifest due to a defensive fear that data might be utilized to restrict or ban device access in the classroom. When asked specific behavioral questions—such as whether they check their phones for message updates, or if they look at their devices multiple times while studying—the responses shifted dramatically. The data spiked sharply, with "Frequently" and "Always" accounting for more than 60% of the total responses, exposing a clear cognitive blind spot.

Academic research demonstrates that students frequently allocate more attention to their digital devices than to their immediate physical surroundings (Roig-Vila et al., 2023). This blind spot was explicitly shattered following the experimental digital detox. Within the secondary survey conducted after the disconnection activity, a striking 80% of the surveyed students stated that their attention during academic activities improved significantly when they did not have a mobile device within physical reach. Similarly, 87% observed that their peers' attentiveness during the activity also improved due to this same environmental factor [Figure 2]. This experiential realization—corroborated by external data showing clear negative correlations between device engagement and student concentration thresholds (Maldonado et al., 2025)—confirms that while students textually deny distraction in the first surveys, they acutely perceive their own cognitive improvement once the digital stimulus is removed, confirmed in the post-survey.

Furthermore, the post-intervention data captured the compulsive nature of this habit loop upon the activity's conclusion. When asked about their behavior immediately after regaining access to their mobile phones, 63% of the students stated that they immediately checked their notifications. This instant relapse is further substantiated by a correlated metric showing that 49% of students routinely utilized the transition moments between activities to check their devices.

A similar pattern of chronic task-switching emerged regarding media multitasking; when asked if they check their phones while watching television, a majority admitted to frequent multi-screening, with

"Frequently" and "Always" again combining for over 60% of the sample. Crucially, the direct baseline question, "When you study do you check your phone more than one, two or three times?" yielded the same result, with more than 60% of students ultimately acknowledging that they "Frequently" or "Always" face distraction.

Through another pair of interconnected questions, students admitted to losing track of time online and delaying sleep to remain connected to their devices [Figure 1] [Figure 2]. Existing literature underlines the severe behavioral and biological impacts of these habits, warning that prolonged smartphone use at bedtime is associated with altered resting-state functional connectivity (Sosa Ferrera, 2018-2019, p. 13). While the study focused on adults, it is vital to apply these findings to high school demographics; individuals between the ages of 14 and 18 are undergoing critical phases of synaptic and neuronal pruning, a process fundamental to shaping new neural pathways and long-term cognitive habits. In adolescents, the prefrontal cortex is already the final region of the brain to fully mature. Furthermore, prolonged device exposure highlights that this altered connectivity results in reduced excitability in the Right Prefrontal Cortex, which also affects decision-making, emotional regulation, and executive functioning (Sosa Ferrera, 2018-2019). Consequently, the very cognitive faculties students require to regulate their attention and resist distractions in the classroom are being neurobiologically compromised by their device habits.

This neurobiological compromise extends beyond attention into the realm of emotional development. Scholarly literature notes that no human can receive love and attention from a screen; developing the oxytocin necessary for social linking and affective connection requires direct social and eye contact—elements absent from a mobile screen (de León Rivas, 2022). This explains why both students and teachers in the survey identified the mobile phone as the most prevalent distractor. Students compulsively seek a digital substitute for genuine human connection, resulting in a behavioral loop where social media applications continuously exploit the adolescent need for attachment.

To address the second research question (Q2), the data capturing teachers' perceptions provide powerful validation of the students' post-disconnection realizations. A staggering 80% of educators report witnessing chronic classroom distraction daily—a metric that perfectly mirrors the 80% of students who admitted their concentration improved when their devices were removed. This overwhelming consensus directly exposes the real-world fallout of the illusion of multitasking efficiency. While adolescents may claim in writing that they can handle device interactions during lectures, educational psychology has long debunked the myth of the "digital native's" ability to dual-process information.

This finding aligns with educators who consistently observe how students absorbed in their mobile devices lose the pedagogical thread of the lesson, routinely prioritizing digital interaction over academic engagement (Matienzo, 2020). Consequently, this data suggests that the students' perceived multitasking optimization does not represent a sophisticated cognitive strategy; rather, it leads to a demonstrable decline in higher-order thinking skills, classroom engagement, and academic

responsibility.

Grounding these observations in educational literature that emphasizes the necessity of identifying the precise threshold at which mobile learning (m-learning)—and specifically the use of smartphones—transitions from an educational asset into a primary distractor that degrades academic performance (Luján, Sánchez, and Camacho, 2019). They observe that students frequently develop compulsive device habits, abusing technology privileges even when explicitly instructed to use their phones for research or to complete active tasks.

