

Problematic Use of Artificial Intelligence in Young People: A Critical and Conceptual Review

Uso problemático de la inteligencia artificial en jóvenes: una revisión crítica y conceptual

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Received: 30/06/2026 · Accepted: 14/09/2026

Cómo citar este artículo/citation: Pezzi, M., Mateos-Pérez, E., Martínez-Bacaicoa, J., McBain-Ritchie, S., & Gámez-Guadix, M. (2026). Problematic Use of Artificial Intelligence in Young People: A Critical and Conceptual Review. *Revista Española de Drogodependencias*, 51(3), 89-108. <https://doi.org/10.54108/10142>

Abstract

The present study provides a critical and conceptual review of the problematic use of generative artificial intelligence (AI) among young people. Based on an analysis of recent literature, it examines the main labels, definitions, and theoretical approaches used to conceptualize this phenomenon, highlighting a prevailing tendency to interpret it through symptom-based models derived from behavioral addictions. The article argues that this approach may be limited and potentially pathologizing, as it tends to equate intensive AI use with forms of addiction without adequately considering the underlying psychological processes. In response, a process-oriented perspective on problematic AI use is proposed, focusing on the motivational, cognitive, and emotional processes involved in young people's interactions with generative AI. In particular, the motivational model and the cognitive-behavioral model of problematic Internet use are integrated to explain how specific compensatory functions and self-regulation difficulties may promote dysfunctional patterns of AI use. Finally, future research directions and the practical implications of this proposal are discussed.

Key Words

Generative artificial intelligence; Problematic generative artificial intelligence use; problematic Internet use; motivations; young people.

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Resumen

El presente trabajo realiza una revisión crítica y conceptual del uso problemático de la inteligencia artificial (IA) generativa en jóvenes. A partir del análisis de la literatura reciente, se exploran las principales etiquetas, definiciones y enfoques teóricos utilizados para conceptualizar este fenómeno, destacando una predominante tendencia a interpretarlo desde modelos sintomatológicos derivados de las adicciones conductuales. El artículo argumenta que esta aproximación puede resultar limitada y potencialmente patologizante, ya que tiende a equiparar el uso intensivo de IA con formas de adicción sin considerar adecuadamente los procesos psicológicos subyacentes. Frente a ello, se propone una perspectiva basada en procesos del uso problemático de IA centrada en los procesos motivacionales, cognitivos y emocionales implicados en la interacción de los jóvenes con la IA generativa. En particular, se integran el modelo motivacional y el modelo cognitivo-conductual del uso problemático de Internet para explicar cómo determinadas funciones compensatorias y dificultades de autorregulación pueden favorecer patrones de uso disfuncional de la IA. Finalmente, se discuten futuras líneas de investigación y las implicaciones prácticas de esta propuesta.

Palabras clave

Inteligencia artificial generativa; uso problemático de la inteligencia artificial generativa; uso problemático de Internet; motivaciones; jóvenes.

I. THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE AMONG YOUNG PEOPLE

In recent years, society has been profoundly affected by the rapid and widespread adoption of Artificial Intelligence (AI). Among the various types of AI, one of the most recent and relevant is generative AI (for example, ChatGPT, DALL·E or Gemini), which are systems capable of learning patterns from vast amounts of data and subsequently generating new content, such as text, images, audio, or video, that appears similar to those created by humans (Abukmeil et al., 2021). Unlike earlier systems, which focused primarily on the classification and prediction of information, these generative AI tools feature a greater level of interactivity and an ability to maintain communicative exchanges increasingly similar to those of humans (Liu, 2026). These emerging technologies are

significantly changing multiple areas of daily life, including education, work, interpersonal communication and access to information, thus generating both new opportunities and important social, economic and psychological challenges (Raees et al., 2024).

The use of generative AI has become increasingly widespread among the younger population (Hopelab, 2025). A recent study by Eurostat (2026) indicates that approximately 60% of young people between the ages of 16 and 29 use these tools, a proportion nearly twice that observed among adults, which stands at approximately 33%. Within Europe, Spain stands out among those countries with the highest levels of use of these technologies among young people, with usage rates reaching 70%. In particular, recent evidence shows that the use of generative AI among young people in Spain is especially widespread in the field of education, revealing that 95% of students use



generative AI tools for academic purposes, with higher levels of use among university students compared to pre-university ones, and among women in comparison to men (Gámez-Guadix & Mateos-Pérez, 2026).

