

PIRACY OF GAMES AND APPLICATIONS AMONG YOUNG PEOPLE: MOTIVATIONS AND STRATEGIES

 <https://doi.org/10.56238/arev7n1-119>

Submission date: 12/13/2024

Publication date: 01/13/2025

Ana Martha Granado Cardoso Rubim¹, Diego da Silva Sales², Juliana Gonçalves Vidigal³, Manuel Antonio Molina Palma⁴, Camila Mendonça Romero Sales⁵ and Diego Suiasso da Hora⁶

ABSTRACT

This study aims to understand the factors that lead adolescents to practice piracy of games and applications, in addition to investigating effective strategies to combat this practice. To this end, a systematic review with an exploratory and qualitative approach was conducted, using the PRISMA method and analyzing articles from the Scopus and Web of Science databases, published between 2009 and 2024. Among the motivational factors identified, the following stood out: difficulty in self-control, peer influence, lack of parental supervision, and mistaken perception of legality. The main motivation was difficulty in self-control, often associated with parental indifference and excessive use of digital devices. Regarding the strategies, educational actions, investment in education, use of free or low-cost versions of

¹ Master's student in Intellectual Property and Technology Transfer for Innovation
Instituto Federal Fluminense Campus Campos Guarus

E-mail: amgrubim@gmail.com
ORCID: <https://orcid.org/0000-0002-1542-0142>
LATTEs: <https://lattes.cnpq.br/5803036551003003>

² Doctor in Materials Science and Engineering
Instituto Federal Fluminense Campus Campos Guarus

E-mail: dsales@iff.edu.br
ORCID: <https://orcid.org/0000-0002-4462-7150>
LATTEs: <http://lattes.cnpq.br/6968865846449690>

³ Doctor in Materials Science and Engineering Food
Fluminense Federal Institute, Bom Jesus do Itabapoana Campus
E-mail: jvidigal@iff.edu.br

ORCID: <https://orcid.org/0009-0000-7971-5364>
LATTEs: <http://lattes.cnpq.br/0845455390489129>

⁴ PhD in Administration
State University of Northern Fluminense
E-mail: mmolina@uenf.br
ORCID: <https://orcid.org/0000-0003-1401-6110>
LATTEs: <http://lattes.cnpq.br/6034302026767691>

⁵ Doctor in Materials Science and Engineering
Fluminense Federal Institute, Campos Centro Campus
E-mail: camila.sales@iff.edu.br

ORCID: <https://orcid.org/0000-0001-6524-2113>
LATTEs: <http://lattes.cnpq.br/0313660434561235>

⁶ Expert in Climate and Energy
Municipal Department of Education of Campos dos Goytacazes
E-mail: disuisso@hotmail.com
ORCID: <https://orcid.org/0009-0009-2701-1256>
LATTEs: <http://lattes.cnpq.br/8253765137296493>

applications, and monitoring by guardians stood out. Educational actions proved to be the most effective, surpassing punitive measures. It is concluded that several factors contribute to the practice of digital piracy among adolescents and that well-structured educational strategies are essential to reduce these practices.

Keywords: Young people. Digital Piracy. Games. Applications.

INTRODUCTION

In the field of intellectual property, digital piracy stands out as a global challenge, driven by the growth of the internet and the widespread availability of technological resources (Goldsmith, A.; Wall, 2022). Games, popularly known as games, and applications are among the main targets of piracy, directly affecting copyright on a global scale (Tomczyk, L., 2021). The digital economy faces significant negative impacts due to this illicit appropriation. The financial consequences of digital piracy, including games and applications, reach alarming proportions on a global level, harming the expansion of the industry and compromising the development of new technologies (Gomes, N.; Cerqueira; Alçada-Almeida, 2018). In this scenario, adolescents emerge as protagonists in digital piracy. Their involvement in these illicit practices is usually related to familiarity with digital technologies, easy access to online resources, and lack of awareness of the legal implications. In the view of most young people, digital piracy is not a crime, but rather a quick and affordable solution to overcome financial, social, or geographic barriers that hinder access to certain content (Tjiptono; Arli, 2016).

Both developed and developing countries face similar challenges in combating digital piracy. However, the strategies adopted vary significantly according to the educational and cultural levels of each region. Although global initiatives are being implemented to reduce the impacts of piracy, their scope is still considerable, aggravated by the lack of effective policies specifically aimed at young people (Hashim et al., 2014).