The teacher survey data heavily validate this theoretical framework. When educators were asked whether their students spent more time completing classroom activities or browsing their phones, an overwhelming majority—over 80%—reported that students prioritized their devices. Furthermore, when questioned about classroom management and autonomy, another staggering 80% of teachers expressed that it was difficult to control device usage or ensure that students remained focused on the assigned academic task rather than succumbing to the allure of social media or video games.

Finally, to address the third research question (Q3), the data reveals critical points of convergence where student perceptions and teacher observations unexpectedly align. Research posits that students and educators typically diverge fundamentally in their perceptions of mobile devices because they occupy contrasting roles within the institutional hierarchy (Alobiedat, 2012, p. 13). However, the survey instruments deployed in this study yielded compelling data that challenge this absolute division [Figure 3]. Both instruments included items evaluating the disruptive nature of mobile notifications, and in both cases, respondents demonstrated a shared, acute awareness of this factor. Over 60% of students confirmed that notifications serve as a primary distractor; a sentiment strongly reinforced by more than 80% of teachers who identified digital alerts as a significant disruption to attentional focus and classroom dynamics.

In addition, both groups evaluated the underlying risks of constant digital connectivity. Students demonstrated a conceptual awareness that continuous connection can be detrimental to their psychological development and emotional regulation—a finding that closely aligns with established work outlining the developmental dangers of constant connection and warning against letting technology dominate adolescent minds and behaviors, and suggesting turning off the device and turning on the brain (Muñoz, 2023).

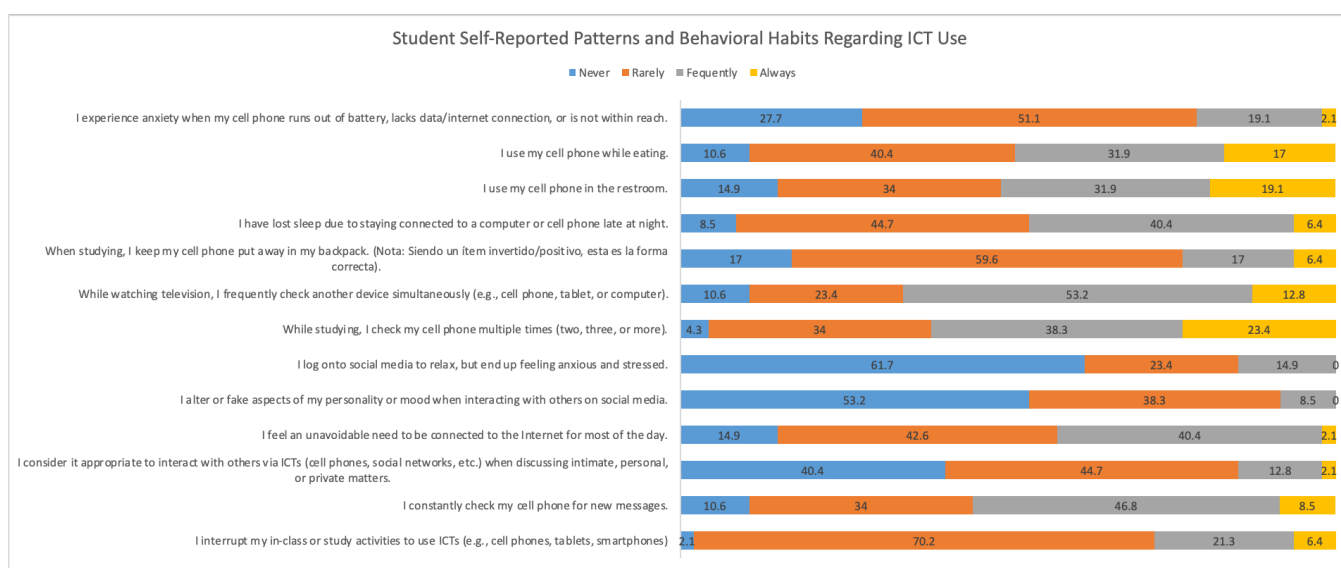
This theoretical risk resonates with the sample; when asked if they felt an inescapable need to remain connected most of the day, more than 50% of the students responded "Sometimes" or "Never." While this indicates that more than half of the surveyed student population conceptually understands that perpetual connectivity is unhealthy, it also exposes an ironic cognitive dissonance, given that their real-world behaviors reflect high notification checking frequencies.