This rapid expansion emphasizes the need for a deeper understanding of how generative AI influences the development and well-being of young people. Although these technologies offer important opportunities for learning, creativity and access to information, their increasing integration in daily life requires a meticulous assessment to guarantee a safe and appropriate use. Scientific interest is based on understanding the difference between an adaptive use and a problematic one. In this respect, the American Psychological Association (APA, 2025) emphasizes that the impact that AI has on adolescent well-being is not a uniform one, but rather depends on how these tools are used, the context in which they are used and the individual characteristics of each user.

Several preliminary studies have begun to show possible adverse effects on the health and psychological well-being of young people (Chen et al., 2025; Nagata et al., 2025). In accordance with these findings, recent studies indicate that a proportion of users can develop a dysfunctional use of generative AI, characterized by a loss of control as well as negative consequences in various areas, such as academic performance, social relationships and psychological well-being (e.g., Chen et al., 2025; Hu et al., 2023). Nevertheless, there is still no widely accepted, robust definition of problematic AI use (see Ciudad-Fernández et al., 2025). Recently, a scoping review by Al-Obaydi & Pikhart (2025) synthesized the current state of the evidence on dysfunctional AI use;

however, this study focused exclusively on studies based on terms associated with the terminology “addiction to AI”. Although this approach is certainly useful for organizing a rapidly developing field, it may also promote the idea that problematic AI use is only understood from an “addiction” perspective. This perspective is still open to debate within the scientific community (Ciudad-Fernández et al., 2025) and raises important conceptual questions that require further theoretical and empirical development. Consequently, it is necessary to explore alternative frameworks that will allow us to better understand the mechanisms involved.

The main aim of the present study is to carry out a critical and conceptual review of problematic AI use among young people. In particular, the article analyzes the main studies published to date by critically examining the labels, definitions and approaches used, as well as their theoretical and methodological limitations. In order to overcome these limitations, a process-based and integrative perspective on problematic AI use is proposed, focusing on motivations and the cognitive and emotional processes involved in young people’s interactions with AI. Lastly, the study discusses future lines of research aimed at facilitating a more solid conceptualization of this growing phenomenon that is both empirically grounded and clinically useful.

2. CONCEPTUALIZATION OF THE PROBLEMATIC USE OF ARTIFICIAL INTELLIGENCE

Despite growing scientific interest in problematic AI use, the existing literature remains characterized by a notable conceptual



fragmentation. To clarify this landscape, we conducted a conceptual review of studies published to date, examining the main labels, definitions and theoretical approaches used to conceptualize and assess this phenomenon. Table I presents a comprehensive overview of the various conceptualizations proposed in the literature to date.

In general, the studies published on this subject use heterogeneous labels such as AI addiction, ChatGPT addiction, problematic AI use, AI dependence, problematic generative AI use or chatbot dependence. Despite these different terms, the majority of these definitions coincide in describing a pattern of dysfunctional use of AI tools characterized by difficulties in controlling use, symptoms similar to those of an addiction and the emergence of negative consequences in different areas of daily-life functioning, including psychological well-being, social relationships or academic performance (Chen et al., 2025; Hu et al., 2023; Kong et al., 2026).

Although the existing definitions exhibit some heterogeneity, a substantial proportion of the studies reviewed share a conceptualization and assessment of the phenomenon based on symptom-based criteria derived from classical models of behavioral addictions, as outlined in diagnostic manuals such as DSM-5 (APA, 2013). This type of approach reflects a confirmatory, or top-down, perspective according to which a form of behavior is considered potentially addictive when it fulfills a predefined set of symptoms or clinical criteria (Billieux et al., 2015). In particular, one of the most widely used symptom-based approaches in the field of technology use is the addiction components model proposed by Griffiths (2005). According to this perspective, a behavior

is considered addictive when it is characterized by six core components: salience, mood modification, tolerance, withdrawal, conflict and relapse (Griffiths, 2005). When applied to the AI context, salience could be reflected in a constant worry about the use of AI tools to solve everyday tasks; mood modification in the use of chatbots to relieve negative emotions, reduce stress or escape from psychological distress; tolerance in the need to use AI with increasing frequency to perform academic, social or work-related activities; withdrawal could manifest itself as a sense of discomfort or anxiousness when access to these tools is unavailable; conflict would refer to interference, derived from their use, in areas like academic performance, interpersonal relationships or psychological well-being; finally, relapse would be reflected in a return to AI use after an attempt to reduce or limit it.