In the Latin American context, Brazil stands out as one of the largest economies in the region and an important consumer market for games and applications. However, the country faces significant problems related to digital piracy, especially among teenagers. The culture of inappropriate sharing, combined with the lack of free access options and low awareness of legal implications, contributes to high piracy rates (Arli; Tjiptono, 2016).

In light of this reality, it is essential to understand the factors that lead young people to pirate games and applications in Brazil. Identifying these motivations is a crucial step in developing educational actions capable of fostering an ethical vision regarding copyright. Thus, this study seeks to answer the following questions: "What motivates the practice of pirating games and applications among adolescents?" and "What strategies are most effective in reducing these practices?" The objective of this work is to identify the motivations that lead adolescents to practice pirating games and applications and to analyze effective strategies to reduce this practice.

METHODOLOGY

This research is classified as a systematic review with an exploratory and qualitative approach (Gerhardt; Silveira, 2009; Gil, 2002; Liberati et al., 2009).

For this review, the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method were used, which consists of a checklist with 27 items and a flowchart with four steps: identification, selection, eligibility, and inclusion, detailed below (Moher et al., 2009).

IDENTIFICATION

In the first step, a search was carried out in the Scopus and Web of Science (WoS) databases, on May 10, 2024, using the descriptors: "Digital piracy", "Game piracy", "App piracy", "Application piracy", "Software piracy", "Adolescent", "Teen", "Youth" with the Boolean operators OR and AND. The search strings used can be seen in Table 1.

Table 1 - Search strings used in the databases

Database	Search Strings
Scopus	(TITLE-ABS-KEY ("Digital piracy" OR "Game piracy" OR "App piracy" OR "Application piracy" OR "Software piracy") AND TITLE-ABS-KEY ("adolescent" OR "teen" OR "youth")) AND (LIMIT-TO (DOCTYPE, "ar"))
WoS	"Digital piracy" "Game piracy" "App piracy" "Application piracy" OR "Software piracy" (Topic) and "adolescent" OR "teen" OR "youth" (Topic) and Article (Document Types)

Source: AUTHORS.

SELECTION

In this step, filters were applied to both databases. The document type filter applied was journal article. Next, the language filter was applied to English and Portuguese. The time filter was not applied due to the low number of articles found in both databases, therefore, there was no time frame and the articles used were published between 2009 and 2024. Finally, duplicate articles were excluded.

ELIGIBILITY

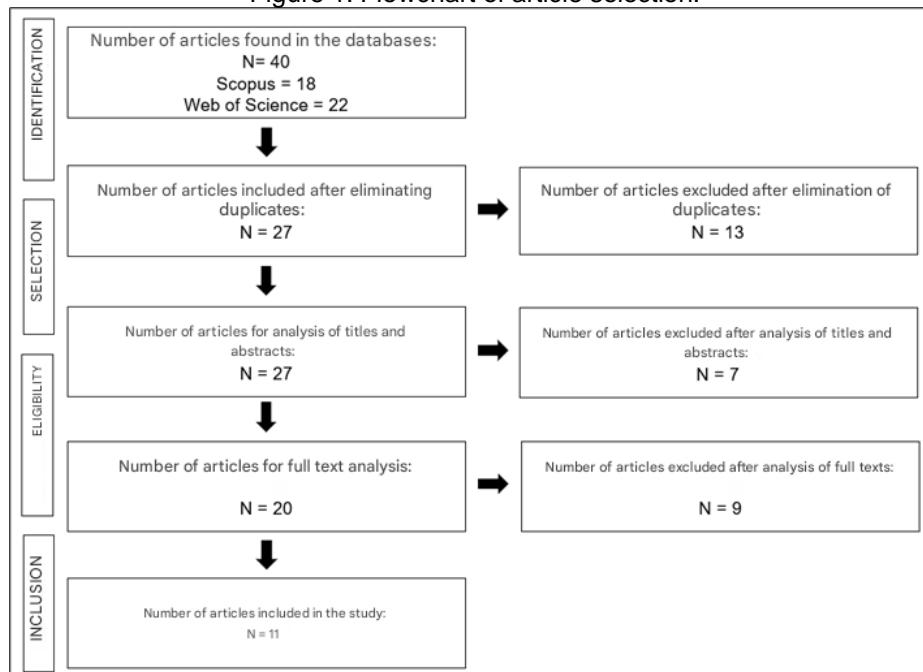
In the third step, the titles and abstracts of the articles found were read and those that were not within the scope of this research were discarded. Then, from the remaining articles, those that were available in full in the databases were selected.

