

Commentary

Neither Gaming nor Gambling: Understanding the Psychological and Social Risks of Loot Boxes

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Loot boxes represent a controversial form of digital monetization that blurs the boundary between video gaming and gambling. By combining payment, chance, and variable rewards, they raise concerns about psychological risk, particularly among adolescents and young adults. This work examines how mechanisms such as uncertainty, variable-ratio reinforcement, anticipation, scarcity, and fear of missing out may encourage repeated engagement and spending. It also addresses the broader social implications of loot boxes, including family conflict, youth vulnerability, digital literacy, consumer protection, and ethical game design. Framing loot boxes as neither purely gaming nor gambling, the analysis calls for a nuanced, evidence-based approach to research, prevention, education, and regulation. It highlights the need for interdisciplinary inquiry into how emerging digital entertainment practices shape individual behavior and social well-being.

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When Video Games and Gambling Begin to Overlap

For decades, video games and gambling were treated as fundamentally different activities. Video games were generally associated with entertainment, creativity, competition, and learning. Gambling, by contrast, involved wagering money on uncertain outcomes and carried well-known risks of addiction and financial harm. In recent years, however, the boundary separating these two worlds has become increasingly blurred. Digital entertainment has evolved rapidly, introducing new business models that

combine elements of gameplay with mechanisms traditionally associated with gambling^{[1][2]}. Among the most controversial of these innovations are “loot boxes,” a form of randomized virtual reward that has sparked intense debate among researchers, policymakers, educators, and mental health professionals^{[3][4][5]}.

This debate lies at the heart of the research project “*Ni Gaming ni Gambling: Riesgos psicológicos y sociales de los juegos de caja de botín*” (SUBV24/00002 del Dirección General de Ordenación del Juego, Ministerio de Derechos Social, Consumo y Agenda 20230), conducted at the Complutense University of Madrid. The project itself was funded as a national R&D initiative focused on the relationship between video games and gambling activities, running from 2025 to June 2026 under the leadership of Jesús Saiz Galdós and colleagues at the Complutense University of Madrid. The project explored a phenomenon that challenges conventional definitions and raises important questions about consumer protection, youth well-being, and the future of digital entertainment.

What Are Loot Boxes?

Loot boxes are virtual containers that players can open to obtain digital items whose contents are unknown beforehand. Depending on the game, these rewards may include cosmetic skins, weapons, character upgrades, collectibles, or other virtual goods.

The defining feature of loot boxes is uncertainty. Players know they will receive something, but they do not know exactly what. Some rewards are common, while others are extremely rare. In many games, players can obtain loot boxes through gameplay, but they can also purchase them using real money.

This combination of payment and randomness has led many scholars to compare loot boxes with gambling. Although players are not always wagering money for a cash prize, they are paying for a chance to receive a desirable reward whose value and rarity vary significantly.

The comparison is not merely superficial. Research has shown that loot boxes share several structural characteristics with gambling products, particularly those based on random reinforcement schedules. These similarities have fueled concerns about their psychological impact, especially among younger users^{[4][6][1]}.

Why Are Loot Boxes So Appealing?

The popularity of loot boxes is not accidental. Their design takes advantage of psychological mechanisms that have been studied extensively in behavioral science. One of the most powerful of these mechanisms is variable-ratio reinforcement. This occurs when rewards are delivered unpredictably. Decades of psychological research have demonstrated that unpredictable rewards are especially effective at encouraging repeated behavior^{[1][2]}.

The same principle operates in slot machines. Players do not know when a win will occur, which motivates them to continue playing. Loot boxes create a similar experience: players do not know when they will obtain the rare item they desire, making repeated purchases or openings particularly tempting.

Another important factor is anticipation. Before opening a loot box, players imagine the possible rewards they might receive. This anticipation can generate excitement and emotional arousal that may be rewarding in itself.

The “near-miss” effect also plays a role. When players obtain a valuable item that is close to, but not exactly, the one they wanted, they may feel that success is within reach. Paradoxically, such experiences can increase motivation to continue rather than discourage it.