The a priori application of symptom-based approaches to unregulated AI use has contributed to its conceptualization as a new form of behavioral addiction (Ciudad-Fernández et al., 2025). Even in those studies that do not explicitly use labels such as “addiction” or “dependence”, a more detailed analysis of the instruments and dimensions assessed shows that many of them continue to operationalize the phenomenon by using symptom-based criteria derived from classic models of addiction (see Table I). In other words, although the terminology used can vary, a substantial proportion of the literature continues to define and assess the phenomenon through a symptom-based, confirmatory logic. However, conceptualizing problematic AI use exclusively by focusing on observable symptoms can prove to be unsatisfactory for understanding the complexity of the phe-



nomenon. For instance, two individuals can present similar levels of use or even apparently equal behavior but use AI for profoundly different psychological functions. From this point of view, the problematic nature of AI

use would not only depend on the intensity or frequency, but rather on the motivational, emotional and cognitive processes which underlie these uses and the functions these tools fulfil in users' lives.

Table 1 Conceptual Synthesis of Studies on Problematic Artificial Intelligence Use

Studies	Label	Definition	Approach
Carter, 2026	<i>Problematic AI companion use</i>	Dysregulated or maladaptive use within a continuum. This approach emphasizes that time spent using AI is not necessarily pathological and considers the psychological functions as coping strategies.	Symptom-based approach
Chen et al., 2025	<i>Conversational AI dependence</i>	A form of technological dependence characterized by a persistent and intense need to use conversational AI, expressed through loss of control, withdrawal symptoms, mood modification and negative impact.	Symptom-based approach
Du et al., 2026	<i>Generative AI addiction</i>	Excessive use of AI tools, including difficulties in limiting their use, possible interference with work and signs of compulsive involvement.	Symptom-based approach
Goh et al., 2025	<i>Generative AI dependency</i>	Excessive use of generative AI for cognitive, decision-making, creative and emotional tasks, to the point of compromising autonomy, well-being and psychological functioning.	Symptom-based approach
Hong y Chen, 2024	<i>ChatGPT addiction</i>	Maladaptive use of AI (in this case, ChatGPT) associated with compulsive use, loss of self-control and high habitual involvement with the technology.	Symptom-based approach
Hu et al., 2023	<i>Problematic use of conversational AI</i>	Excessive use of conversational AI technologies in a manner similar to an addiction, frequently causing negative consequences in everyday life.	Symptom-based approach
Huang et al., 2024	<i>AI dependence</i>	Excessive use of AI technologies leading to dependence and addictive tendencies, with possible negative consequences, such as interpersonal problems and psychological distress.	Symptom-based approach
Kircaburun y Özdemir 2026	<i>Problematic generative AI use</i>	Use characterized by difficulties in controlling generative AI use and experiencing negative consequences in everyday life.	Symptom-based approach

(Table continues on the next page)



Studies	Label	Definition	Approach
Kong et al., 2026	<i>Problematic generative AI use</i>	A form of maladaptive coping based on excessive use of generative AI to regulate negative emotions or avoid cognitive effort.	Symptom-based approach ¹
Kooli et al., 2025	<i>Generative AI addiction syndrome</i>	Compulsive involvement with AI systems leading to cognitive, emotional and social impairments.	Symptom-based approach
Liu, 2026	<i>Generative AI dependence</i>	Functional and psychological dependence on generative AI systems, characterized by increasing reliance on and use of these technologies to meet cognitive, instrumental, social and emotional needs.	Hybrid approach ²
Maral et al., 2025	<i>Problematic ChatGPT use</i>	Frequent and excessive interactions with AI (in this case, ChatGPT) that negatively affect users' well-being and productivity.	Symptom-based approach
Morales-García et al., 2024	<i>Dependence on AI</i>	A tendency or need to rely excessively on automated systems to make decisions, perform tasks or seek validation.	Hybrid approach ²
Sun et al., 2025	<i>Problematic use of generative AI</i>	A dysregulated behavioral state related to generative AI use characterized by psychological vulnerability dependence on affective reward and erosion of cognitive literacy mechanisms.	Symptom-based approach ³
Xie et al., 2024	<i>Chatbot dependence</i>	Repetitive behavior related to the use of AI chatbots that impairs the user's normal functioning, characterized by salience, tolerance and withdrawal.	Symptom-based approach
Yankouskaya et al., 2025	<i>ChatGPT addiction</i>	An emerging form of behavioral addiction related to prolonged interaction with large language models (in this case, ChatGPT), facilitated by personalization, immediate gratification, pseudo-social relationships and cognitive automation.	Symptom-based approach
Ye et al., 2025	<i>ChatGPT dependence</i>	Excessive and maladaptive use of AI (in this case, ChatGPT) as a cognitive and academic tool, sustained by positive usage experiences, inertial thinking and avoidance motivations.	Symptom-based approach
Yu et al., 2024	<i>Problematic ChatGPT use</i>	A behavioral pattern characterized by excessive and compulsive involvement with AI (in this case, ChatGPT), resulting in significant impairment across different areas of the individual's life.	Symptom-based approach

