# Cognitive Effects of Video Game Use in Young People: A Literature Review

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## ABSTRACT

The aim of this literature review was to analyze the relationship between video games and cognitive functions in young people. A search was conducted in academic databases (Scopus, Web of Science, PubMed, Dialnet, and Google Scholar) between 2020 and 2025, using Boolean connectors (*AND, OR, NOT*) and keywords such as video games, gamification, cognitive functions, Empirical articles and reviews addressing the youth population (12–25 years old) with analyses of cognitive functions were included. Studies with an exclusively clinical population, gray literature, and publications without access to full text were excluded. Forty articles were identified and classified according to the type of video game and the cognitive functions studied. The results show several categories of video games with positive effects on attention, working memory, executive functions, metacognition, and abstract reasoning. Similarly, results were obtained showing negative consequences on attention, self-regulation, and academic performance. In conclusion, the impact of video games on cognition is heterogeneous and depends on gender, context of use, and regulation of exposure time. These findings highlight the need to integrate video games in a pedagogical and regulated manner, as well as to continue researching their effects to maximize benefits and prevent risks associated with addiction.

**Keywords:** video game, cognitive functions, young people, cognitive effects.

## INTRODUCTION

The last few decades have seen significant growth in the use of video games, which have gone from being a marginal form of entertainment to becoming a central activity in the daily lives of young people. Their popularity has increased significantly, influenced by the development of digital technologies, the growth of multiplayer platforms, and the rise of e-sports and online games. According to a report by the Entertainment Software Association (2023), more than 70% of adolescents between the ages of 12 and 17 in developed countries interact with video games at least three times a week. This phenomenon has sparked the interest of researchers in neuroscience, cognitive psychology, and education, who seek to understand the impact that this type of stimulation has on mental functions such as attention, memory, problem solving, and emotional regulation (Granic et al., 2014; Bediou et al., 2018).

In this context, it should be noted that the use of video games is not limited to recreational practice; they represent environments that are dynamic in terms of sensory, cognitive, and social interaction, which could have modulating effects on brain development during sensitive stages of adolescence. Globally, recent reports such as Global Power of Play 2025 highlight that video games generate social, emotional, and cognitive benefits, establishing themselves as spaces for connection, stress relief, and mental stimulation for more than 24,000 players in 21 countries (AEVI, 2025). These findings are complemented by neurobiological studies showing that video games can modify brain plasticity and promote the development of essential cognitive skills, such as attention and working memory, provided their use is regulated (Bermúdez Rattoni, 2024). However, parallel research warns that excessive consumption can lead to concentration and memory problems, confirming the ambivalent nature of their impact (ABC Color, 2025).

Along the same lines, other studies have reported improvements in visuospatial skills, sustained attention, and cognitive flexibility in frequent gamers (Boot et al., 2008; Dye, Green & Bavelier, 2009). Other research has

also shown that certain video games can improve functions such as working memory, selective attention, cognitive flexibility, and processing speed (Bavelier et al., 2018; Bermúdez Rattoni, 2024). For example, Bermúdez Rattoni, from the National Autonomous University of Mexico, highlights that video games activate multiple brain networks, including the dorsolateral prefrontal cortex and the hippocampus, which promotes the development of executive and perceptual skills.

Similarly, Eichenbaum, Bavelier & Green (2014) conducted a review of experimental studies whose findings showed improvements in visual perception, sustained attention, working memory, and decisionmaking after playing action video games.

The Latin American context is no stranger to this phenomenon, where research on video games has gained momentum in recent years, especially in relation to their integration into education. Llamas-Alonso and Llamas- Alonso (2025) point out that video games have evolved into technological tools capable of influencing cognitive and educational processes, promoting their study from the perspectives of neuroscience and pedagogy. Similarly, Núñez-Naranjo et al. (2025) show that educational video games promote children's cognitive development, strengthening attention and academic motivation. This research reflects a paradigm shift in the region, where video games are beginning to be recognized as innovative pedagogical resources, although challenges related to their regulation and the prevention of addiction persist.

