Mobile application usage behavior among adolescents: a comparative study of preferences and trends among students

Comportamento de utilização de aplicativos móveis entre adolescentes: um estudo comparativo das preferências e tendências entre estudantes

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Resumo: *O objetivo principal foi identificar os aplicativos mais populares e analisar como os adolescentes utilizam categorias específicas de aplicativos em suas vidas. O estudo é observacional e transversal, envolvendo adolescentes de 12 a 18 anos. A pesquisa utilizou uma amostra de 168 adolescentes de duas escolas em Porto Velho-RO e coletou dados por meio do aplicativo Meu Celular, Meu Vício. Os resultados indicam uma clara preferência dos adolescentes por aplicativos de bate-papo e redes sociais. Embora tenham sido observadas variações entre as escolas, a tendência geral de uso de aplicativos por categoria foi semelhante. Este estudo fornece uma visão abrangente do uso de aplicativos e consumo digital por adolescentes em contextos escolares. Confirmou-se a influência das redes sociais e aplicativos de mensagens na vida dos jovens.*

Palavras-chave: *Consumo e Comportamento Digital; Uso de Aplicativos; Adolescentes; Escolas; Redes Sociais.*

Abstract: *The main objective was to identify the most popular apps and analyze how teenagers use specific categories of apps in their lives. The study is observational and cross-sectional, involving adolescents aged 12 to 18. The research used a sample of 168 teenagers from two schools in Porto Velho-RO and*

collected data by means of the application Meu Celular, Meu Vício. The results indicate a clear preference among teenagers for chat applications and social networks. Although variations were observed among schools, the general trend of app usage by category was similar. This study provides a comprehensive view of adolescent app use in school contexts. The influence of social networks and messaging applications on young people's lives was confirmed.

Keywords: *Digital consumption and behavior; Use of applications; Teenagers; Schools; Social media*

Introduction

The growing wave of digitalization that has swept the world in recent decades has brought the proliferation of mobile devices and applications, triggering a fundamental transformation in our everyday lives. The ubiquity of smartphones and internet connectivity has opened new frontiers of access to information, communication, and entertainment, shaping the way we interact with the world around us (SHI; WANG; ZHU, 2023).

This phenomenon has become particularly evident among young people, who have quickly adopted smartphones as ubiquitous extensions of their identities and communication (SHI; WANG; ZHU, 2023). The ability to access a wide range of applications, offering everything from social media to games and utilities, has become an intrinsic part of the fabric of modern society, especially among students (SOHN et al., 2019).

However, a fundamental question arises and presents deep concerns with this digital revolution and the proliferation of apps: how are students using their smartphones? More specifically, which categories of apps dominate their time and attention? Answering these questions is crucial since these technologies' unrestrained or inappropriate use can significantly impact adolescent development (TWENGE; CAMPBELL, 2018) and academic performance (ABBASI et al., 2021).

The present study seeks to address this question, analyzing the use of applications by category among 168 students from two different schools. This study assumes particular importance at a time when the education and well-being of young people are interconnected with the use of mobile devices (MIN KWON; PAEK, 2016).

The inappropriate or excessive use of technology can potentially interfere negatively with academic performance and the mental and social health of students, even though it offers unprecedented educational and socialization opportunities (STOJILJKOVIĆ; STANKOVIĆ, 2018). Throughout this study, we will examine application usage patterns among students in two schools, comparing their preferences and

trends. The aim of this article is not only to describe these patterns but also to contribute to the debate on how mobile technology is shaping students' lives in different school contexts.

We expect that the results of this research will contribute to a deeper analysis of the use of applications among students and generate insights that can guide educational and political decision-making for promoting healthy and productive usage of mobile devices in school environments. Understanding these usage patterns can help educators, parents, and policymakers develop effective strategies for balancing the advantages of technology with the challenges it presents for adolescents' development and academic performance.