(Table continues on the next page)



Studies	Label	Definition	Approach
Zhang et al., 2024	<i>AI dependency</i>	Excessive use of AI technologies across different areas of life, including studies, daily routines and social interactions, accompanied by marked psychological dependence.	Symptom-based approach
Zhong et al., 2024	<i>ChatGPT dependency</i>	A growing and problematic tendency to depend on AI (in this case, ChatGPT) as the primary support for academic tasks, emotional regulation and perceived self-efficacy, reducing autonomy, critical thinking and self-regulation.	Symptom-based approach
Zhou y Zhang, 2024	<i>Generative AI user addiction</i>	An individual's inability to control their behavior related to generative AI use, resulting in significant social and psychological impairments.	Symptom-based approach

Note. The studies included in this table constitute a conceptual synthesis of the main studies identified in the literature.

¹ Although these authors conceptualize problematic AI use as a compensatory strategy, their empirical operationalization is mainly based on symptom-based models.

² Symptom-based criteria are included alongside cognitive, motivational and socioemotional indicators. However, the dimensions are presented as indicators of dependence and their selection is not clearly theoretically justified.

³ Although they use criteria from Internet Gaming Disorder, they integrate a bottom-up approach. In addition, they avoid pathologizing frequent use while acknowledging possible addiction-like characteristics.

3. THE PROBLEM WITH THE PROBLEMATIC USE OF ARTIFICIAL INTELLIGENCE

The tendency to classify repetitive technology-related behaviors as behavioral addictions is not a new phenomenon. Over the past few decades, there has been a notable expansion in the diagnostic labeling of addiction, leading to a “diagnostic inflation” through the proposal of new behavioral addictions (Starcevic et al., 2021). In particular, attempts to classify potentially problematic behaviors have frequently relied on a confirmatory approach based on the application of rigid, symptom-based criteria derived from the field of substance addiction (Ciudad-Fernández, 2026). As a result, over

the years, this has led to a proliferation of supposed new forms of addiction, ranging from everyday activities such as physical exercise (Szabo et al., 2015) and tanning (Andreassen et al., 2018) to technology-related behaviors such as the use of smartphones (Lin et al., 2016), social networks (Andreassen & Pallesen, 2014; for example, Facebook), or the Internet in general (Widyanto & Griffiths, 2006).

However, this tendency has been highly criticized in scientific literature. As Billieux et al. (2015) point out, not all repetitive behaviors can be considered addictions. These authors emphasize the need to apply strict criteria in order to avoid the over-pathologization of common human experiences and emphasize that, unlike an intense involvement or a



healthy passion, a true addiction should be characterized by its persistence over time and by a significant functional deterioration in the individuals' control over their social, interpersonal or working lives.

This conceptual issue becomes especially relevant in the case of a potential dysfunctional use of AI chatbots. As Ciudad-Fernández et al. (2025) point out, many of the instruments developed to assess problematic AI use reproduce the classic criteria for addiction, such as tolerance, withdrawal or loss of control, without these criteria having been suitably validated in this new context. Furthermore, the use of these criteria can generate inaccurate classifications, given that some of them are neither conceptually clear nor clinically useful when applied to digital behavior (Castro-Calvo et al., 2021; Fournier et al., 2023; Marengo et al., 2024). As a result, there is a risk of pathologizing types of AI use that, although intense or frequent, can prove to be functional or adaptive. Similarly, many studies follow a recurrent methodological pattern: they stem from specific exceptional observations, develop instruments based on pre-existing criteria and validate the results through associations with general variables, such as impulsiveness or emotional deregulation (Bilieux et al., 2015; Ciudad-Fernández, 2026).

