

The value of sex education and the contribution of technology to the dissemination of knowledge

O valor da educação sexual e a contribuição da tecnologia na disseminação do conhecimento

El valor de la educación sexual y la contribución de la tecnología en la difusión del conocimiento

 Thiago Arahn Detoni¹,  Renato Mitsunori Nishihara²,  Fabiana Antunes de Andrade³

Received: 13/08/2025 Accepted: 09/02/2026 Published: 08/05/2026

Abstract:

Objective: to investigate the use of technology as a facilitator of sex education for adolescents, their families, and educators. **Methods:** an integrative review was conducted in the SciELO, LILACS, PubMed, and Google Scholar databases between March and April 2025, using the descriptors "Sex Education," "Technology," and "Adolescent" in Portuguese, English, and Spanish, considering the period from 2018 to 2025. Data were analyzed descriptively and thematically. **Results:** from the initial search of 140 publications, 10 articles were considered. Four thematic categories were constructed: *Challenges in adherence to contraceptive methods; Digital Technologies and Serious Games in Sex Education; Social networks as a learning channel; and Technology in supporting parents and teachers.* The studies showed that the absence of adequate sex education contributes to adolescents' misinformation about contraceptive methods, increasing the risks of unplanned pregnancy and sexually transmitted infections. Difficulties in adherence to contraceptive methods were also identified, influenced by sociocultural factors and the fragility of dialogue between family, school, and adolescents. Digital technologies proved to be potential educational tools, favoring access to information and adolescent engagement, as well as supporting families and educators. **Conclusion:** sex education is essential to reduce vulnerabilities and promote the sexual and reproductive health of adolescents. Digital technologies, such as games, apps, and social networks, can broaden access to information and support safe decisions, provided they are integrated with face-to-face strategies and mediated by trained professionals. It is recommended that future research explore the effectiveness of these approaches in different educational and social contexts.

Keywords: Sex education; Technology; Adolescent.

Resumo:

Objetivo: investigar o uso da tecnologia como facilitadora da educação sexual para adolescentes, suas famílias e educadores. **Método:** revisão integrativa realizada nas bases SciELO, LILACS, PubMed e Google Scholar, entre março e abril de 2025, com descritores "Educação Sexual", "Tecnologia" e "Adolescente" em português, inglês e espanhol, considerando o período de 2018 a 2025. Os dados foram analisados de forma descritiva e temática. **Resultados:** da busca inicial com 140 produções, considerou-se 10 artigos. Foram construídas quatro categorias temáticas: *Desafios na adesão aos métodos contraceptivos; Tecnologias Digitais e Serious Games na Educação Sexual; Redes sociais como canal de aprendizagem; e Tecnologia no apoio a pais e professores.* Os estudos mostraram que a ausência de educação sexual adequada contribui para a desinformação dos adolescentes sobre métodos contraceptivos, ampliando os riscos de gravidez não planejada e infecções sexualmente transmissíveis. Também foram identificadas dificuldades na adesão aos métodos contraceptivos, influenciadas por fatores socioculturais e pela fragilidade do diálogo entre família, escola e adolescentes. As tecnologias digitais se mostraram potenciais como ferramentas educativas, favorecendo o acesso à informação e o engajamento dos adolescentes, além de apoiar famílias e educadores. **Conclusão:** a educação sexual é essencial para reduzir vulnerabilidades e promover saúde sexual e reprodutiva de adolescentes. Tecnologias digitais, como jogos, aplicativos e redes sociais, podem ampliar o acesso à informação e apoiar decisões seguras, desde que integradas a estratégias presenciais e mediadas por profissionais capacitados. Recomenda-se que futuras pesquisas explorem a efetividade dessas abordagens em diferentes contextos educacionais e sociais.

Palavras-Chave: Educação sexual; Tecnologia; Adolescente.

Resumen:

Objetivo: investigar el uso de la tecnología como facilitadora de la educación sexual para adolescentes, sus familias y educadores. **Método:** revisión integradora realizada en las bases de datos SciELO, LILACS, PubMed y Google Scholar, entre marzo y abril de 2025, con los descriptores "Educación sexual", "Tecnología" y "Adolescente" en portugués, inglés y español, considerando el período de 2018 a 2025. Los datos se analizaron de forma descriptiva y temática. **Resultados:** de la búsqueda inicial con 140 publicaciones, se consideraron 10 artículos. Se construyeron cuatro categorías temáticas: *Desafíos en la adherencia a los métodos anticonceptivos; Tecnologías digitales y serious games en la educación sexual; Redes sociales como canal de aprendizaje; y Tecnología en el apoyo a padres y profesores.* Los estudios mostraron que la ausencia de una educación sexual adecuada contribuye a la desinformación de los adolescentes sobre los métodos anticonceptivos, aumentando los riesgos de embarazo no planificado e infecciones de transmisión sexual. También se identificaron dificultades en la adherencia a los métodos anticonceptivos, influenciadas por factores socioculturales y por la fragilidad del diálogo entre familia, escuela y adolescentes. Las tecnologías digitales se mostraron como herramientas educativas potenciales, favoreciendo el acceso a la información y la implicación de los adolescentes, además de apoyar a familias y educadores. **Conclusión:** la educación sexual es esencial para reducir vulnerabilidades y promover la salud sexual y reproductiva de los adolescentes. Las tecnologías digitales, como juegos, aplicaciones y redes sociales, pueden ampliar el acceso a la información y apoyar decisiones seguras, siempre que se integren con estrategias presenciales y estén mediadas por profesionales capacitados. Se recomienda que futuras investigaciones exploren la efectividad de estos enfoques en diferentes contextos educativos y sociales.