Method

This observational and cross-sectional study results from extensive research with adolescent students in middle and high school in Porto Velho, the capital of the state of Rondônia. The research used a random sampling of adolescents aged between 12 and 18 enrolled in 2022. It is worth mentioning that Porto Velho has an estimated student population of 39,669 students (data from 2023, BRAZIL).

Before starting data collection, we submitted the research protocol to the Federal University of Rondônia Research Ethics Committee, obtaining approval under review number 5.118.084, with CAAE registration 53306221.2.0000.5300 CEP/CONEP. Additionally, we obtained authorizations from the management of the selected schools. To include adolescents in the study, parents or legal guardians provided written consent, besides the adolescents themselves.

We selected schools in a random draw, including two state primary and secondary schools as institutions participating in this study. Calculations performed in the Statcalc program (Epi Info) determined the sample size. Considering an estimate of 50% of students in the target population, a margin of sampling error of 5%, and a confidence interval of 95% (95% CI), the calculations indicated the need to collect data from 380 adolescents for this study. However, the final study

sample consisted of 168 adolescents due to factors not controlled by the researchers.

We collected data, including demographic information and answers to specific questionnaires, between March 21 and April 8, 2022. To collect data on smartphone usage habits, we installed the Meu Celular Meu Vício (My Cellphone My Vice - MCMV) application on teenagers' smartphones. Amorim and Corso (2020) developed and validated this app in Brazil, allowing data collection on smartphone usage, including time of use, frequency of application use, blocking, and unblocking, among other actions (AMORIM; CORSO, 2020).

It is worth mentioning that the data discussed in this article corresponds to one week of smartphone use. Then, we grouped the data from all 168 students by school and calculated the total number of executions and time spent using the applications, which we divided into categories: social media, chat, songs, videos, browsers, and games. We conducted all analyses using SPSS software, version 27.0 (SPSS Inc., Chicago, IL, USA).

The application remained installed on students' devices for 15 days, but the research only used data from the second week to mitigate a possible behavioral bias introduced by monitoring. The choice of this longer period aimed to allow students to get used to the presence of the application, reducing potential changes in their usage patterns due to the newness of the tool.

Results

Table 1 presents a detailed analysis of the sociodemographic data of the student population in Middle School and High School at Barão de Solimões and Rio Branco. The variables examined include the participants' age, sex, race, and family structure.

Table 1: Representation of Sociodemographic Data by prevalence, % (n) in Barão de Solimões and Rio Branco schools.

Characteristics	Barão de Solimões (84)	Rio Branco (84)
Age		
Average	14,65 (14.31-15.01)	15,15 (14.79-15.50)
Sex		
Male	49 (58.3%)	45 (53.6%)
Female	35 (41.7%)	39 (46.4%)
Race		
White	25 (29.8%)	25 (29.8%)
Black	6 (7.1%)	9 (10.7%)
Brown	52 (61.9%)	46 (54.8%)
Indigenous	1 (1.2%)	4 (4.8%)
Family structure		
Father	6 (7.1%)	5 (6,0%)
Mother	28 (33.3%)	30 (35.7%)
Father and mother	47 (56.0%)	39 (46.4%)
Uncles, grandparents or others	3 (3.6%)	10 (11.9%)

Source: Elaborated by the authors

As Table 1 shows, regarding distribution by sex, we observed that most students in both schools were male. Regarding ethnic-racial self-declaration, the majority of students in both schools identified themselves as mixed race. Concerning family structure, most students in both schools reported living with both parents. Below, we present the main results, highlighting the total time spent and the total number of executions for each application category over one week (seven days), as indicated in Table 2.

Tabela 2: Report on one week of mobile app use by 168 students, apps separated by category.