Scarcity further amplifies these effects. Many games present certain items as limited-edition rewards available only during specific events. The fear of missing out can encourage impulsive decisions and increase spending.

Together, these mechanisms create a highly engaging experience that can be difficult to resist, particularly for adolescents and young adults.

The Emergence of a Grey Area

One of the reasons loot boxes have generated so much controversy is that they occupy a grey area between gaming and gambling.

They are not traditional gambling products because players are participating within a video game environment and may not always be able to convert rewards into money. At the same time, they differ from conventional game rewards because they often involve monetary transactions and rely on chance^{[3][7][5][8]}.

This ambiguity is reflected in ongoing debates around the world. Some countries have classified certain forms of loot boxes as gambling and subjected them to regulation. Others have adopted a more cautious approach, arguing that additional evidence is needed before introducing legal restrictions.

The title of the Complutense University Project “Ni Gaming ni Gambling: Riesgos psicológicos y sociales de los juegos de caja de botín” (SUBV24/00002 del Dirección General de Ordenación del Juego, Ministerio de Derechos Social, Consumo y Agenda 20230), captures this ambiguity perfectly. By describing loot boxes as “neither gaming nor gambling,” the researchers emphasize that these systems represent a hybrid phenomenon requiring new conceptual frameworks and interdisciplinary investigation.

Why Young People Are a Particular Concern

Although people of all ages play video games, much of the concern surrounding loot boxes focuses on children, adolescents, and young adults^{[3][4][6][1]}.

Adolescence is a developmental period characterized by heightened sensitivity to rewards, greater willingness to take risks, and ongoing maturation of self-regulation capacities. These characteristics are entirely normal, but they can increase vulnerability to systems specifically designed to capture attention and encourage repeated engagement.

Young people may also have difficulty understanding probabilities. Even adults often struggle to accurately assess low-probability events. When games advertise rare rewards with tiny chances of appearing, players may overestimate their likelihood of success.

Furthermore, many young users encounter loot boxes within games they already enjoy. The purchase of randomized rewards can therefore become integrated into everyday recreational activities rather than being perceived as a separate financial decision.

Researchers have consequently expressed concern that repeated exposure to these mechanics may normalize gambling-like behaviors or shape attitudes toward risk and reward in ways that deserve careful study.

What Does the Research Say?

Over the past decade, an expanding body of scientific literature has investigated the relationship between loot box engagement and gambling-related behaviors.

Several studies have found associations between loot box spending and indicators of problematic gambling. Researchers have also observed links between loot box purchasing and problematic gaming behaviors, suggesting that these systems may occupy an important intersection between two different forms of behavioral risk.

A growing number of studies have explored psychological variables associated with loot box engagement. Sensation seeking, impulsivity, reward sensitivity, and social influences have all been examined as potential factors that shape users' interactions with these systems.

One particularly interesting finding is that some risk factors commonly associated with gambling may not operate identically in loot box contexts. Research suggests that social environments, peer influences, and motivations specific to gaming communities may play unique roles in determining who engages with loot boxes and why.

These findings highlight the importance of studying loot boxes as a phenomenon in their own right rather than assuming they are simply another form of gambling.

The Economic Logic Behind Loot Boxes

Understanding loot boxes also requires examining the broader transformation of the video game industry.

Historically, video games were sold as complete products through a one-time purchase. Today, many companies rely on ongoing revenue streams generated through downloadable content, subscriptions, battle passes, and microtransactions.

Loot boxes emerged as a particularly effective monetization strategy within this evolving ecosystem. Instead of selling a specific item directly, developers sell the opportunity to obtain it through a randomized process.

From a business perspective, this model can be highly profitable. From a consumer protection perspective, however, it raises questions about transparency, informed decision-making, and ethical design.

Critics argue that some implementations exploit psychological vulnerabilities by encouraging excessive spending through uncertainty and scarcity. Supporters counter that loot boxes are optional features that help fund ongoing game development.