Palabras clave: Educación sexual; Tecnología; Adolescente.

Corresponding Author: Thiago Arahn Detoni – thiago@xbrain.com.br

1. Universidade Tecnológica Federal do Paraná. Curitiba/PR, Brazil

2. Faculdade Evangélica Mackenzie do Paraná. Curitiba/PR, Brazil

3. Medicine undergraduate course, Universidade Positivo. Curitiba/PR, Brazil

INTRODUCTION

Adolescence is a phase marked by intense physical, emotional, and social transformations. During this period, identity construction and experimentation with behaviors make adolescents particularly vulnerable to risky situations, such as unplanned pregnancy, sexually transmitted infections (STIs), and sexual violence¹⁻².

Data from the World Health Organization (WHO) estimates that 21 million adolescents aged 15 to 19 become pregnant each year in low and middle-income countries, with approximately 12 million of these cases resulting in birth. About 55% of these pregnancies are unplanned, many of which end in unsafe abortions. The global adolescent birth rate fell from 64.5 per thousand in 2000 to 41.3 per thousand in 2023, but remains high in regions such as Sub-Saharan Africa and Latin America and the Caribbean, with rates of 97.9 and 51.4 per thousand, respectively³.

In Brazil, according to the Ministry of Health, 48 babies are born to teenage mothers every hour, and approximately 400,000 cases of teenage pregnancy are registered per year. An alarming statistic indicates that 66% of these pregnancies are unplanned, and in 2019, more than 19,000 babies were born to mothers aged between 10 and 14 years, which represents one birth every 30 minutes. This reality reflects the lack of effective educational and preventive actions, especially in the field of sex education⁴.

The absence of adequate guidance on sexuality, combined with the influence of sociocultural factors and the lack of dialogue among school, family, and adolescents, still represents a significant obstacle to the promotion of sexual and reproductive health^{2,5-6}. Sex education is part of the guidelines of the National Policy for Comprehensive Care for the Health of Adolescents and Young People (*Política Nacional de Atenção Integral à Saúde de Adolescentes e Jovens - PNAISAJ*), being recognized as a strategic action for the promotion of health, prevention of harm and guarantee of the sexual and reproductive rights of this population⁷.

Sexuality is a central aspect of human life, and sex education should be understood as an essential part of the integral development process of everyone, from the earliest age^{6,8}. Given this scenario, it is essential to seek innovative and accessible strategies to address sexuality in a clear, safe, and welcoming way. Digital technologies, widely used by adolescents, have stood out as potential allies in this process, enabling access to information through virtual platforms, social networks, educational games, and applications⁸⁻⁹.

The growing presence of technological resources in the daily lives of young people suggests that these tools can be effective in disseminating educational content about sexuality, provided they are properly planned and contextualized⁹. Thus, innovative approaches that

make students protagonists of their own educational process become crucial. The creation of educational products such as the Educasex app shows the potential of these technologies for a more engaged and relevant education¹⁰. Thus, this study aims to investigate the use of technology as a facilitator of sex education for adolescents, their families, and educators.

METHODS

This is an integrative review, with the purpose of synthesizing existing knowledge about sex education and the role of technology. The research process was structured in a series of well-defined steps, based on the method proposed by Mendes, Silveira and Galvão¹¹: the formulation of a guiding question, the careful selection of studies, data collection and detailed analysis of the results.

The guiding question of the study was developed using the PICo strategy, in which the following elements were defined: P (Population) – adolescents; I (Interest) – sex education mediated by digital technologies; Co (Context) – family, school and social environment. Based on this strategy, the following guiding question was formulated: *How can digital technology contribute to the promotion of sex education among adolescents, their families and educators?*

The search was conducted in the SciELO, LILACS, PubMed, and Google Scholar databases from March to April 2025, to identify relevant studies on adolescent sex education and the use of digital technologies as educational strategies. Controlled descriptors from DeCS (Descriptors in Health Sciences) and MeSH (Medical Subject Headings) were used, combined with each other using the Boolean operator AND, in Portuguese, English, and Spanish.

The search strategy was structured around the following intersections: "Sex Education" AND "Technology" AND "Adolescent," as well as their equivalents in Portuguese and Spanish. In all databases, filters were applied to limit the publication period (2018–2025), aiming to include recent evidence, including studies published in the last year, in addition to language criteria and availability of the full text.