In the Colombian context, studies have addressed both the benefits and risks associated with the use of video games. Brand Forero (2017) analyzed a sample of more than 1,900 children and adolescents, concluding that there is no direct causal effect between video games and cognitive skills, although there is an indirect relationship

with socioeconomic factors. For his part, Cardona López (2023) conducted a state-of-the-art review of video games and education, highlighting their neuropsychological potential to promote learning, but warning of the need for educational policies to regulate their implementation. Likewise, recent conferences in the country have highlighted the benefits and challenges of incorporating video games into education, emphasizing their ability to engage students and enhance learning, but also the urgency of designing pedagogical strategies that avoid adverse effects (Infobae, 2024).

Similarly, a systematic review conducted by Hernández Rodríguez et al. (2023) at the International Polytechnic of Colombia identified that video games can positively influence processes such as cognitive planning, problem solving, and visual attention, provided they are used in structured pedagogical contexts. These findings reinforce the idea that the impact of video games depends largely on the type of game, the length of exposure, and the sociocultural context of the player. Along the same lines, studies such as that by Orozco Santander et al. (2025) focused on describing the contributions of video games to rehabilitation and mental health as an alternative intervention in psychology. Using a systematic review methodology with inclusion and exclusion criteria, They obtained a final sample of 19 articles, with results showing that video games have proven to be an alternative or complementary strategy at the therapeutic level that offers significant contributions to psychology and its fields of action, with major impacts in each intervention.

However, not everything about video games is beneficial; possible adverse effects have also been identified, such as increased impulsivity, interference with sleep, or displacement of academic activities (Gentile et al., 2012). Similarly, adverse effects have been identified, especially when use is excessive or violent genres are favored. Social isolation, emotional desensitization, and interference with sleep patterns are some of the risks identified by clinical studies (CIPS Psicólogos, 2023; Bushman & Huesmann, 2019). This has led to video game addiction being recognized by the WHO as a behavioral disorder, underscoring the need to establish healthy limits and encourage conscious use.

Another finding is that prolonged use of video games, especially those that demand quick responses and stimulate immediate reward, can interfere with the development of inhibitory control, planning, and decision-making. These executive functions are critical during adolescence, a stage of accelerated brain maturation. Rodríguez and García Padilla (2021) warn that pathological gaming can lead to difficulties in impulse control, affecting academic performance and interpersonal relationships. Similarly, excessive use of video games has

also been associated with sleep disorders, eating disorders, and a sedentary lifestyle. Méndez Carpio et al. (2023) report that 82% of the young people surveyed played between 1 and 2 hours a day, and many neglected basic activities such as eating, grooming, or completing schoolwork. These patterns can contribute to procrastination and a decrease in motivation for non-digital activities.

This duality in the results has generated a significant but fragmented body of scientific research, where methodological heterogeneity and disciplinary approaches make it difficult to integrate consistent findings.

Therefore, the objective of this review is to identify the main cognitive effects of video game use in the youth population.

## MATERIALS AND METHODS

The aim of this literature review is to analyze the cognitive effects of video game use, as well as their application in non-recreational contexts. The search strategy for the review was based on the PRISMA methodology, and searches were conducted in the following databases: PubMed/MedLine, Web of Science (WOS), Scopus, Science Direct, and Scielo. All studies published between 2020 and 2025 that evaluate the relationship between psychological effects, video games, and the youth or young adult population were identified. Using Boolean intersection operators ("AND" and "OR"), a cross-search was performed with the following strings: 1) Video games and cognitive functions, 2) Effects of video games and neuropsychological impact. Criteria were established for the selection of articles for review. Studies had to meet the following criteria: 1) youth

population between 12 and 25 years of age, 2) publication date: between 2020 and 2025, 3) Empirical studies and systematic or narrative reviews, 4) Explicit analysis of cognitive functions (attention, working memory, executive functions, metacognition, abstract reasoning). The following exclusion criteria were taken into account: 1) Studies focused exclusively on clinical populations, 2) articles without sufficient methodological information or with obvious biases.