Lastly, a final point of convergence emerged regarding the perceived severity of device

separation. Both teachers and students largely agree that the absence of a mobile phone does not fundamentally induce an emotional disorder. This collective perception stands in stark contrast to contemporary clinical literature. Research demonstrates how social media and algorithmic applications profoundly impact adolescent development across psychological, physiological, and neurological dimensions (Salazar Alvarado, 2024). However, despite these documented risks, neither group currently perceives device attachment as a clinical threat; more than 80% of students and over 50% of teachers do not classify this technological dependency as an emotional problem.

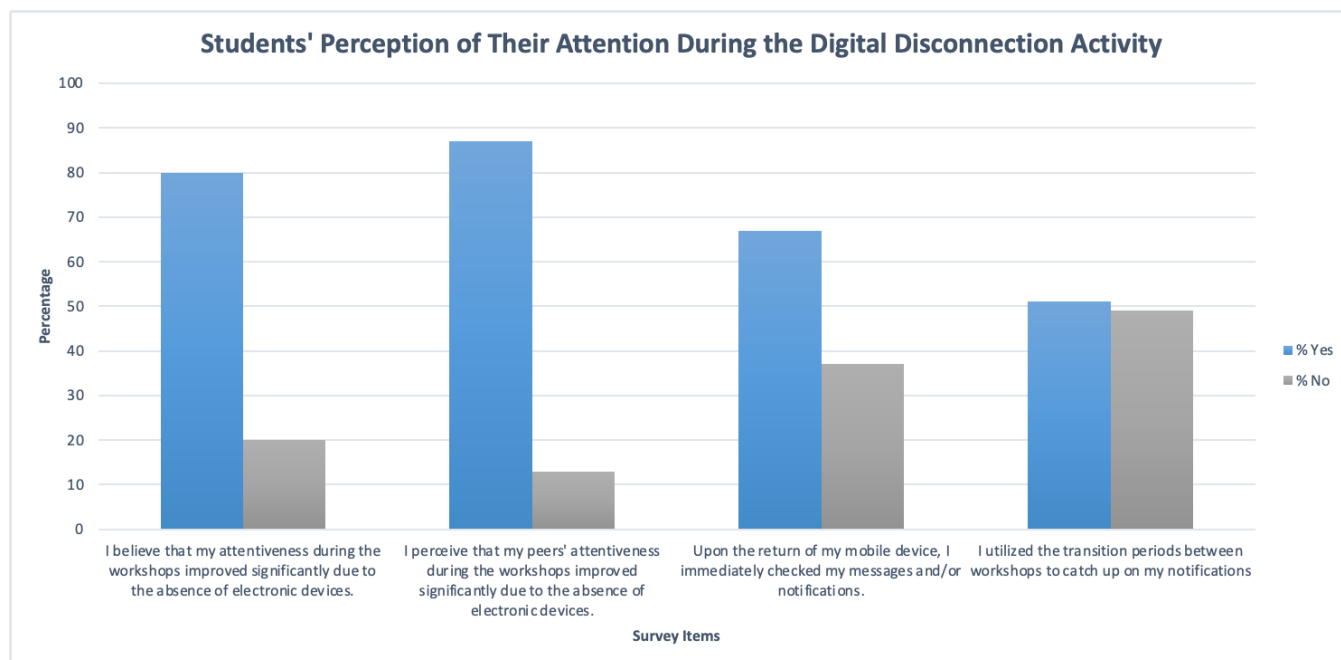
As mentioned earlier, studies highlight how both groups have different perceptions due to their roles; therefore, clear differences emerge between students and teachers (Alobiedat, 2012). Students do not accept that they are hooked to their devices and may not do what they are supposed to do. The student survey explicitly shows how they consider that the phone is not a distracting factor and that it is not an emotional danger to them and their close community. Meanwhile, teachers in their survey show deep concern regarding the students' attention and academic growth.