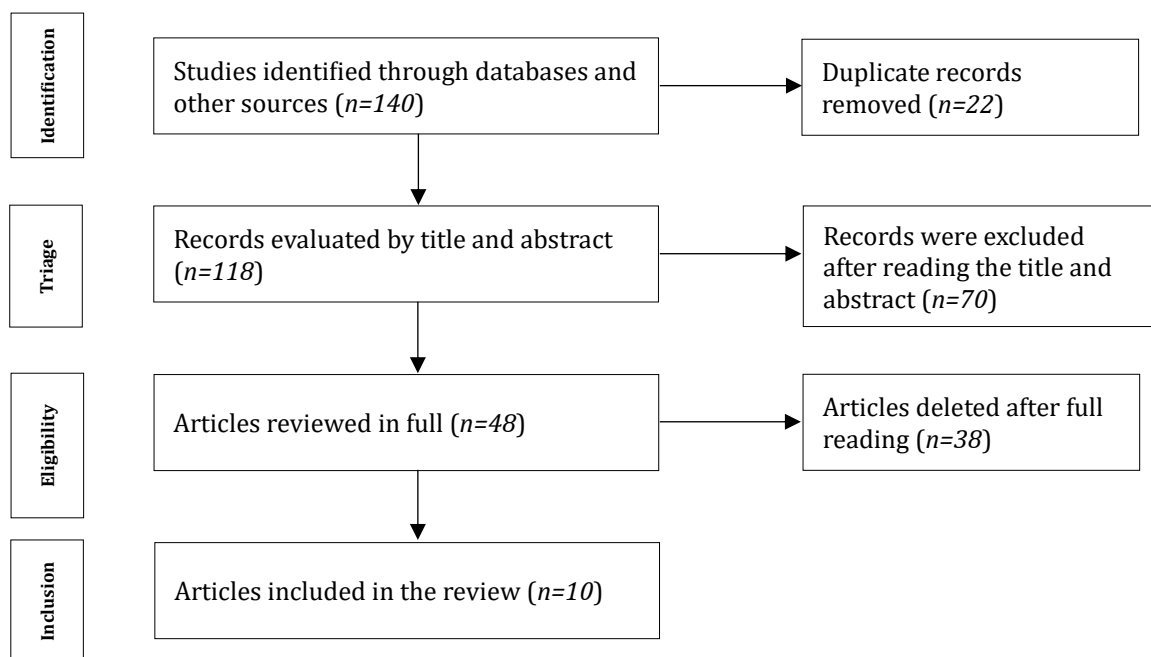
The methodological quality of the included studies was assessed using the Joanna Briggs Institute (JBI) critical appraisal instruments¹², aiming to analyze the methodological validity, relevance, and reliability of the results. The decision criterion adopted was to include only articles with a score equal to or greater than 70%, aiming to ensure the scientific rigor and consistency of the findings, as permitted by the methodology of the aforementioned Institute for the reviewers' deliberation. Additionally, the studies were classified according to their Level of Evidence following the JBI's effectiveness guidelines, allowing for a synthesis of the strength of the available information on the topic.

The study selection process followed the recommendations of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol, ensuring transparency and methodological rigor in the identification, screening, eligibility, and inclusion stages.

RESULTS

Initially, 140 records were identified in databases and other sources. After removing 22 duplicates, 118 records were screened by title and abstract, of which 70 were excluded for not meeting the inclusion criteria. Subsequently, 48 articles were fully evaluated, resulting in the exclusion of 10 studies. Thus, 38 studies were considered. The corresponding flowchart is presented in Figure 1. The considered articles are also listed in Chart 1.

Figure 1. Studies included, as recommended by PRISMA. Curitiba/PR, Brazil, 2025.



Based on the studies considered, four thematic categories were identified: *Challenges in adherence to contraceptive methods*; *Digital Technologies and Serious Games in Sex Education*; *Social networks as a learning channel*; and *Technology in supporting parents and teachers*.

Chart 1. Studies included and levels of evidence (JBI) on sex education and digital technologies (2018-2025). Curitiba/PR, Brazil, 2025.

Authors (Year)	Technology/Approach	Main Results	Level of Evidence (JBI)
Vieira <i>et al.</i> (2021) ¹	Cross-sectional study on the onset of sexual activity and safe sex	It was found that most adolescents begin their sexual lives early and without consistent use of condoms	Level 4.c – Cross-sectional Study
Escórcio, Oliveira, Olivindo. (2022) ¹³	Integrative literature review	Predominant use of condoms and hormonal contraceptives, with failures in adherence and correct use	Level 5.a – Literature Review
Rubio, Besoain (2025) ¹⁴	Serious Games	High immersive potential for youth engagement	Level 5.a – Scope Review
Caliston <i>et al.</i> (2025) ¹⁵	Mobile game-based learning with health topics integrated into the gameplay	Statistical improvement in students' knowledge and attitudes regarding health and risk behaviors	Level 2.c – Quasi-experimental study
Raj <i>et al.</i> (2025) ¹⁶	Individualized serious mobile game with a narrative of choices and real-time feedback	Significant increase in knowledge about reproductive health, contraceptive methods, and agency (decision-making) among adolescent girls	Level 1.c – Controlled clinical trial
Haruna <i>et al.</i> (2019) ¹⁷	Iterative development of a gamified digital game (<i>My Future Begins Today</i>) for low-infrastructure contexts	The playful design overcame cultural and technical barriers, resulting in high engagement and increased knowledge about sexual health among adolescents	Level 5.c – Experience report
Alencar <i>et al.</i> (2023) ¹⁸	Educational board game (<i>Match</i>) for mediating sexuality	Validated by experts as a relevant tool for initiating dialogues about sexuality and STIs with adolescents	Level 5.c – Validation study
Abdo, Fleury (2024) ¹⁹	A reflective analysis of the impact of social networks and digital platforms on youth sexuality	It highlights the role of social networks in supporting minorities, but warns of the risks of sexting and inaccurate information	Level 5.c – Expert opinion / Narrative review
Maciel <i>et al.</i> (2022) ²⁰	Construction and validation of an educational game about human papillomavirus infection	The game presented satisfactory evidence of content validity, proving itself suitable as an educational technology for promoting knowledge in sexual health	Level 5.c – Methodological study / validation of educational technology
Ribeiro, Costa Junior, Paulini (2023) ²¹	Educational resources	Teachers report lack of preparedness in sex education	Level 4.c – Descriptive study (Qualitative-quantitative)