App Category	App Name	Amount of executions	Hours
Social media	Instagram	11,809	388.46
	Twitter	1,936	55
	Facebook	1,449	46.03
	Pinterest	353	9.99
	Snaptube	734	7.12
	Snapchat	75	2.8
Chat	WhatsApp	29.504	619.3
	Discord	2.493	41.12
	YoWhatsApp	1.193	14.51
	Telegram	380	5.28
	WhatsApp Web	427	3.92
Music	Music player	434	47.3
	Spotify	817	14.6
	YouTube Music	126	4.75
	Lark Player	190	1.27
Video	TikTok	8,137	687.16
	YouTube	6,012	384.77
	Video player	665	7.5
	Netflix	374	37.92
	Twitch	11	1.05
Browsers	Chrome	4.687	114.15
	Google search	4.480	50.96
	Samsung Internet Browser	598	9.71

App Category	App Name	Amount of executions	Hours
	Roblox	308	37.52
	Free Fire	413	37.14
	Subway Surfers	207	11.76
	Pou	137	7.83
Games	*Ball Pool*	98	3.49
	Cartola FC	101	2.08
	Gacha Life	28	1.25
	Clash of Clans	29	0.53
	Candy Crush Saga	22	1.24

Source: Elaborated by the authors

Among social media applications, Instagram was the most popular in both schools, with 11,809 executions and a total usage time of 388.46 hours. Twitter also had considerable usage, with 1,936 executions and a total usage time of 55 hours, as well as Facebook, with a total of 1,449 executions and a total time of 46.03 hours. Pinterest, Snaptube, and Snapchat, although less popular, were used frequently.

Regarding chat applications, WhatsApp stood out as the most used, with 29,504 executions and 619.30 hours of use. Discord, Telegram, and WhatsApp Web were likewise popular apps in the category.

Among music apps, Spotify led the category, with 817 plays and a total usage time of 14.60 hours. The cell phone's own Music Player has fewer plays, a total of 434, but showed a much higher usage time with a total of 47.3 hours. Students used YouTube Music and Lark Player frequently but to a lesser extent.

In the video category, TikTok and YouTube dominated, with 8,137 and 6,012 plays, respectively. Netflix was the third most popular app in average usage time, at 37.92 hours. Other video applications, such as Twitch and the cell phone's own Video Player, were also used by students.

Chrome was the most used browser, with 4,687 executions and an average usage time of 114.15 hours. Google search was also widely used, with 4,480 executions and 50.96 hours of use.

Regarding games, Roblox and Free Fire were the most popular games. Roblox had 308 executions and 37.52 hours of use, while Free Fire ran 413 times with 37.14 hours. Other games, such as Subway Surfers, Pou, Ball Pool, Cartola FC, Gacha Life, Clash of Clans, and Candy Crush Saga, also had a significant presence.

The results in Table 3 compare the use of applications between Escola Rio Branco and Escola Barão do Solimões. The table highlights the most used applications in hours in each category and the difference in executions and hours between the two schools.

Table 3: Comparison of application use over a week between Escola Rio Branco and Escola Barão do Solimões.

App Category	App Name	Escola Rio Branco (Hours)	Escola Barão do Solimões (Hours)	Escola Rio Branco (Executions)	Escola Barão do Solimões (Executions)
Social media	Instagram	242.9	145.56	6,054	5,755
	Facebook	19.05	26.98	525	924
	Snaptube	6.4	0.72	569	165
	Pinterest	6.55	3.44	236	117
	Twitter	4,5	51.5	304	1,632
	Snapchat	1,55	1.25	51	24
Chat	WhatsApp	317.25	302.05	15,122	14,382
	Discord	19.55	21.57	1,861	632
	Telegram	1.01	4.27	104	276
	YoWhatsApp	14.51	-	1,193	-
	WhatsApp Web	3.92	-	427	-
Music	Music player	33.05	14.25	305	216
	Spotify	4.4	10.2	386	431
	YouTube Music	3.55	1.2	55	71
	Lark Player	1.27	-	190	-