The implications of this rapid process of classification of problematic AI use can be highly significant for both individuals and society as a whole. In the first place, it may facilitate an excessive pathologization of everyday behavior, thus hindering the distinction between intensive AI use and a truly problematic one. Moreover, it contributes to reinforcing alarmist narratives about the dissemination of AI tools. For example, Montag et al. (2026) point out that the debate about AI use can in-

crease moral panic with regard to technology (Orben, 2020), which is characterized by an increase in the perceived risks and a dissemination of sensationalist terminology without valid empirical support. In particular, these authors highlight the proliferation of new pseudo-diagnostic terms like "*AI psychosis*", which is used to describe alleged psychotic symptoms associated with interactions with AI chatbots, and "*Brain Rot*", which refers to a presumed cognitive deterioration associated with an excessive consumption of digital content. Although these terms have become increasingly visible in the media and academic circles, they lack solid scientific evidence and can help to distort public perception of the phenomenon, thus impeding a balanced analysis of the risks and benefits of the technology (Montag et al., 2026). Although some preliminary evidence points to the possible emergence of patterns of unregulated use and negative consequences (Chen et al., 2025; Hu et al., 2023; Zhang et al., 2026), the current empirical basis is still limited. In particular, there is still insufficient longitudinal evidence that would allow researchers to assess the temporal stability of the phenomenon and better understand its impact on the everyday functioning of its users (Ciudad-Fernández et al., 2025).

Taken together, these elements suggest that conceptualizing problematic AI use exclusively through a confirmatory approach by applying, for example, criteria derived from other addictions, could prove to be premature and potentially problematic. Accordingly, it is necessary to move towards more robust theoretical frameworks which can distinguish between intensive use and dysfunctional use, by incorporating an analysis of the psychological processes which underlie the interaction with these technologies.



4.A NEW PROPOSAL FOR UNDERSTANDING THE PROBLEMATIC USE OF ARTIFICIAL INTELLIGENCE

To advance our understanding of problematic AI use, it may be particularly useful to consider the psychological research conducted over recent decades on problematic Internet and social media use, as this field has been able to construct solid theoretical frameworks to explain how problematic digital behaviors arise, develop and endure (see Brand et al., 2016; Caplan, 2002, 2010). In this context, the scientific literature has progressively proposed a perspective centered on psychological processes as an alternative to the approaches based exclusively on symptom-based criteria (Caplan, 2002, 2010; Kardefelt-Winther, 2014; Schimmenti et al., 2023). These alternatives address the need to overcome the limitations of confirmatory models, which tend to classify problematic digital behaviors based on the presence of pre-established symptoms, without adequately considering underlying mechanisms and individual differences. In contrast, process-based models emphasize the role played by motivational, emotional and cognitive variables in the emergence of problematic technology use, thus allowing a more accurate understanding of why some types of use become dysfunctional while others do not. This approach could become particularly relevant in the field of generative AI, since these tools can simultaneously fulfil instrumental, cognitive and emotional functions.

Below, we present two theoretical frameworks that we consider particularly relevant for better understanding the development of problematic AI use from a process-based

perspective, which have received considerable empirical and theoretical support in the literature on problematic Internet use. First, the role of motivation in the use of AI chatbots will be analyzed using the motivational model of problematic Internet use (Schimmenti, 2023). Subsequently, a process model adapted from the cognitive-behavioral model of problematic Internet use (Caplan, 2002, 2010) will be proposed with the aim of explaining how different emotional and cognitive processes can contribute to the development and maintenance of patterns of problematic AI use.

4.1. The Role of Motivation in the Problematic Use of Artificial Intelligence

In line with a process-based perspective, a theoretical model is needed to clarify how young people's psychological processes shape their interactions with AI and contribute to the development of problematic use patterns. Problematic Internet use has frequently been conceptualized as a compensatory strategy aimed at coping with psychological difficulties or interpersonal problems in individuals' offline lives (Gioia et al., 2021; Kardefelt-Winther, 2014). From this perspective, motivations for use play a central role, as they help explain not only the frequency and intensity with which these technologies are used, but also the psychological functions they serve for individuals. In this regard, Schimmenti (2023) has proposed a motivational model according to which problematic Internet use can be understood as an attempt to satisfy psychological needs that are not adequately met in an offline context.