DISCUSSION

Based on the research conducted on adolescent sex education and the use of digital technologies as educational strategies, the results indicated challenges in adherence to contraceptive methods, as well as the potential of digital resources, such as educational games, mobile applications, and social networks, to broaden access to information and promote adolescent engagement. The role of technology in supporting parents and teachers and the need for qualified mediation to reduce the impact of misinformation in digital environments are also highlighted.

Challenges in adherence to contraceptive methods

Promoting sexual and reproductive health requires knowledge of a wide variety of contraceptive methods, ranging from physical barriers and intrauterine devices to behavioral and surgical methods. Contraceptives have been found to be presented as medications or procedures intended to prevent pregnancy, encompassing female and male methods, reversible and non-reversible²².

The absence or inadequacy of sex education, both in schools and in the family environment, hinders access to adequate information about contraception, favoring incorrect use or non-use²³. In addition, myths, religious beliefs and cultural factors negatively interfere with knowledge and adherence to contraceptives²³. Social vulnerability also emerged as a relevant obstacle, especially among adolescents served in the public network, where greater difficulties in accessing qualified information and health services are observed^{13,22,24}.

Digital Technologies and Serious Games in Sex Education

Technology has proven to be a valuable tool for the dissemination of educational content, using digital platforms and social networks to broaden access to health information⁸⁻⁹. The use of educational games and interactive digital resources, known as serious games, stands out by transforming learning into a playful experience, capable of simultaneously engaging adolescents, parents, and educators^{14,20}.

Regarding practical solutions, the *AHlam Na 2.0* mobile application stands out as a game-based learning platform designed for comprehensive adolescent health education. By translating complex content into a dynamic of interactive challenges and everyday situations, the tool facilitates the understanding of sensitive topics, such as sexual and reproductive health. Pre and post-intervention tests confirmed that this educational approach not only resulted in a significant increase in knowledge but also generated acceptance among young people, with gamification being a viable and effective pedagogical strategy¹⁵.

More specifically in the field of sex education, the game *Go Nisha Go* uses interactive narratives to guide adolescents in making decisions about contraception and menstrual health, generating positive impacts on both attitudes and female empowerment¹⁶.

The game *My Future Begins Today*, developed for low-tech environments in Sub-Saharan Africa, demonstrated significant changes in attitudes and behaviors related to sexuality. In a comparative study, adolescents exposed to the game showed better learning indicators when compared to those subjected to traditional teaching^{17,25}. Together, these findings suggest that digital games can be effective, scalable, and culturally adaptable tools for the reality of adolescents in different social contexts.

Another investigation validated a board game with questions and answers as a practical tool with comprehensive content for the sex education of adolescents. Although validated, it points to the need for further research to assess the impact of this strategy on the knowledge and attitudes of the participants¹⁸. Similarly, the *Criança Protegida* game was proposed as a playful initiative aimed at preventing sexual violence, helping children and adolescents recognize risky situations and protect themselves from abuse. The relevance of this tool is reinforced by data indicating that most cases of sexual violence occur in the domestic environment and involve known aggressors²⁶.

Social networks as a learning channel

Social networks play a central role in the lives of adolescents and, when used for educational purposes, promote the sharing of reliable and accessible content about sexuality^{19,27}. A recent milestone in this potential was the launch, in December 2025, of the "*Cartilhas de Passatempos – Educação em Sexualidade*" (Passtime Booklets – Sexuality Education) by the *Fisiodivulgando* project (*Universidade Federal do Paraná - UFPR*). The dissemination of these materials on platforms such as Instagram showed high social engagement, demonstrating that networks can bring science closer to the school community.

Structured as Open Educational Resources (OER), the booklets (Volumes I and II) use playful methods such as word searches and cryptograms to address cross-cutting themes ranging from intimate hygiene to complex issues such as menstrual poverty, gender identity and prevention of child abuse²⁸. Studies that analyzed the use of Instagram as a platform for information and education in sexuality have pointed to its potential to reach diverse audiences and expand access to educational content, strengthening the link between educational actions and the community²⁹. However, the included studies describe that misinformation and conservative and anti-scientific discourse also circulate widely in these digital environments, often associated with fundamentalist religious groups^{7,30,31}.

TikTok, in addition to entertaining, has also demonstrated an educational impact by enabling the creative sharing of content about sexual health, especially during and after the COVID-19 pandemic. This massive use has contributed to transformations in the way adolescents build their relationships and understand their sexuality^{21,32}.

Technology in supporting parents and teachers

Digital tools, such as distance learning platforms, online courses, and virtual educational materials, have been used to support the continuing education of teachers in sex education, expanding access to continuing education and overcoming geographical and time barriers^{21,31}.