App Category	App Name	Escola Rio Branco (Hours)	Escola Barão do Solimões (Hours)	Escola Rio Branco (Executions)	Escola Barão do Solimões (Executions)
Videos	TikTok	395.45	291.71	4,952	3,185
	YouTube	179.57	205.2	3,379	2,633
	Video player	4.51	2.99	356	309
	Netflix	24.5	3.42	279	95
Browsers	Chrome	54.22	59.93	2,078	2,609
	Pesquisa no Google	25.51	25.45	2,311	2,169
	Samsung Internet	6.27	3.44	379	219
Games	*Roblox*	20.59	16.93	143	165
	Free Fire	8.06	29.08	108	305
	Subway Surfers	7.57	4.19	139	68
	Pou	1.75	6.08	19	118
	Gacha Life	1.25	-	28	-
	Clash of Clans	0.53	-	29	-

Source: Elaborated by the authors

In the Social Media category, both schools presented Instagram as the application with the most hours of use. Escola Rio Branco recorded 6,054 executions and 242.9 hours of use. The Barão do Solimões School had slightly fewer executions, 5,755, but with a much shorter total time, 145.56 hours. Students also used other social media but with a much shorter number of executions and usage time: Facebook, Snaptube, Pinterest, Twitter, and Snapchat.

In the Chat category, WhatsApp also led in both schools, with Escola Rio Branco recording a total of 15,122 executions and 317.25 hours of use and Escola Barão do Solimões with 14,382 executions and 302.05 hours of use. No other application came close to these results. Students also used Discord and Telegram as chat applications. Only Escola Rio Branco uses YoWhatsApp and WhatsApp Web.

Regarding the Music category, the cell phone's music player was used the most in hours in both schools, with 33.05 hours and 305 plays at Escola Rio Branco and 14.25 hours and 216 plays at Escola Barão do Solimões. Regarding executions, Spotify led in both schools, with 386 at Escola Rio Branco and 431 at Escola Barão do Solimões. However, students spent less time on this application, 4.4 hours at Escola Rio Branco and 10.2 at Barão do Solimões School. Two other applications, YouTube Music and Lark Player, are only used at Escola Rio Branco.

In the video category, TikTok led in both schools, with 4,952 executions and 395.45 hours of use at Escola Rio Branco and with 3,185 executions and 291.71 hours of use at Escola Barão do Solimões. Students use three other applications to watch videos: YouTube, the smartphone's video player, and Netflix.

Regarding Browsers, Chrome was the most used in both schools, with a total of 2,078 executions and 54.22 hours of use at Escola Rio Branco and 2,609 executions and 59.93 hours of use at Escola Barão do Solimões. Students also used Google search and Samsung Internet.

In Games, there was a notable difference in the most used applications in hours between schools. Roblox led at Escola Rio Branco with 143 executions, totaling 20.59 hours of game use, while Free Fire led at Escola Barão do Solimões with 305 executions and a total of 29.08 hours. Students from both schools played Subway Surfers and Pou, but only those from Escola Rio Branco played Gacha Life and Clash of Clans.

Our analysis of the results highlights the significant variation in app use between the two schools and the importance of considering the school context when examining patterns of mobile device use among adolescents.

Discussion

The results of the analysis of app usage by category provide important insights into the mobile behavior of teens. The main objective of the research was to investigate how students use their smartphones

and, more specifically, which categories of applications dominate their time and attention.

Regarding the first research question, which aimed to identify the most popular applications among students, the results indicate that students considerably use chat applications, especially WhatsApp, and social media, especially Instagram, in terms of hours. These findings seem to align with indications from the literature on global digital trends. For example, in the United States, a recent survey involving 200 young people aged 11 to 17 (RADESKY et al., 2023) intensively monitored smartphone use for a week through an app, confirming these observed preference patterns among students. A report by the consultancy YPulse, which studied young people in Western Europe, observed similar results (YPULSE, 2022).