**Figure 1. Source search methodology**

**Identification**

Records identified by searching academic databases (Scopus, Web of Science, PubMed, Dialnet, Google Scholar) between 2020–2025, using Boolean connectors (AND, OR, NOT) and keywords: video games, gamification, cognitive functions.): 142

└── Records duplicated in more than one database that were eliminated: 22

└── Remaining records for screening: 120

**Screening**

└── Records excluded after reading the title and abstract for thematic relevance: 45

└── Records selected for full-text evaluation: 75

**Eligibility**

└── Records excluded after full text reading and application of criteria such as existence of gray literature, exclusive clinical studies, and articles lacking methodological rigor: 35

└── Studies included in the final qualitative synthesis: 40

# RESULTS AND DISCUSSION

The literature review identified a total of 40 scientific articles addressing the effects of video game use on cognitive processes in young people. The final selection was structured based on criteria of thematic relevance, timeliness, methodological diversity, and conceptual relevance, covering publications between 2018 and 2025, with a predominance of recent studies that reflect the growing interest in the educational and neurocognitive potential of video games.

**Table 1. Scientific articles obtained.**

| NAME OF ARTICLES, AUTHORS, AND YEAR | DOI | Cognitive functions | Main findings |
|---|---|---|---|
| The positive effects of playing video games and their application in non-playful environments. Moscardi, R. (2022). | https://doi.org/10.18682/cdc.vi110.4066 | Attention, cognitive flexibility, multitasking) | Improvement of cognitive skills in therapeutic contexts |
| Video games and learning: cognitive and neurobiological impact and educational applications Llamas-Alonso & Llamas-Alonso (2025) | https://humanusnexus.lasallebajio.edu.mx/?page_id=344 | Inhibitory control, attention, motivation | Dopaminergic activation and neural reorganization |
| Effects of video game use in adolescents: A systematic review Tacanga Polo & Ulloa | https://doi.org/10.46363/yachaq.v7i2_3 | Sleep, self-control, academic performance | Isolation, irritability, poor school performance |
| Vargas (2024) | | | |

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| A game-factors approach to cognitive benefits from video-game training: A meta-analysis<br><br>Smith &<br><br>Basak (2023) | https://doi.org/10.1371/journal.pone.0285925 | Working memory,<br><br>visual attention, flexibility | Moderate cognitive benefits depending on game type |
| The dual influence of video games on adolescents' executive functions<br><br>Medina- Rodríguez<br><br>(2025) | https://doi.org/10.7759/cureus.76830 | Executive functions,<br><br>planning, inhibition | Dual influence: improvement in EF but risk of overstimulation |
| Gaming and gamification as facilitators of student learning Peñafiel Villavicencio et al. (2025) | https://doi.org/10.5281/zenodo.14020536 | Metacognition, attention, motivation | Improvement<br><br>in selfregulation and academic engagement |
| Effects of<br><br>memory and<br><br>attention on the association between video game addiction and cognitive/learni ng skills in children: Mediational analysis<br><br>Kappi et al. (2024) | https://doi.org/10.1186/s40359-024-01849-9 | Attention,<br><br>memory,<br><br>learning | Video game addiction negatively affects cognitive skills |
| The influence of educational video game use on children's<br><br>cognitive development. | https://doi.org/10.33386/593dp.2025.1-2.2958 | Attention, working memory, executive functions | Educational video games improve overall cognitive performance |
| **NAME OF<br><br>ARTICLES, AUTHORS,<br><br>AND YEAR** | DOI | **Cognitive functions** | **Main<br><br>findings** |
| ñez-Naranjo et al. (2025) | | | |
| Research on video games in education: a systematic review. | https://doi.org/10.17227/rce.num85-12579 | Logical reasoning, | Video games promote cognitive skills when |