When applied to AI, this approach could prove to be particularly relevant. In fact, individuals can use AI chatbots for a wide range of motivations related to emotional, social and cognitive needs (Xie et al., 2024). First, this use can be aimed at instrumental goals, such as learning, searching for information, or for skill development, as well as leisure or creative purposes that facilitate positive experiences. These motivations, as described in the literature dealing with interaction with AI chatbots, align with utilitarian and hedonic rewards and are consistently associated with user satisfaction (Gugushvili et al., 2026).

Moreover, the use of AI chatbots can also serve compensatory functions. Generative AI tools can be perceived as social interlocutors, particularly when individuals experience problems with offline relationships, such as social anxiety, feelings of loneliness or experiences of exclusion (Merrill et al., 2025). The ability of AI to offer immediate, apparently empathetic, personalized interaction can encourage its use as a partial substitute for human interaction. Along the same lines, recent evidence suggests that individuals with less social interactions tend to turn to AI chatbots as a source of company; however, using AI for this purpose is associated with lower levels of psychological well-being, especially when accompanied by high levels of personal information disclosure and by a low level of human social support (Zhang et al., 2025). For example, Huang et al. (2024) have observed that adolescents who use AI chatbots to escape from negative emotions and to compensate for their lack of human social interaction present significantly higher levels of problematic AI use.

These findings suggest that not all uses of AI imply the same level of risk. Rather, it is

the psychological function of AI use that may determine its potential dysfunctional nature. Consistent with Schimmenti's motivational framework (2023), this perspective suggests that these motivations can constitute a central element in understanding the development and maintenance of problematic AI use. Rather than focusing exclusively on the intensity or frequency of use, it is essential to analyze what needs the user is trying to satisfy by using AI and to what extent these strategies contribute to or detract from their psychological well-being. From this perspective, problematic AI use could be understood as a maladaptive strategy for emotional regulation, sustained by specific individual and contextual vulnerability factors.

4.2. A Process-Based Model of Problematic Artificial Intelligence Use

Understanding the role of motivation in AI use may be fundamental to better understanding its problematic use. However, it is necessary to consider the interaction between motivational, emotional and cognitive mechanisms. The cognitive-behavioral model of problematic Internet use (Caplan, 2002, 2010) may provide a particularly useful framework for understanding the implications of these processes. This model proposes that problematic Internet use stems from the interaction between dysfunctional cognitions, maladaptive emotion-regulation strategies and self-regulation difficulties related to Internet use, which can lead to negative consequences in users' daily lives. The Caplan model has received substantial empirical support in the psychological literature, particularly among young people (Elosua et al., 2025; Gámez-Guadix et al., 2012).



According to this theoretical framework, problematic Internet use develops through four interrelated processes: a preference for online social interaction, mood regulation, self-regulation difficulties and negative consequences (Caplan, 2010; Gámez-Guadix, 2014). Figure 1 provides a graphical representation of the cognitive-behavioral model as applied to problematic AI use.

The first process, the preference for online social interaction, refers to the perception that online interactions are safer, more manageable and more satisfactory than face-to-face interactions. In the context of AI, this process could become intensified by specific characteristics of chatbots, such as their constant availability, ability to respond immediately and apparent understanding of young people's needs (Chin et al., 2025). Moreover, the tendency to attribute human characteristics to AI may lead young people to perceive it as a valid social interlocutor, thereby diminishing the perceived uniqueness of human interaction (Pan et al., 2025). This phenomenon could foster a stronger preference for AI interaction, particularly among young people experiencing social difficulties or lacking interpersonal skills (Li & Wang, 2025), potentially increasing the use of these technologies to regulate emotions (Lee et al., 2025).

The second process, mood regulation, refers to using the Internet as a strategy to relieve negative emotions such as anxiety, sadness or feelings of loneliness (Caplan, 2002). Young people may turn to AI chatbots as a compensatory strategy to deal with psychological distress, by avoiding or alleviating negative emotional states (Huang et al., 2024). Although this use can provide immediate relief, it could also reinforce excessive

AI use for emotional regulation, which, in the long term, could actually intensify psychological distress.