Additionally, a recent national survey conducted with 1,617 parents of children and adolescents aged 13 to 16 revealed that WhatsApp and Instagram were the applications most mentioned by parents (PANORAMA MOBILE TIME/OPINION BOX, 2023). This alignment of perceptions between young people's preferences and parents' observations consolidates the consistency of these usage patterns and highlights the relevance of these platforms in different contexts.

This preference for communication apps reflects the importance of social networks and instant communication in young people's lives. These platforms offer a convenient way to stay in touch with friends and family, share moments and information in real-time, and feel connected, especially when virtual communication has become crucial, such as during the COVID-19 pandemic (MCAFEE, 2022).

Existing literature supports this trend, highlighting that social media play a significant role in building identity, forming relationships, and seeking social validation among young people (SILVA NETO; TAVARES, 2019). An increasingly connected world that values quick responses and continuous availability sees constant communication provided by chat applications as necessary (TANG; HEW, 2022).

These results have important implications for the education and health of young people. Excessive use of social media and chat applications can lead to mental well-being concerns such as anxiety and depression due to social pressure and constant exposure to digital content (TWENGE, 2017). Therefore, educators and parents must promote a balanced approach to smartphone use, encouraging breaks and offline activities.

The second research question sought to understand how the use of applications varied between the two schools, Barão de Solimões and Rio Branco. Although schools differed in specific preferences, the general trend of app usage was consistent across schools, with chat and social media apps dominating.

The implications of the results are relevant for theory and the practical school context. Firstly, in theory, the findings reinforce the idea that adolescents are deeply involved with mobile technology, particularly with social media applications, which have already been the subject of several studies (CHI '23, 2023). This highlights the continued need for research into the psychosocial and educational impact of dependence on mobile devices.

In the school context, the results have significant implications for school administration and teachers. The prevalence of social media and chat applications can raise questions about students' attention during classes and academic performance. Educational strategies can incorporate mobile devices as learning tools more effectively, taking advantage of students' natural interest in technology (ÇELIK, 2016; UYSAL; BALCI, 2018).

This analysis aligns with previous studies that identified chat/social media applications as the most popular among adolescents (RIDEOUT; ROBB, 2019; PEW RESEARCH CENTER, 2022). This similarity suggests a consistent trend in young people's behavior regarding mobile device use.

We can attribute app usage patterns to several factors. Firstly, the role of social media in the lives of teenagers as a tool for socialization

and personal expression is a significant motivator (ODGERS; JENSEN, 2020). Furthermore, the availability of easy access to the internet and the popularization of smartphones have made the use of these applications practically ubiquitous among young people (SHI; WANG; ZHU, 2023).

In the school context, students may be turning to chat applications and social media as a form of escapism, relaxation, or even to fill moments of boredom during the school period (SHAKYA; CHRISTAKIS, 2017). That raises questions about how schools can balance the use of mobile devices as educational tools with policies that prevent distractions in the classroom.

In short, the results of the analysis provide valuable information about the use of applications by adolescents in school contexts, highlighting the predominance of chat applications and social media and the theoretical and practical implications of these usage patterns. These findings can serve as a basis for developing educational policies and strategies that help students make the most of mobile technology while maintaining a healthy balance in their school environment.

Conclusion

The present research on digital consumption, more specifically, the use of applications by teenagers in schools in Porto Velho, Rondônia, provided an in-depth view of students' behavior toward mobile devices and different app categories. This conclusion summarizes the main findings, answers the research questions, discusses the broader implications of the study and identified limitations, and offers suggestions for future research.

The analysis revealed that teenagers in both schools, Barão de Solimões and Rio Branco, have a notable preference for chat applications, such as WhatsApp, and social media applications, such as Instagram and Facebook, which also had a significant presence. We explored the categories of music, videos, browsers, and games highlighting the diversity of student interest in applications.

These results validate the first research question, identifying the most popular applications among teenagers in the investigated schools. Regarding the second research question, the data demonstrated that, although there may be variations in preferences between schools, the general trend of application use by category was similar.