INCLUSION

In this last step, the full text of the remaining articles was read to select those that were within the scope of this research.

Figure 1 shows the flowchart of the selection of articles with the PRISMA method, resulting in the inclusion of the 11 articles used in this systematic review.

Figure 1: Flowchart of article selection.



Source: Adapted from Moher et al. (2009).

RESULTS

The search on Scopus resulted in 22 articles and on Web of Science (WoS) in 18, totaling 40 articles on both databases. However, 13 duplicates were identified, bringing the total to 27 articles published between 2009 and 2024. Of these, 11 were within the scope of this research, on motivations and strategies to reduce piracy of games and apps among teenagers. Table 2 shows the articles selected for analysis, detailed by title, journal name and author/date. These articles were then analyzed and their main results presented.

The research conducted in the Scopus database resulted in 22 articles, while the Web of Science (WoS) yielded 18, totaling 40 articles from both databases. However, 13 duplicates were identified, adjusting the total to 27 articles published between 2009 and 2024. Among these, 11 were within the scope of this research, focusing on motivations and strategies to reduce game and app piracy among adolescents. Table 2 presents the selected articles for analysis, detailing the title, journal name, and author/date. Subsequently, these articles were analyzed, and their main findings were presented.

Table 2 - Articles included in the study

Nº	Title	Journal	Author/Date
01	The seductions of cybercrime: Adolescence and the thrills of digital transgression	European Journal of Criminology	Goldsmith & Wall (2022)
02	Evaluation of digital piracy by youths	Future Internet	Tomczyk (2021)
03	Explaining Cyber Deviance among School-Aged Youth	Child Indicators Research	Lee (2018)
04	Factors associated with digital piracy among early adolescents	Children and Youth Services Review	Lee, Paek & Fenoff (2018)
05	Determinants of worldwide software piracy losses	Technological and Economic Development of the Economy	Gomes, Cerqueira & Alçada-Almeida (2018)
06	Gender and digital privacy: Examining determinants of attitude toward digital piracy among youths in an emerging market	International Journal of Consumer Studies	Tjiptono, Arli & Viviea (2016)
07	Consumer digital piracy behavior among youths: insights from Indonesia	Asia Pacific Journal of Marketing and Logistics	Arli & Tjiptono (2016)
08	Software Piracy among Korean Adolescents: Lessons from Panel Data	Deviant Behavior	Kim & Kim (2015)
09	"Piracy is not theft!" Is it just students who think so?	Journal of Behavioral and Experimental Economics	Krawczyk et al. (2015)
10	Exploring the Role of Self-Control Across Distinct Patterns of Cyber-Deviance in Emerging Adolescence	International Journal of Offender Therapy and Comparative Criminology	Whitten et al. (2024)
11	Parental Indifference and Children's Digital Piracy in South Korea: Mediation Effects of Low Self-Control and Misconception	Asian Journal of Criminology	Baek et al. (2018)

Source: Own authorship

THE SEDUCTIONS OF CYBERCRIME: ADOLESCENCE AND THE THRILLS OF DIGITAL TRANSGRESSION

The study examines the internet as an attractive medium that enables transgressions and ethical deviations among adolescents, emphasizing the factors that make digital platforms act as emotional and social triggers for this age group.

The authors highlighted the need for a broader understanding of the relationship between young people and digital technologies, as informational policies proved to be more effective when compared to punitive actions.

They also emphasized that policies related to combating cybercrimes committed by young people should consider technological interference and persuasion, given their limited social interaction experience and the vulnerability that exposes this age group.

They concluded that by better understanding how young people interact with digital technologies, it becomes possible to implement social actions that can prevent cyber delinquency and promote the sustainable development of young people in the digital environment.

EVALUATION OF DIGITAL PIRACY BY YOUTHS

The research investigated digital piracy as an illicit distribution without authorization, covering everything from downloading to the unauthorized distribution of digital products such as apps and games.

The author collected data to investigate young people's perceptions of digital piracy and identified their motivations as a way to understand the causes leading to piracy. Based on this, educational strategies addressing legal issues and their consequences were developed.