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| GuerraAntequera & Revuelta (2022) | | creativity, critical thinking | integrated pedagogically |
| Video games and metacognition in the classroom for the development of 21st century skills: A systematic review. Checa-Romero & Gimenez-Lozano (2025) | https://doi.org/10.3389/feduc.2024.1485098 | Metacognition, selfregulation, strategic thinking | Video games promote metacognitive skills |
| The dual influence of video games on adolescents' executive functions. Medina- Rodríguez (2025) | https://doi.org/10.7759/cureus.76830 | Executive functions, planning, inhibition | Dual influence: improvement in EF but risk of overstimulation |
| Comparing the cognitive performance of action video game players and age matched controls following a cognitively fatiguing task Campbell et al. (2023) | https://doi.org/10.1111/bjop.12692 | Sustained attention, processing speed | Players show greater resistance to cognitive fatigue |
| The impact of video games on cognitive processes: Review of modern research. Lapteva (2023) | https://doi.org/10.17759/jmfp.2023120410 | Attention, reasoning, memory | Impact depends on the type of game and exposure time |
| Documentary review: cognitive effects when playing video games Burbano Bravo & Folleco Andrade (2023) | https://doi.org/10.31948/editorialunimar.207.c344 | Attention, reasoning, logical thinking, motivation | Video games can improve cognitive processes if used for educational purposes |
| Trends and challenges of video games as an educational tool | https://doi.org/10.17227/rce.num84-12761 | Sustained attention, | Identify trends and challenges in |

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| | | metacognition, motivation | the educational use of video games |
| **NAME OF ARTICLES, AUTHORS, AND YEAR** | **DOI** | **Cognitive functions** | **Main findings** |
| Ortiz-Clavijo & Cardona-Valencia (2022) | | | |
| Meta-analysis of action video game impact on perceptual, attentional, and cognitive skills Bediou et al. (2018) | https://doi.org/10.1037/bul0000130 | Visual attention, perception, spatial reasoning | Action video games improve perceptual and attentional skills |
| Video games and board games: Effects of playing practice on cognition Martínez et al. (2023) | https://doi.org/10.1371/journal.pone.0283654 | Memory, logical reasoning, processing speed | Digital and analog games have different effects on cognitive functions |
| Use of video games and their impact on today's youth Méndez Carpio et al. (2023) | https://doi.org/10.26871/killkanasocial.v7i1.1242 | Attention, emotional regulation, academic performance | Excessive use of video games is associated with poor performance and distraction at school |
| Play and the cognitive development of students. ChisagGuamán et al. (2024) | https://doi.org/10.33386/593dp.2024.1-1.2262 | Logical reasoning, attention, motivation | Digital games promote cognitive development when used for educational purposes |
| The impact of video games on the cognitive skills of children and adolescents in Colombia Brand, F. (2018) | https://revistas.utb.edu.co/economiayregion/article/download/18 7/171/318 | Memory, attention, cognitive flexibility | Video games have positive effects if regulated by time and content |
| Analysis of a learning experience based on digital games Amaya-Olarte et al. (2024) | https://doi.org/10.24320/redie.2024.26.e08.5031 | Planning, sustained attention, motivation | Game-based learning improves engagement and academic performance |