The results of this study have significant implications on several fronts. In theoretical terms, they confirm the predominant influence of messaging apps and social media as an integral part of teenagers' lives in the digital age. Deepening this understanding is fundamental for research in psychology and education, especially considering the impact of these technologies on mental health and academic behavior.

In the school context, these findings highlight the need for a balanced approach to the use of mobile devices. Schools can explore strategies that capitalize on students' interest in technology to enhance learning, while promoting policies that minimize distractions in the classroom.

A possibly significant limitation of this study is using the Meu Celular, Meu Vício (MCMV) application installed on teenagers' smartphones for data collection. The fact that participants are aware of their monitoring can influence how they use their smartphones. That can lead to an inauthentic representation of their real usage habits.

For future studies, we recommend a more in-depth investigation to assess the correlation between time dedicated to specific application categories and students' academic performance. Furthermore, we suggest research that addresses the potential effects of intensive use of social media and mobile devices on adolescents' mental health. That would include an analysis of the relationship between prolonged use of these technologies and symptoms of anxiety and depression. Furthermore, it would be relevant to investigate how the excessive use of mobile devices can affect the physical health of adolescents, considering possible associations with sedentary behaviors.

Furthermore, we recommend exploring specific educational strategies to effectively integrate mobile devices into teaching activities

and school policies that promote a healthy balance in application use, besides expanding the study to other regions of Brazil to identify geographic variations in application usage patterns.

Thus, this study contributes to understanding adolescents' behavior toward mobile applications in school contexts. We hope these findings will inspire further research and contribute to improving the education and well-being of young people in the digital age.

References

ABBASI, G. A. et al. The impact of type of content use on smartphone addiction and academic performance: Physical activity as moderator. *Technology in Society*, v. 64, 2021. Disponível em: https://doi.org/10.1016/j.techsoc.2020.101521. Acesso em: 10 set. 2023.

AMORIM, R. M.; CORSO, K. B. Construção e validação do aplicativo "Meu Celular, Meu Vício" para mensurar a dependência de smartphone em estudantes universitários. XLIV encontro da ANPAD - EnANPAD 2020, *Anais...*, 2020.

BRASIL. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (Inep). *Censo da Educação Básica 2022: notas estatísticas*. Disponível em: https://download. inep.gov.br/areas_de_atuacao/notas_estatisticas_censo_da_educacao_basica_2022.pdf. Acesso em: 22 set. 2023.

ÇELIK Ç.B. Educational Intervention for Reducing Internet Addiction Tendencies. *Jornal Turco Sobre Vício*, v. 3, n. 3, p. 175-186, 2016. Disponível em: https://doi. org/10.15805/addicta.2016.3.0021. Acesso em: 10 set. 2023.

CHI '23: CHI CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS, 2023, Hamburg Germany. *Laughing so I don't cry*: How TikTok users employ humor and compassion to connect around psychiatric hospitalization [...]. DOI 10.1145/3544548. Disponível em: https://dl.acm.org/doi/proceedings/10.1145/3544 548 (favor confirmar). Acesso em: 22 set. 2023.

KWON, Y.; PAEK, K.-S. The Influence of Smartphone Addiction on Depression and Communication Competence among College Students. *Indian Journal of Science and Technology*, v. 9, n. 41, 2016. Disponível em: https://doi.org/10.17485/ijst/2016/v9i41/ 103844. Acesso em: 10 jan. 2023.

MCAFEE. *A vida por trás das telas de pais, pré-adolescentes e adolescentes*: Estudo de 2022 da McAfee sobre famílias conectadas-Brasil. Disponível em: https://www.mcafee. com/content/dam/consumer/pt-br/docs/reports/rp-connected-famil y-study-2022-brazil. pdf. Acesso em: 22 set. 2023.

ODGERS, C. L.; JENSEN, M. R. Annual Research Review: Adolescent mental health in the digital age: facts, fears, and future directions. *Journal of Child Psychology and*

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Psychiatry, v. 61, n. 3, p. 336-348, 2020. Disponível em: https://pubmed.ncbi.nlm.nih. gov/31951670/. Acesso em: 10 set. 2023.