In the family context, the use of digital resources facilitates access to qualified information and offers support for parents and guardians in addressing sexuality with children and adolescents, contributing to strengthening dialogue and reducing insecurities³²⁻³³.

Playful and relaxed materials, such as games and memory challenges, are identified as resources that facilitate teacher mediation, help maintain cognitive health, and allow for less formal knowledge assessments. In addition, such didactic initiatives aim to bring scientific knowledge closer to society, offering resources for adults to address topics such as hygiene and body protection with greater confidence²⁶. In an integrated way, the articulation between school, family and digital technologies has proven relevant for strengthening sex education actions and for promoting a safer and more conscious sexual experience^{5,7,32,34}.

The studies considered show the relevance of sex education as an essential strategy to prevent risky behaviors and promote sexual and reproductive health. Insufficient knowledge about contraceptive methods and STIs remains a significant barrier, especially in contexts marked by social and educational inequalities. The absence of structured dialogue in the family and school environment, associated with cultural and socioeconomic factors, contributes to youth vulnerability, favoring unplanned pregnancy and exposure to STIs^{1,5,9,35}. In this scenario, the need for innovative and inclusive approaches becomes evident^{18,20,26,32,35}.

Digital technologies stand out as promising resources to expand access to information and make learning more dynamic. Educational games and mobile applications, such as *AHlam Na 2.0*, *Go Nisha Go*, and *My Future Begins Today*, have demonstrated significant gains in knowledge and positive attitudes¹⁵⁻¹⁷. Furthermore, experiences in low and middle-income countries demonstrate the viability of culturally adaptable and scalable strategies, a relevant aspect for Brazil, where regional inequalities and limitations in access to services persist^{7,9-10,21}. These results indicate that public policies should incorporate digital solutions as a complement to face-to-face practices, and not as a substitute.

Social networks are also consolidating as channels for disseminating information about sexuality. Platforms such as Instagram and TikTok broaden the reach of educational actions and bring adolescents, educators, and health professionals closer together^{31,33}, while national initiatives, such as the playful booklets from UFPR, show that digital and printed resources can broaden the reach and effectiveness of educational actions²⁸.

Despite the benefits, the digital environment imposes risks that cannot be neglected. Exposure to inappropriate content, contact with online predators, and cyberbullying represent real threats to the healthy development of children and adolescents³²⁻³⁴. Data from Disque 100 and SaferNet Brasil reinforce the seriousness of these risks, with high rates of complaints

related to online sexual exploitation, cyberbullying, and virtual grooming³⁷. Thus, any digital strategy must be accompanied by protection mechanisms, qualified mediation, and critical digital literacy.

Sex education does not hasten sexual initiation, as misinformation suggests. International evidence demonstrates that systematic approaches in the school environment contribute to safer choices^{34,38}.

In Brazil, priority actions of the *Programa Saúde na Escola* (School Health Program) are recognized as a strategy to address sexual violence against children and adolescents⁷. Between 2015 and 2021, more than 202,000 cases of sexual violence against this population were reported, occurring mostly in the domestic environment³⁹. Thus, it is necessary to strengthen the school as a space for prevention and reporting.

While digital interventions are effective in expanding knowledge, they have limitations regarding sustained behavioral change. Therefore, the adoption of hybrid strategies is recommended, integrating digital resources and in-person actions, coordinated between school, family, and health services^{35,40}, with the possibility of protecting users. The integration between technology, school, and family is not optional, but a condition for reducing vulnerabilities and ensuring sexual and reproductive rights.

CONCLUSION

Ensuring quality sex education is essential to reducing vulnerabilities and promoting the sexual and reproductive health of adolescents, especially given the knowledge gaps and risks amplified by the digital environment. The results of this review indicate that digital technologies, such as games, apps, and social networks, can enhance educational practices and support safe decisions, provided they are integrated with face-to-face strategies and mediated by trained professionals.

Limitations include the non-use of international databases such as Embase, Web of Science, CINAHL, and Cuiden, which may have restricted the scope of the review. Despite this, the findings suggest implications for practice, such as the adoption of hybrid approaches associated with critical digital literacy and the articulation between school, family, and health services, with the aim of maximizing benefits and mitigating risks.

Future research should expand the scope of databases, explore emerging technologies, assess long-term behavioral impact, and support public policies focused on digital sex education, ensuring sustainable and culturally appropriate practices.