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| Impact of video game addiction on adolescents: differences based on gender, high school attendance, and academic performance Pérez-Marco et al. (2024) | https://doi.org/10.56009/epsir.v9i17.2024 | Selfregulation, academic performance, attention | Significant differences based on gender and school attendance |
| Active video games and cognition: Educational | https://doi.org/10.5944/ried.21.2.19799 | Sustained attention, executive functions, planning | Cognitive improvement with active video games integrated |
| **NAME OF ARTICLES, AUTHORS, AND YEAR** | DOI | **Cognitive functions** | **Main findings** |
| proposals for adolescents Ruiz-Ariza et al. (2018) | | | into physical education |
| Effects of video game genres on cognition in healthy adults: A systematic review Cardoso et al. (2018) | https://www.redalyc.org/articulo.oa?id=439577139003 | Memory, attention, logical reasoning | Cognitive effects vary according to video game genre |
| Educational video games and scientific thinking: analysis based on cognitive, metacognitive, and motivational components Montes González et al. (2018) | https://doi.org/10.5294/edu.2018.21.3.3 | Scientific thinking, metacognition, motivation | Educational video games favor cognitive and motivational components |
| The use of video games in adolescents: A public health problem. Rodríguez & García Padilla (2021) | https://doi.org/10.6018/eglobal.438641 | Attention, emotional regulation, academic performan ce | Excessive use is associated with emotional problems and poor school performance |
| Systematic review of the influence of video games on | 10.37811/cl_rcm.v8i6.15240 | Academic performance, | Poorly regulated video games negatively affect |

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| poor academic performance in students.<br><br>Llumitasig et al. (2024) | | attention, self-regulation | school performance |
| Impact of video game addiction on adolescents: differences based on gender, high school attendance, and academic performance<br><br>Pérez-Marco et al. (2024) | https://doi.org/10.31637/epsir-2024-341 | Selfregulation, academic performance, attention | Significant differences according to gender and school attendance |
| Training in scientific skills through research and academia<br><br>Gómez- Meneses et al. (2023) | **10.31948/editorialunimar.207** | Attention, logical<br><br>reasoning, motivation | Video games can improve cognitive processes if used for educational purposes |
| **NAME OF ARTICLES, AUTHORS, AND YEAR** | DOI | **Cognitive functions** | **Main findings** |
| The dual influence of video games on adolescents' executive functions<br><br>Medina- Rodríguez (2025) | 10.7759/cureus.76830 | Executive functions,<br><br>planning, inhibition | Dual influence: improvement in EF and risk of overstimulation |
| Comparing the cognitive performance of action video game players and age matched controls following a cognitively fatiguing task<br><br>Campbell et al. (2023) | 10.1111/bjop.12692 | Sustained attention, processing speed | Players show greater resistance to cognitive fatigue |
| Educational video games and scientific thinking: analysis based on cognitive, metacognitive, and motivational components<br><br>Montes González et al. (2018) | 10.5294/edu.2018.21.3.3 | Scientific thinking, metacognition, motivation | Educational video games promote cognitive and motivational components |

**Source: Own**

**Category Classification by type of video game**

Analysis of the results allowed us to obtain a category of the most commonly used types of video games, where we initially observed that those described as educational/gamified constitute the most frequent category. These studies focus on the impact of video games designed for educational purposes or integrated into teaching processes. The most commonly reported cognitive functions include attention, working memory, executive functions, metacognition, and motivation. They also point to improvements in academic performance, self-regulation, and student engagement.

Continuing with the results, another category of action video games, such as shooters, is presented, in which visual attention, working memory, processing speed, and cognitive flexibility are the main cognitive processes that benefit from playing this type of video game. However, there are also negative effects such as irritability and poor school performance in cases of intensive use. As for the simulation/strategy/open-world video game category, these games have an effect on spatial memory, abstract reasoning, planning, and cognitive flexibility,

resulting in neural stimulation and improvements in logical reasoning, although there is a warning about the risk of overexposure.

In terms of simulation/strategy/open-world video games, the cognitive functions most associated with this category are spatial memory, abstract reasoning, planning, and cognitive flexibility. The findings describe neural stimulation and improvements in logical reasoning, although there is a warning about the risk of overexposure. Similarly, mixed video games (action and educational) allowed us to identify studies describing effects on executive functions, planning, and inhibition. The results show a dual influence: on the one hand, improvements in executive functions; on the other, the risk of cognitive overstimulation.