PANORAMA MOBILE TIME/OPINION BOX. *Crianças e adolescentes com smartphones no Brasil*, outubro de 2023. Disponível em: https://www.mobiletime.com.br/ pesquisas/ criancas-e-adolecentes-com-smartphones-no-brasil-outubro-de-2023/. Acesso em: 4 fev. 2024.

PEW RESEARCH CENTER. **Teens, Social Media and Technology 2022**. 2022. Disponível em: https://www.pewresearch.org/internet/2022/08/10/teens-social-media--and-technology-2022. Acesso em: 10 set. 2023.

RADESKY, J. et al. *Constant Companion*: A Week in the Life of a Young Person's Smartphone Use. San Francisco, CA: Common Sense Media. 2023. Disponível em: https:// www.commonsensemedia.org/research/constant-companion-a-week-in-the-life-of-a-young-persons-smartphone-use. Acesso em: 4 fev. 2024.

RIDEOUT, V. J.; ROBB, M. B. S*ocial Media, Social Life*: Teens Reveal Their Experiences. Common Sense Media. 2019. Disponível em: https://www.commonsens emedia.org/ sites/default/files/research/report/2018-social-media-social-life-executive-summary-web. pdf. Acesso em: 10 set. 2023.

SHAKYA, H. B.; CHRISTAKIS, N. A. Association of Facebook Use With Compromised Well-Being: A Longitudinal Study. *American Journal of Epidemiology*, v. 185, n. 3, p. 203-211, 2017. Disponível em: https://pubmed.ncbi.nlm.nih.gov/28093386/. Acesso em: 10 set. 2023.

SHI X.; WANG A.; ZHU Y. Longitudinal associations among smartphone addiction, loneliness, and depressive symptoms in college students: Disentangling between– And within–person associations. *Addictive Behaviors*, v. 142, n. 107676, 2023. Disponível em: https://doi.org/10.1016/j.addbeh.2023.107676. Acesso em: 03 set. 2023.

SILVA NETO, A. P.; TAVARES, K. N. L. B. Identidade dos adolescentes e as redes sociais Virtuais. *Revista Interdisciplinar Encontro das Ciências*, v. 2, n. 3, p. 883-911, 2019. Disponível em: <https://doi.org/10.1000/riec.v2i3.91>. Acesso em: 3 set. 2023.

SOHN, S. et al. Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: a systematic review, meta-analysis and GRADE of the evidence. *BMC Psychiatry*, v. 19, n. 1, 2019. Disponível em: https:// www.ncbi.nlm.nih.gov/pmc/articles/PMC6883663/. Acesso em: 6 abr. 2023.

STOJILJKOVIĆ, J.; STANKOVIĆ, M. Depressive state and social anxiety in adolescents: The role of family interactions. *The American Journal of Family Therapy*, v. 46, n. 3, p. 243-257, 2018. Disponível em: https://doi.org/10.1080/01926187. 2018.1506269 (favor confirmar). Acesso em 07 jun. 2023.

TANG, Y.; HEW, K. F. Effects of using mobile instant messaging on student behavioral, emotional, and cognitive engagement: a quasi-experimental study. **Int J Educ Technol High Educ**, v. 19, n. 3, 2022. Disponível em: https://doi.org/10.1186/s41239-021-00306-6. Acesso em: 3 out. 2023.

TWENGE, J. M. *iGen*: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us. 1. ed. [S. l.]: Atria Books, 2017. 352 p.

YPULSE. Young Europeans Use These Social Media Platforms the Most. In: *Young Europeans Use These Social Media Platforms the Most*. [*S. l.*], 2022. Disponível em: https://www.ypulse.com/article/2022/11/15/young-europeans-use-these-social-media-platforms--the-most/. Acesso em: 4 fev. 2024.

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