The challenge for researchers is not to take sides but to provide evidence capable of informing balanced policy decisions^{[3][7][5][8]}.

Beyond Individual Psychology: Social Consequences

The effects of loot boxes extend beyond individual users^{[3][4][7][5][8]}. Families may experience conflict when children or adolescents spend money on in-game purchases without fully understanding the costs involved. Parents often struggle to monitor spending because many transactions occur digitally and in small increments.

Educational institutions and youth organizations have also become increasingly interested in digital literacy programs that help young people understand how contemporary monetization systems operate.

At a societal level, loot boxes raise broader questions about the commercialization of childhood and adolescence. If gambling-like mechanics are embedded within products designed for younger audiences, how should societies respond?

The issue is particularly important because video games themselves are not the problem. Video games represent one of the most significant cultural and creative industries in the world. They offer opportunities for learning, social connection, artistic expression, and entertainment. The challenge lies in identifying specific design features that may generate risks while preserving the many benefits associated with gaming^{[3][9][10][11][12][13][14][15][16][17][18]}.

The Importance of the “Neither Gaming nor Gambling” Project

Against this backdrop, the Complutense University project represents an important contribution to contemporary research. “Ni Gaming ni Gambling: Riesgos psicológicos y sociales de los juegos de caja de botín” (SUBV24/00002 del Dirección General de Ordenación del Juego, Ministerio de Derechos Social, Consumo y Agenda 20230), funded through a competitive national program dedicated to the prevention of gambling-related harms, the project sought to deepen scientific understanding of the psychological and social risks associated with loot boxes. It brought together researchers from multiple disciplines to investigate a phenomenon that sits at the intersection of gaming, gambling, psychology, and social behavior^{[19][20][21][22]}.

The project’s significance lies not only in its specific findings but also in its broader perspective. By treating loot boxes as a unique category rather than forcing them into existing definitions, the research

acknowledges the complexity of contemporary digital environments.

Such work is essential for developing evidence-based approaches to prevention, education, and regulation. It can help policymakers design effective protections, assist educators in promoting digital literacy, and support families seeking to understand emerging online risks^{[19][20][21][22]}.

Toward a More Responsible Digital Future

The debate over loot boxes ultimately reflects a larger challenge facing modern societies: how to balance innovation with user well-being^{[19][20][21][22]}.

Digital technologies offer extraordinary opportunities for creativity, communication, and entertainment. Yet they also create new forms of influence that can shape behavior in subtle and powerful ways.

Addressing these challenges requires collaboration among researchers, industry leaders, educators, regulators, and users themselves. Simplistic solutions are unlikely to succeed. Blanket bans may overlook important distinctions between different implementations of loot boxes, while complete reliance on industry self-regulation may fail to address legitimate concerns.

Instead, many experts advocate evidence-based approaches centered on transparency, consumer education, age-appropriate protections, and ongoing research.

The work carried out by the Complutense University team contributes directly to this objective. By generating rigorous scientific knowledge about the psychological and social dimensions of loot boxes, the project helps society navigate an increasingly complex digital landscape^{[19][20][21][22]}.

Conclusion

Loot boxes represent one of the most significant and controversial developments in the evolution of digital entertainment. Positioned between traditional gaming and gambling, they challenge established categories and force researchers to reconsider how risk, reward, and monetization operate in online environments.

Their growing presence in popular video games has generated important questions about consumer protection, youth vulnerability, and ethical game design. While not all loot box users experience harm, the psychological mechanisms underlying these systems warrant careful examination.

The project *Neither Gaming nor Gambling: Psychological and Social Risks of Loot Boxes* provides a valuable framework for understanding this phenomenon. By investigating loot boxes as a distinct and emerging form of digital behavior, the research contributes to a more nuanced understanding of how modern entertainment technologies influence individuals and society^{[19][20][21][22]}.

As the boundaries between gaming, commerce, and gambling continue to evolve, such research will become increasingly important. The future of digital entertainment depends not only on technological innovation but also on our ability to ensure that innovation develops in ways that are transparent, responsible, and compatible with human well-being.

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