A specific category of active video games (integrated into physical education) was identified: these games are reported to have benefits in sustained attention, executive functions, and planning, especially when integrated into school physical activities. Finally, problematic use related to video game addiction was found. The results showed that the cognitive functions most affected are attention, self-regulation, academic performance, and emotional regulation. The findings describe negative consequences such as poor school performance, emotional problems, and deficits in self-regulation, which are considered a public health issue.

**Category classification by cognitive functions.**

It was initially shown that one of the cognitive processes most stimulated by video games was attention, with sustained, visual, selective, and divided attention being described among the main modalities involved. The results showed improvements in educational and cognitive training contexts, as well as deterioration in cases of addiction or excessive use, described in educational, action, simulation, and problematic use video games. Another highly relevant cognitive process is executive functions, within which the intervention was characterized in planning, inhibition, cognitive control, and flexibility, with the main results being action, simulation, and problematic use. Another highly relevant cognitive process is executive functions, which were characterized by intervention in planning, inhibition, cognitive control, and flexibility, with the main results being strengthened self-regulation and academic planning, as well as the risk of overstimulation in action games. Along the same lines, with regard to metacognition and self-regulation, studies report that video games encourage reflection on one's own learning, motivation, and academic commitment, as well as strengthening scientific thinking and creativity when integrated pedagogically.

Memory was also significantly relevant in the results obtained, with improvements in abstract reasoning and multitasking ability. Finally, in terms of information processing speed, the findings show that gamers exhibited greater resistance to cognitive fatigue and better rapid information processing.

The results obtained in emotional regulation show that excessive video game playing is associated with irritability, isolation, and poor school performance.

# DISCUSSION

The findings of this review show a complex and multifactorial picture of the impact of video games on cognitive functions. The evidence gathered allows us to distinguish between positive effects, mainly associated with educational, action, and simulation video games, and negative effects, linked to problematic use and addiction. This duality confirms the findings of Medina-Rodríguez (2025), who describes the influence of video games as an ambivalent phenomenon, capable of enhancing executive functions in certain contexts, but also of generating overstimulation and cognitive impairment in others.

This duality can be explained by variability depending on the context of use and the population studied.In terms of cognitive process analysis, attention emerges as the most studied and cross-cutting cognitive function. Action video games have been shown to improve visual and sustained attention, as well as resistance to cognitive fatigue (Campbell et al., 2023; Bediou et al., 2018). These results are comparable to those observed in formal cognitive stimulation programs. They are also in line with simulation and strategy studies, which report benefits in spatial memory and abstract reasoning (Moscardi, 2022; Bermúdez Rattoni, 2024). However, the literature also warns that excessive or problematic use can negatively affect attention and academic performance, especially in adolescents (Rodríguez & García Padilla, 2021; Llumitasig et al., 2024), which raises the need to differentiate between regulated and compulsive use, recognizing that the benefits depend on dosage and educational purpose.

Executive functions are another central focus. Educational and gamified video games have shown positive effects on planning, inhibition, and self-regulation, promoting learning and motivation (Peñafiel Villavicencio et al., 2025; Núñez-Naranjo et al., 2025). In contrast, mixed and action video games have a dual influence: they can improve cognitive flexibility, but they can also generate overload and difficulties in inhibitory control (Lapteva, 2023; Medina-Rodríguez, 2025). This evidence suggests that the impact depends not only on the genre of the video game, but also on the pedagogical intent and the length of exposure.

Working and spatial memory appear to be strengthened in simulation and strategy video games, where neuronal reorganization and activation of dopaminergic circuits are reported (Moscardi, 2022; Bermúdez Rattoni, 2024). However, in contexts of addiction, a significant deterioration of these functions is observed, confirming the need for regulation in use (Kappi et al., 2024). This finding is consistent with studies linking video game addiction to deficits in learning and emotional self-regulation (Pérez-Marco et al., 2024; Méndez Carpio et al., 2023).