Finally, the study emphasized the need to create strategies in an accessible language for young audiences, using an interactive and dynamic format. Additionally, the study suggested facilitating access to free or low-cost versions as a valid option to combat piracy. This included partnerships with digital platforms, the availability of free game and app options, and awareness campaigns regarding the legal implications of technology misuse.

EXPLAINING CYBER DEVIANCE AMONG SCHOOL-AGED YOUTH

The study promotes a reflection on the behavior of school-aged youth, highlighting internal factors (such as self-control difficulties) and external factors (such as peer

influence and parental supervision) that contribute to inappropriate digital practices, aiming to support educators and guardians in combating such behaviors more strategically and effectively.

The author emphasized the importance of parental supervision in the use of digital media technologies, suggesting that socialization with other young people who struggle with self-control tends to reinforce inappropriate practices.

Finally, the study pointed out that owning a mobile phone is not the only way to engage in illicit digital practices, highlighting other actions such as media, software piracy, and hacking. The author also noted that peer interactions are a significant factor leading young people to engage in digital piracy and online harassment. Additionally, the importance of public policies and educational programs guiding young people on the implications of cyberspace exposure was emphasized.

DISCUSSION

Regarding the motivational factors leading young people to engage in piracy, the following were highlighted: difficulty in self-control, peer influence, lack of parental supervision, perception of legality, moral attitudes, inaccessible costs, psychological issues, and excessive use of devices (Baek et al., 2018; Gomes, Cerqueira & Alçada-Almeida, 2018; Kim & Kim, 2015; Lee, 2018; Lee, Paek & Fenoff, 2018; Tjiptono & Arli, 2016; Whitten et al., 2024).

The difficulty in self-control emerged as the most investigated motivation, present in 36% of the studies. According to Whitten et al. (2024), this is the primary factor leading young people to engage in cybercrimes. Baek et al. (2018) and Kim & Kim (2015) supported this finding, highlighting additional factors such as psychological problems and excessive device usage. From this perspective, Lee (2018) suggested that young people who socialize with others with low self-control tend to adopt inappropriate practices.

Peer influence was investigated in 27% of the studies. According to Lee (2018), this influence, combined with low self-control, is a crucial factor in young people's involvement in digital piracy and cyberbullying. Lee, Paek, and Fenoff (2018) stated that young people with friends involved in piracy tend to adopt the same behavior. Additionally, Whitten et al. (2024) also highlighted the observation of group social behavior and the pursuit of instant gratification as influencing factors.

Another motivational factor mentioned in 27% of the studies was the lack of parental

supervision. According to Whitten et al. (2024), this lack of supervision, combined with high device usage frequency, can lead to increased engagement in digital piracy. Baek et al. (2018) also emphasized that parental negligence plays a significant role in this behavior, reinforcing that adolescents lacking parental monitoring are more prone to illicit online activities.

The perception of legality was another motivational factor analyzed in 18% of the studies. According to Krawczyk et al. (2015), many young people do not perceive piracy as theft, which influences their engagement in such practices. This perception is reinforced by the ease of access to pirated digital content and the lack of immediate consequences for those who engage in it.

Moral attitudes were examined in 18% of the studies, emphasizing how young people's ethical perspectives influence their decisions regarding digital piracy. According to Arli & Tjiptono (2016), individuals who justify piracy with arguments such as "big companies make a lot of money" or "everyone does it" tend to engage more frequently in illegal downloads.

The high cost of digital products was cited in 18% of the studies as a determining factor in piracy among young people. Gomes, Cerqueira & Alçada-Almeida (2018) highlighted that, in developing countries, the financial barrier to accessing games and applications legally is one of the main drivers of piracy. Similarly, Tomczyk (2021) suggested that offering free or more affordable versions could help mitigate the problem.

Psychological factors, including impulsivity and the pursuit of excitement, were mentioned in 9% of the studies. Goldsmith & Wall (2022) identified that some adolescents engage in digital transgressions not just for economic reasons but also for the thrill and social recognition among peers.

Excessive use of digital devices was also cited in 9% of the studies as a contributing factor to piracy. According to Kim & Kim (2015), adolescents who spend extended periods online have greater exposure to illegal content and a higher likelihood of engaging in cybercrimes.