The third process of the Caplan model is composed of self-regulation deficits related to Internet use, and these consist of two main components: cognitive preoccupation and compulsive use. Cognitive preoccupation refers to recurrent intrusive thoughts regarding online activity, while compulsive use implies a difficulty in controlling or restricting this behavior. In the case of AI, the characteristics of generative AI, such as personalization, continuous interactivity and the ability to produce highly relevant responses, could increase perceived satisfaction and make it more difficult to disconnect (Xie et al., 2024) thus producing more intense and unregulated patterns of use. In this respect, preliminary studies have documented the presence of deficits in self-regulation associated with problematic AI use (Chen et al., 2025; Hu et al., 2023).

As a result, these processes can lead to negative consequences in different areas of the user's daily life. Evidence related to problematic Internet use indicates links to physical, psychological, social and academic consequences, especially in the adolescent population (Wright et al., 2021). Longitudinal studies suggest that dysfunctional Internet use is not only a result of psychological discomfort but can also actually contribute to intensifying it, by creating or contributing to a reciprocal cycle between problematic use and mental health (Gámez-Guadix, 2014). However, in the case of AI, although preliminary evidence indicates similar negative effects (Nagata et al., 2025), there is still insufficient longitudinal evidence to fully confirm these dynamics (Ciudad-Fernández et al., 2025).

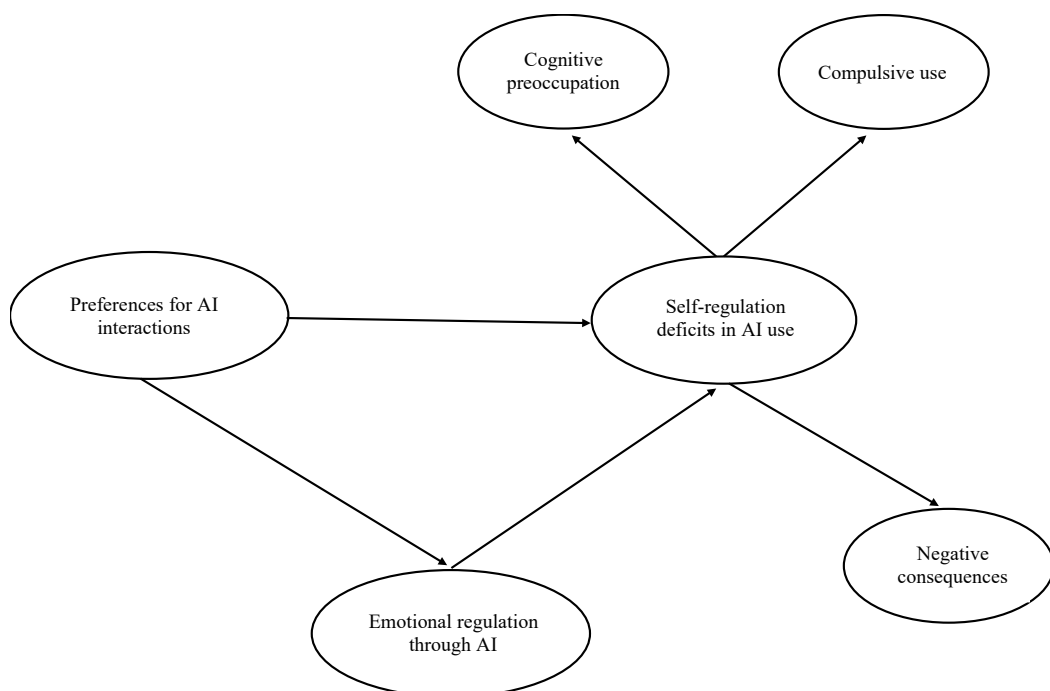


The absence of a clear conceptualization of problematic AI use, together with the lack of longitudinal studies, limits our ability to identify the psychological mechanisms which underlie this phenomenon and design evidence-based interventions (Nagata and Tsuchiya, 2025). Integrating Schimmenti's motivational approach (2023) with the Caplan model (2002, 2010) could provide a promising framework for understanding, more precisely, how the motivational, cognitive and emotional processes can contribute to the development of problematic AI use in specific contexts in young people's lives.