Metacognition and self-regulation stand out as key contributions of educational and gamified video games. These promote reflection on one's own learning and the development of 21st-century skills, such as critical and scientific thinking (Checa-Romero & Giménez-Lozano, 2025; Montes González et al., 2018). Gamification also increases motivation and academic engagement, reinforcing its potential as a pedagogical tool (Guerra-Antequera & Revuelta, 2022).

Finally, emotional regulation appears to be linked mainly to problematic use. The studies reviewed indicate that video game addiction is associated with irritability, social isolation, and poor school performance (Rodríguez & García Padilla, 2021; Llumitasig et al., 2024). This aspect makes addiction a public health problem, especially in adolescents, and raises the need for preventive strategies and interdisciplinary intervention.

On the other hand, variations in results may occur due to differences between populations and how inequality in access and regulation influences this. In educational settings where video games are integrated in a planned manner and with explicit pedagogical objectives, the effects tend to be positive, promoting motivation and active learning (Checa-Romero & Giménez-Lozano, 2025; Guerra-Antequera & Revuelta, 2022). These contexts allow video games to function as tools for educational innovation, enhancing crosscutting skills such as critical thinking and cognitive self-regulation.

In contrast, in unsupervised home settings, video games can become a risk factor for self-regulation and academic performance, especially in adolescents (Rodríguez & García Padilla, 2021; Llumitasig et al., 2024). The absence of adult or institutional mediation encourages compulsive use patterns, which increases the

likelihood of addiction and deterioration of cognitive functions such as attention and working memory (Kappi et al., 2024; Méndez Carpio & Sánchez, 2023).

This contrast suggests that the impact of video games does not depend solely on the genre or type of game, but on the social and educational mediation that accompanies it. Evidence shows that cognitive benefits emerge when there is regulation of exposure time and a clear pedagogical intent, while risks intensify in contexts of digital inequality and the absence of media literacy policies (Medina-Rodríguez, 2025; NúñezNaranjo & Herrera, 2025).

Consequently, the discussion on video games and youth cognition must transcend neuropsychological analysis and consider social and political dimensions. The lack of official digital education programs and regulation of play time reflects a gap that directly impacts public health and educational equity. Integrating video games into school curricula, accompanied by media literacy strategies and digital inclusion policies, could maximize cognitive benefits and reduce risks associated with addiction (Peñafiel Villavicencio & López, 2025; Montes González & Pérez, 2018).

## CONCLUSION

The literature review allows us to affirm that the use of video games constitutes an interdisciplinary field of study with growing relevance in cognitive sciences, education, and neuropsychology. Based on the analysis of 40 scientific articles published between 2020 and 2025, it was possible to demonstrate that the impact of video games on cognitive functions is a complex phenomenon, characterized by a duality of positive and negative effects. On the one hand, educational and gamified video games are establishing themselves as effective pedagogical tools,

capable of enhancing attention, working memory, executive functions, and metacognition, promoting academic performance and the development of 21st-century skills. Likewise, action, simulation, and strategy video games show benefits in visual attention, spatial memory, and abstract reasoning, contributing to cognitive training in specific contexts.

On the other hand, problematic use and addiction are consistently associated with negative consequences on attention, self-regulation, memory, and emotional regulation, making this phenomenon a public health issue, especially among adolescents. This evidence underscores the need to establish regulation, support, and prevention strategies to mitigate the associated risks.

In summary, the impact of video games on cognition depends on three key factors: the genre of the video game, the context of use, and the regulation of exposure time. Recognizing this complexity opens up the possibility of integrating video games in a critical and planned manner into educational environments, while promoting interdisciplinary reflection on their risks and benefits. Future research should delve deeper into the design of video games for educational purposes and the implementation of policies that promote responsible use, maximizing their potential as an educational resource and minimizing the adverse effects of addiction.

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