CONCLUSION

This research carried out a systematic review based on the PRISMA method, covering the Scopus and Web of Science databases, from 2009 to 2024. The study

identified the main motivations that lead adolescents to practice piracy of games and applications, as well as the most effective strategies to reduce this practice.

As for motivations, factors such as difficulty with self-control, peer influence, lack of parental supervision, and mistaken perception of legality stood out. Difficulty with self-control was identified as the most investigated and was frequently associated with parental indifference and excessive use of devices, both of which contribute to deviant behavior.

Strategies to reduce piracy, educational actions, investment in education, access to free or low-cost versions of applications and games, and monitoring by guardians were highlighted. Educational actions were the most explored and proved to be more effective than punitive measures, by raising awareness among young people about the legal and ethical implications of piracy. Furthermore, investment in education, partnerships with digital platforms, and the provision of free and low-cost versions were also highlighted as relevant measures.

It can be concluded, therefore, that the motivations for piracy among adolescents are diverse, but can be mitigated by well-structured strategies, with an emphasis on educational actions. The difficulty of self-control, especially when associated with parental indifference and excessive use of devices, emerges as a critical motivational factor.

As a proposal for future work, we suggest the development of interactive teaching materials, aimed at dynamic classes with adolescents. This initiative has the potential to act as an effective educational alternative, promoting awareness and encouraging ethical behavior in the digital environment.

REFERENCES

1. Arli, D., & Tjiptono, F. (2016). Consumer digital piracy behavior among youths: Insights from Indonesia. *Asia Pacific Journal of Marketing and Logistics*, 28(5), 898–922.
2. Baek, H., Kim, S., & Kim, Y. (2018). Parental indifference and children's digital piracy in South Korea: Mediation effects of low self-control and misconception. *Asian Journal of Criminology*, 13(4), 293–309.
3. Brannstrom, C., Seghezzo, L., & Gorayeb, A. (2022). Descarbonização na América do Sul. Mossoró, RN: Universidade do Estado do Rio Grande do Norte - Edições UERN.
4. Gerhardt, T. E., & Silveira, D. T. (2009). *Métodos de pesquisa*. Porto Alegre, RS: Editora da UFRGS.
5. Gil, A. C. (2002). *Como elaborar projetos de pesquisa* (4^a ed.). São Paulo, SP: Editora Atlas. Disponível em: <http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=3236025>. Acesso em: 6 jan. 2022.
6. Goldsmith, A., & Wall, D. S. (2022). The seductions of cybercrime: Adolescence and the thrills of digital transgression. *European Journal of Criminology*, 19(1), 98–117.
- Gomes, N., Cerqueira, P., & Alçada-Almeida, L. (2018). Determinants of worldwide software piracy losses. *Technological and Economic Development of Economy*, 24(1), 48–66.
7. Hashim, M. J., Idris, N., Noor, N. M. M., & Yusof, N. M. (2014). Digital piracy, teens, and the source of advice: An experimental study. *Journal of Management Information Systems*, 31(2), 211–244.
8. Kim, J. E., & Kim, J. (2015). Software piracy among Korean adolescents: Lessons from panel data. *Deviant Behavior*, 36(9), 705–724.
9. Krawczyk, M., Reuben, E., & Rybicki, W. (2015). "Piracy is not theft!" Is it just students who think so? *Journal of Behavioral and Experimental Economics*, 54, 32–39.
10. Lee, B. H. (2018). Explaining cyber deviance among school-aged youth. *Child Indicators Research*, 11(2), 563–584.
11. Lee, B., Paek, S. Y., & Fenoff, R. (2018). Factors associated with digital piracy among early adolescents. *Children and Youth Services Review*, 86, 287–295.
12. Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLoS Medicine*, 6(7), e1000100.
13. Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *BMJ*, 339, b2535.

14. Tjiptono, F., & Arli, D. (2016). Gender and digital privacy: Examining determinants of attitude toward digital piracy among youths in an emerging market. *International Journal of Consumer Studies*, 40(2), 168–178.
15. Tomczyk, Ł. (2021). Evaluation of digital piracy by youths. *Future Internet*, 13(1), 1–26.
16. Whitten, T., Drawve, G., & Kort-Butler, L. (2024). Exploring the role of self-control across distinct patterns of cyber-deviance in emerging adolescence. *International Journal of Offender Therapy and Comparative Criminology*.
<https://doi.org/10.1177/0306624X231220011>