REFERENCES

1. Vieira KJ, Barbosa NG, Dionízio LA, Santarato N, Monteiro JCS, Gomes-Sponholz FA. Início da atividade sexual e sexo protegido em adolescentes. *Esc Anna Nery* [Internet]. 2021 [cited in 08 June 2025]; 25(3):e20200066. Available from: <https://repositorio.usp.br/item/003052693>
2. Lara LAS. Sexualidade na adolescente. In: Federação Brasileira das Associações de Ginecologia e Obstetrícia (FEBRASGO). *Necessidades específicas para o atendimento de pacientes adolescentes*. São Paulo: FEBRASGO; 2018 [cited in 06 June 2025]. Cap. 3. p. 17-35. (Série Orientações e Recomendações FEBRASGO, no. 5, Comissão Nacional Especializada em Sexologia). Available from: <https://www.febrasgo.org.br/media/k2/attachments/SerieZ-Z5-2018Z-ZAdolescentesZ-ZwebZ1.pdf>
3. World Health Organization (WHO). Adolescent pregnancy [Internet]. Geneva: WHO; 2020 [cited in 06 June 2025]. Available from: <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>
4. Ministério da Saúde (BR). *Semana Nacional de Prevenção da Gravidez na Adolescência – 01 a 08/02* [Internet]. Brasília: MS; 2024 [cited in 06 June 2025]. Available from: <https://bvsmms.saude.gov.br/semana-nacional-de-prevencao-da-gravidez-na-adolescencia-01-a-08-02/>
5. Danzmann PS, Vestena LT, Pinto Silva AC, Reis Peixoto MJ. Educação sexual na percepção de pais e adolescentes: uma revisão sistemática. *Rev Psi Divers Saúde* [Internet]. 2022 [cited in 15 June 2025]; 11:e3981. Available from: <https://www5.bahiana.edu.br/index.php/psicologia/article/view/3981>
6. Oliveira MFC. Sexualidade, gênero e infância: a relação escola, família e pediatria na Educação Sexual de crianças da Educação Infantil. Araraquara; 2021 [cited in 10 June 2025]. 194 p. Available from: <https://repositorio.unesp.br/server/api/core/bitstreams/639295c1-99aa-405c-9d39-398978edffe3/content>
7. Conselho Nacional de Saúde (BR). Resolução nº 756, de 15 de agosto de 2024. Dispõe sobre a aprovação da Política Nacional de Atenção Integral à Saúde de Adolescentes e Jovens (PNAISAJ), a ser publicada em portaria específica do Ministério da Saúde [Internet]. Brasília; 2024 [cited in 21 June 2025]. Available from: https://bvsmms.saude.gov.br/bvs/saudelegis/cns/2024/res0756_24_10_2024.html
8. Almeida TG, Cabral IBV, Trindade RFC, Oliveira SC, Aquino PS, Guedes TG. Tecnologias educacionais sobre saúde sexual e reprodutiva de adolescentes escolares: revisão integrativa. *CLCS* [Internet]. 2023 [cited in 18 June 2025]; 16(10):23447-61. Available from: <https://ojs.revistacontribuciones.com/ojs/index.php/clcs/article/view/2303>

9. Costa ABS, Jesus Junior AM, Oliveira CA, Pereira JVO, Santos MP. The use of educational technologies in sexual health education with adolescents. *Res Soc Dev* [Internet]. 2023 [citado 12 June 2025]; 12(2):e29812240300. Available from: <https://rsdjournal.org/index.php/rsd/article/view/40300>
10. Santos IM, Hardoim EL, Ferreira KM. O protagonismo de estudantes do ensino médio para uma educação sexual eficiente e aprazível. *REAMEC* [Internet]. 2021 [cited in 18 June 2025]; 9(1):e21009. Available from: <https://periodicoscientificos.ufmt.br/ojs/index.php/reamec/article/view/11376>
11. Mendes KDS, Silveira RCCP, Galvão CMC. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. *Texto & Contexto Enferm* [Internet]. 2008 [cited in 04 June 2025]; 17(4):758-64. DOI: <https://doi.org/10.1590/S0104-07072008000400018>
12. Barker TH, Stone JC, Sears K, Klugar M, Tufanaru C, Leonardi-Bee J, et al. The revised JBI critical appraisal tool for the assessment of risk of bias for randomized controlled trials. *JBI Evid Synth* [Internet]. 2023 [cited in 24 Dec 2025]; 21(3):494-506. DOI: <https://doi.org/10.11124/jbies-22-00430>
13. Escórcio RL, Oliveira VLM, Olivindo DDF. Métodos de anticoncepção usados por adolescentes no Brasil: uma revisão integrativa da literatura. *RECIMA21* [Internet]. 2022 [cited in 08 June 2025]; 3(6):e361531. Available from: <https://recima21.com.br/index.php/recima21/article/view/1531>
14. Rubio C, Besoain F. Pervasive Games for Sexual Health Promotion: Scoping Literature Review. *JMIR Serious Games* [Internet]. 2025 [cited in 22 Dec 2025]; 13:e58912. Available from: <https://games.jmir.org/2025/1/e58912>
15. Caliston N. Evaluating the effectiveness of mobile game-based learning for raising adolescent health awareness: The Case of "Ahlam Na 2.0". *Indones J Elearning Multimedia* [Internet]. 2025 [cited in 22 Dec 2025]; 7(1). DOI: <https://doi.org/10.58723/ijoem.v4i1.349>
16. Raj A, Shankar L, Dixit A, Saha A, Battala M, Khan N, et al. Enhancing reproductive health among adolescent girls in India: results of an individualized RCT to study the efficacy of the go Nisha go mobile game. *Reprod Health* [Internet]. 2025 [cited in 22 Dec 2025]; 22:48. Available from: <https://link.springer.com/article/10.1186/s12978-025-02005-1>
17. Haruna H, Zainuddin Z, Mellecker RR, Chu SKW, Hu X. An iterative process for developing digital gamified sexual health education for adolescent students in low-tech settings. *Inf Learn Sci* [Internet]. 2019 [cited in 18 June 2025]; 120(11/12):723-42. DOI: <https://doi.org/10.1108/ILS-07-2019-0066>