5. CONCLUSIONS AND FUTURE DIRECTIONS

This study highlights that, given the current state of our knowledge, conceptualizing problematic AI use exclusively in terms of "addiction" proves to be not only premature but potentially problematic in itself. As has been argued, the uncritical application of criteria derived from addiction to substances or to other types of behavior can lead to an excessive pathologization of intense but functional uses, as well as reinforcing alarmist narratives which hinder an objec-

Figure 1 Adapted Model of Problematic Artificial Intelligence Use Based on Caplan's Cognitive-Behavioral Model





tive understanding of the phenomenon (Ciudad-Fernández et al., 2025; Montag et al., 2026). Given these limitations, we propose a process-based and integrative perspective on problematic AI use, based on the integration of Schimmenti's motivational approach (2023) and Caplan's cognitive-behavioral model (2002, 2010). This proposal enables us to understand this phenomenon not as a mere consequence of the frequency of use, but rather as the result of the interaction between the motivational, cognitive and emotional processes which shape young people's relationships with these technologies.

Furthermore, despite the growing empirical interest in this area, the available evidence is still very limited. In particular, although some preliminary studies suggest the existence of patterns of unregulated use and possible negative consequences, there is still insufficient evidence to establish a robust and consensual definition of problematic AI use or to clearly establish its development and maintenance mechanisms. This limitation demonstrates the need to direct future research towards more robust and diversified methodological designs.

First, the literature regarding problematic AI use could benefit significantly from the incorporation of qualitative methodologies aimed at discovering the subjective experiences of young people with respect to their interaction with generative AI. The perceptions, interpretations and the processes through which young people attribute meaning are fundamental to understanding why some types of digital behavior become problematic whereas others do not. In relation to this, aspects such as the perception of control, emotional relief, relationship expectations or the very definition of "problematic use" could play a central role in shaping individual

vulnerability. In fact, evidence from research on the use of smartphones, video games and social networking shows that problems perceived by adolescents themselves, such as loss of control, cognitive preoccupations or conflicts within daily life, are associated with later mental health problems more consistently than mere intensity of use (Anderson et al., 2017; Boer et al., 2021). In the absence of validated criteria for problematic AI use and bearing in mind that AI chatbots introduce new sociocognitive characteristics such as conversational interaction and personalization, it becomes especially important to understand how young people themselves interpret whether AI use is beneficial, excessive or problematic. This type of approach would enable us to avoid excessively adult-centered or pathologizing frameworks (Billieux et al., 2015; Orben, 2020) and would facilitate the development of more valid and contextually sensitive measurement instruments. The subjective exploration of the motivations, emotional changes and personal warning signs could contribute to identifying relevant indicators of problematic use, which could later be operationalized in quantitative studies.

Secondly, the development of longitudinal studies examining the temporal mechanisms which link generative AI use to psychological well-being is fundamental. At present, the absence of longitudinal evidence limits both our ability to determine with any certainty whether problematic AI use constitutes a cause of, a consequence of or a complement to psychological distress and our ability to identify potential bidirectional relationships between these variables (Al-Obaydi and Pikhart, 2025; Ciudad-Fernández et al., 2025). Future studies ought to analyze the stability of problematic AI use over time, its impact on day-to-day



functioning and its interaction with individual vulnerability factors, with the aim of clarifying the risk and protection factors involved.

Finally, moving towards a more precise conceptualization of problematic AI use has important implications for both intervention and prevention. A process-based approach would enable us to design more specific interventions, aimed not so much at reducing the use itself, but rather at modifying the psychological functions that this use serves, such as promoting more adaptive emotional regulation strategies or strengthening offline social skills. Similarly, in the field of education, this approach could contribute to the development of digital literacy programs which would encourage a more conscious and critical use of AI, thus preventing both the trivialization and the demonization of these technologies (Montag et al., 2026).

In conclusion, in order to understand problematic AI use, it is necessary to move beyond reductionist approaches which are exclusively symptom-based and move towards unifying models which consider the complexity of the psychological processes involved. Only by building on a stronger empirical foundation and a more refined conceptualization will it be possible to satisfactorily differentiate between intense use and problematic use, and to develop effective strategies that promote the psychological well-being of young people in the age of generative AI.

ACKNOWLEDGMENTS

Funding for this study was provided by Ministerio de Ciencia, Innovación y Universidades (Spanish Government) grants RTI2018-101167-B-I00 and PID2025-173865NB-I00.

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