Figure 1



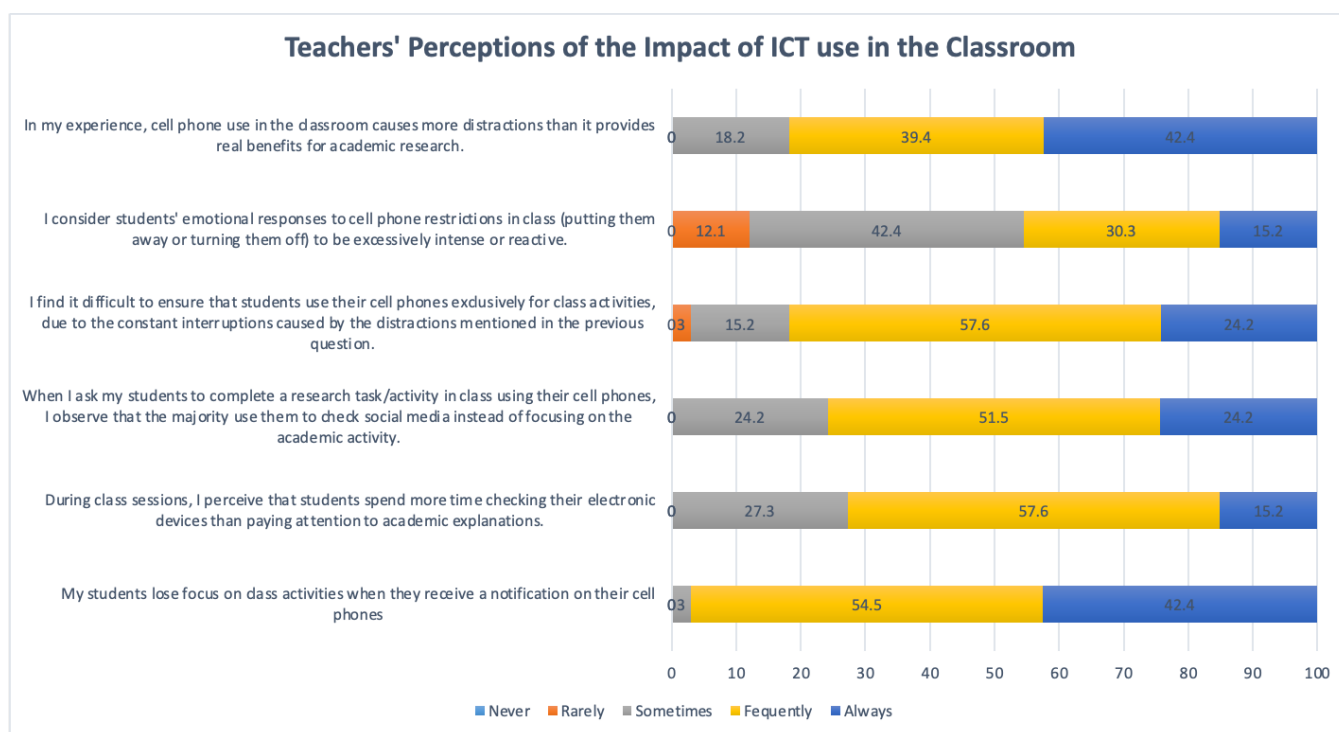
Source: author's own development

Figure 2



Source: author's own development

Figure 3



Source: author's own development

Conclusions

This study concludes that the use of mobile devices in the classroom generates a significant perceptual and behavioral challenge. The results demonstrate that students experience a dissonance between their general perception and their practical reality. Although they underestimate the consequences of technology on their performance, their specific behavioral responses confirm disproportionate use and a strong dependence on it.

This divergence is evident when comparing the applied instruments. As illustrated in Figure 1, a high proportion of students report concurrent use of their mobile devices while engaging in other daily activities (such as watching television, using the restroom, studying, eating, and sleeping). Paradoxically, these same students assert that this habit does not impact their emotional state or the effectiveness of their academic tasks.

Nevertheless, the data from the second survey (Figure 2) exposes a revealing contradiction. After participating in an intentional digital disconnection activity, students acknowledged that their quality of attention improved considerably, admitting that the mere presence of the device would have diminished their concentration. Additionally, the reported behavior of immediately checking the device upon regaining access suggests a clear indicator of technological dependence.

Finally, this lack of self-perception among students contrasts starkly with the teachers' perspective. Teachers can accurately identify how these specific behaviors act as distractors, significantly altering attention levels and engagement during academic sessions; however, much like the students, the majority of teachers fail to perceive a concerning impact within the emotional sphere.

In closing, this comparative analysis between the stances of students and teachers highlights that there is still considerable work to be done within the educational environment. Although attentional impairments can be identified at a behavioral level, the problem has deeper roots. As mentioned in the Research Results, literature shows that prolonged exposure to these devices alters brain connectivity, causing reduced excitability in the right prefrontal cortex, which directly affects decision-making, emotional regulation, and executive functioning (Sosa Ferrera, 2018-2019). Consequently, the very cognitive faculties that students require to regulate their attention and resist distractions in the classroom are being neurobiologically compromised by their digital habits. Given this reality, it is imperative to design strategies that guide the student community to recognize and bring visibility to the profound emotional and cognitive impact of the inappropriate use of these devices—a critical aspect that, up to now, they continue to minimize.

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