18. Alencar NES, Pinto MAO, Leite NT, Vieira CMS. Construção e validação de jogo educativo sobre sexualidade para adolescentes. *Rev Cuid.* 2023; 14(1):e2354. [cited in 12 June 2025]. DOI: <http://dx.doi.org/10.15649/cuidarte.2354>
19. Abdo CHN, Fleury HJ. A influência das mídias sociais nos relacionamentos sexuais dos jovens. *Diagn Tratamento* [Internet]. 2024 [cited in 20 June 2025]; 29(2):51-4. Available from: <https://periodicosapm.emnuvens.com.br/rdt/article/view/2806>
20. Maciel MPR, Costa LMA, Sousa KHJF, Oliveira ADS, Amorim FCM, Moura LKB, et al. Construção e validação de jogo educativo sobre a infecção pelo papilomavírus humano. *Acta Paul Enferm* [Internet]. 2022 [cited in 15 June 2025]; 35:eAP03012. DOI: <https://doi.org/10.37689/acta-ape/2022A003012>
21. Ribeiro RB, Costa Junior VM, Paulini F. A importância da formação dos professores em educação sexual para atender a demanda do novo ensino médio. *ReDoC* [Internet]. 2023 [cited in 21 June 2025]; 7(1):1-22. Available from: <https://www.e-publicacoes.uerj.br/re-doc/article/view/68406>
22. Duarte CR. Contraceptivos ofertados pelo SUS e interações que podem comprometer sua eficácia [trabalho de conclusão de curso]. Icó, CE: Centro Universitário Vale do Salgado; 2022. 32p. [cited in 08 June 2025]. Available from: https://sis.univs.edu.br/uploads/12/Cla_dia_Romualdo_Duarte.pdf
23. Couto PLS, Vilela ABA, Gomes AMT, Ferreira LC, Neves MLP, Pereira SSC, et al. Evidências dos efeitos adversos no uso de anticoncepcionais hormonais orais em mulheres [Internet]. BA, Brasil; 2020 [cited in 08 June 2025]. Available from: <https://pdfs.semanticscholar.org/7a7e/0e445d081f00efcdd220b8b8c4360ba28578.pdf>
24. Santarato N, Barbosa NG, Silva ALC, Monteiro JCS, Gomes-Sponholz FA. Caracterização das práticas sexuais de adolescentes. *Rev Latino-Am. Enferm* [Internet]. 2022 [cited in 10 June 2025]; 30(spe):e3712. DOI: <https://doi.org/10.1590/1518-8345.6289.3712>
25. Haruna H, Okoye K, Zainuddin Z, Hu X, Chu S, Hosseini S. Gamifying sexual education for adolescents in a low-tech setting: quasi-experimental design study. *JMIR Serious Games* [Internet]. 2021 [cited in 12 June 2025]; 9(4):e19614. DOI: <https://doi.org/10.2196/19614>
26. Carrara MR, Guedes GP. Criança protegida: um jogo para prevenir a violência sexual contra crianças. *Proceedings of the do XXIX Simpósio Brasileiro de Informática na Educação (SBIE)*; 2018; Fortaleza, CE, Brasil. Fortaleza, CE: SBIE; 2018; p. 15-28. (*Rev Bras Inform Educ.* 2018; vol. 33, n. 1). DOI: <https://doi.org/10.5753/cbie.sbie.2018.1825>
27. Almeida AP, Oliveira PA, Ribeiro RC. Inclusão digital e as políticas públicas de saúde e educação sexual para adolescentes: uma revisão de literatura. *Revista Escola de Governo de*

- Alagoas [Internet]. 2024 [cited in 22 June 2025]; 8(1):154-76. Available from: <https://revista.escoladegoverno.al.gov.br/storage/artigos/6qscMzGd8304PkJPWwcr4if6vL1uquvmQIqw0z0p.pdf>
28. Lima DF. UFPR lança material didático gratuito para abordagem lúdica e científica da educação em sexualidade. [Internet]. Curitiba: UFPR; 2025 [cited in 26 Dec 2025]. Available from: <https://ufpr.br/ufpr-lanca-material-didatico-gratuito-para-abordagem-ludica-e-cientifica-da-educacao-em-sexualidade/>
29. Oliveira LVB, Batista EIR, Silva FJA, Dias JMVD, Costa Filho JA. O uso do Instagram como plataforma de informação e educação sobre a temática da sexualidade. In: CONEDU VII Congresso Nacional de Educação; 2020; Campina Grande, PB. [cited in 19 June 2025]. Available from: https://www.editorarealize.com.br/editora/anais/conedu/2021/TRABALHO_EV150_MD1_SA107_ID117_20072021085541.pdf
30. Lopes M, Corrêa F, Araújo D. Sexualidade na adolescência e as mídias digitais: riscos, benefícios e desafios para a enfermagem no século XXI [Internet]. In: I Webcongresso Internacional de Direito Sanitário; 2017; Macapá, AP. [cited in 20 June 2025]. Available from: <https://www.arca.fiocruz.br/handle/icict/65427>
31. Menin AF, Pedro JM. Escola, Tecnologias Digitais e Educação Sexual: uma análise do Brasil e países de língua portuguesa. Rev Estud Fem [Internet]. 2021 [cited in 20 June 2025]; 29(3):e76425. DOI: <https://doi.org/10.1590/1806-9584-2021v29n376425>
32. Santos CL. Elaboração de Tik Tok sobre a temática hormônios: alunos do ensino fundamental no caminho da aprendizagem significativa. [trabalho de conclusão de curso]. Rio de Janeiro, RJ: Instituto Federal do Rio de Janeiro/IFRJ; 2022. 49p. [cited in 22 June 2025]. Available from: <https://repositorio.ifrj.edu.br/xmlui/handle/20.500.12083/1155>
33. UNESCO. Orientações técnicas internacionais de educação em sexualidade: uma abordagem baseada em evidências [Internet]. 2ed. Brasília: UNESCO; 2019 [cited in 22 June 2025]. Available from: <https://unesdoc.unesco.org/ark:/48223/pf0000369308>
34. Santos AR, Nascimento Junior FA. Educação, Infância e Cultura Digital: um ensaio sobre os efeitos da hipersexualização no ensino e aprendizagem. Revista Escola de Governo de Alagoas [Internet]. 2024 [cited in 22 June 2025]; 2(1). Available from: <https://revista.escoladegoverno.al.gov.br/storage/artigos/6qscMzGd8304PkJPWwcr4if6vL1uquvmQIqw0z0p.pdf>

35. Figueiredo ML. Educação sexual e reprodutiva para adolescentes na atenção primária: uma revisão narrativa. *Ciênc. Agrár. Saúde* [Internet]. 2020 [cited in 03 June 2025]; 24(1):82-7. Available from: <https://ensaioseciencia.pgsscogna.com.br/ensaioeciencia/article/view/7404>
36. Fornari LF, Fonseca RMGS. Critical-emancipatory educational intervention through games to face gender violence. *Rev Bras Enferm* [Internet]. 2022 [cited in 20 June 2025]. DOI: <https://doi.org/10.1590/0034-7167-2022-0299>
37. Ministério da Mulher, da Família e dos Direitos Humanos (BR). Exposição de crianças e adolescentes na internet ocupa 5ª posição no ranking do Disque 100 [Internet]. Brasília: MMFDH; 2020 [updated in 1 Nov 2022; cited in 22 June 2025]. Available from: <https://www.gov.br/mdh/pt-br/assuntos/noticias/2020-2/novembro/exposicao-de-criancas-e-adolescentes-na-internet-ocupa-quinta-posicao-no-ranking-de-denuncias-do-disque-100>
38. Secretaria de Comunicação Social (BR). Educação sexual não estimula atividade sexual [Internet]. Brasília: Presidência da República; 2023 [cited in 22 June 2025]. Available from: <https://www.gov.br/secom/pt-br/fatos/brasil-contra-fake/noticias/2023/08/educacao-sexual-nao-estimula-atividade-sexual>
39. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde e Ambiente. Notificações de violência sexual contra crianças e adolescentes no Brasil, 2015 a 2021. *Boletim Epidemiológico*. Brasília, DF: Ministério da Saúde; 2024 [cited in 22 June 2025]; 54(8):1-14. Available from: <https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/boletins/epidemiologicos/edicoes/2023/boletim-epidemiologico-volume-54-no-08>
40. Aguilar-Quesada A, Sierra-Yagüe A, González-Cano-Caballero M, Zafra-Egea JA, Lima-Serrano M. Effectiveness of digital interventions to reduce school-age adolescent sexual risks: a systematic review. *J Nurs Scholarsh* [Internet]. 2025 [cited in 13 June 2025]; 57(2):342-53. DOI: <https://doi.org/10.1111/jnu.13015>

Associated Publisher: Vania Del Arco Paschoal

Conflict of Interests: the authors declared there is no conflict of interests

Financing: none

Contributions:

Concept – Andrade FA, Detoni TA, Nisihara RM

Investigation – Andrade FA, Detoni TA, Nisihara RM

Writing – first draft – Detoni TA

Writing – revision and editing – Andrade FA, Detoni TA, Nisihara RM

How to cite this article (Vancouver)

Detoni TA, Nisihara RM, Andrade FA. The value of sex education and the contribution of technology to the dissemination of knowledge. *Rev Fam, Ciclos Vida Saúde Contexto Soc.* [Internet]. 2026 [cited in *insert day, month and year of access*]; 14:e026014. DOI: <https://doi.org/10.18554/refacs.v14i00.8638>

How to cite this article (ABNT)

DETONI, T. A.; NISIHARA, R. M.; ANDRADE, F. The value of sex education and the contribution of technology to the dissemination of knowledge. **Revista Família, Ciclos de Vida e Saúde no Contexto Social**, Uberaba, MG, v. 14, e026014, 2026. DOI: <https://doi.org/10.18554/refacs.v14i00.8638>. Access in: *insert day, month and year of access*

How to cite this article (APA)

Detoni, T. A., Nisihara, R. M., Andrade, F. A. (2026). The value of sex education and the contribution of technology to the dissemination of knowledge. *Rev. Fam., Ciclos Vida Saúde Contexto Soc.*, 14, e026014. Retrieved in *insert day, month and year of access* from <https://doi.org/10.18554/refacs.v14i00.8638>



This is an open access article distributed under the terms of the Creative Commons License