


## Digital applications and games in school literacy process / *Aplicativos e jogos digitais no processo de alfabetização escolar*

*Adriana Falqueto Lemos\**

Graduated in English Language and Literature at the Federal University of Espírito Santo (Ufes, 2012), Masters and PhD in Literature (Ufes, 2015-2018) She is currently a professor at the Federal Institute of Education, Science and Technology of Southern Minas Gerais.

 <https://orcid.org/0000-0002-0012-2695>

*Janaína Franciele do Couto Vilela\*\**

Has a Degree in Pedagogy and EPT at the Federal Institute of Education, Science and Technology South of Minas Gerais - Campus Inconfidentes.

 <https://orcid.org/0009-0004-3665-3473>

*Tiele Pereira do Couto\*\*\**

Has a Degree in Pedagogy and EPT at the Federal Institute of Education, Science and Technology South of Minas Gerais - Campus Inconfidentes.

 <https://orcid.org/0009-0003-1284-6628>

**Received** in: 07 aug. 2023. **Approved** in: 12 aug. 2023.

### How to cite this article:

LEMOS, Adriana Falqueto; VILELA, Janaína Franciele do Couto; DO COUTO, Tiele Pereira. Digital applications and games in school literacy process. *Revista Letras Raras*, Campina Grande, v. 12, n. 2, p. 71-86, aug. 2023. Doi: 10.5281/zenodo.8301704.

### ABSTRACT

This study deals with the use of existing educational digital apps and games that were designed to be worked on in the literacy process, with regard to BNCC-related skills. The objective is to investigate how these digital technological tools can help teachers in the literacy process of students in a playful way. For this, a bibliographic research with a qualitative approach was used, - with methodology support by Lemos (2020), based on the literature review on the

---

\*

 [flemos.adriana@gmail.com](mailto:flemos.adriana@gmail.com)

\*\*

 [francielevilela7777@gmail.com](mailto:francielevilela7777@gmail.com)

\*\*\*

 [thielecouto1807@gmail.com](mailto:thielecouto1807@gmail.com)

research topic and the analysis of four games, Aprenda ler a escrever - Aprenda o alfabeto, Graphogame, Forma palavra and Palavra secreta. As a result, it can be said that the use of various applications and digital games is of great importance to help the teacher, since it generates appropriate pedagogical resources with the capacity to expand the forms of teaching and learning in an innovative way, increasing motivation, interaction, attention, positively stimulating students' reading and writing in the literacy process.

**KEYWORDS:** Digital games; Educational technology; Literacy; Graphogame.

#### RESUMO

*Este estudo trata do uso de aplicativos e jogos digitais educacionais existentes que foram projetados para serem trabalhados no processo de alfabetização no que diz respeito às habilidades relacionadas à BNCC. Tem-se como objetivo investigar como estas ferramentas tecnológicas digitais podem auxiliar os professores no processo de alfabetização dos alunos de maneira lúdica. Para isso, foi utilizada a pesquisa bibliográfica de abordagem qualitativa – com o suporte metodológico de Lemos (2020), tendo como base a revisão de literatura sobre o tema da pesquisa e a análise de quatro jogos, Aprenda ler a escrever - Aprenda o alfabeto; Graphogame; Forma palavra, e Palavra secreta. Como resultado, pode-se afirmar que o uso de vários aplicativos e jogos digitais é de grande importância para auxiliar o professor, já que gera recursos pedagógicos apropriados com capacidade para ampliar as formas de ensino-aprendizagem de modo inovador, aumentando a motivação, a interação, a atenção, estimulando positivamente a leitura e a escrita dos estudantes no processo de alfabetização.*

**PALAVRAS-CHAVES:** Jogos digitais; Tecnologia educacional; Alfabetização; Graphogame.

## 1 Introduction

With modernization over time, society has undergone intense changes that have directly influenced the educational environment, many digital tools have appeared, such as educational applications and games that help the teaching-learning process. The use of different digital tools in education makes the environment much more pleasant to learn, because it allows transforming teaching-learning into a much more attractive and motivating dynamic.

The most important phase in a student's educational development is literacy. There are several obstacles and challenges in the course of the literacy process, classes are always centered only on the teacher, using activities and repetitive and tiring memorization exercises. Until the 1980s, teaching to read meant “[...] teaching children to read (reading understood as decoding) and to write (writing understood as encoding)” (SOARES, 2020, p. 10). Teaching reading and writing as a mechanical act, separated from understanding, no longer works for today's students, who are fully connected to the digital world. Thus, teachers have to seek to innovate their practices and methodologies, and this can happen when digital tools are used in the classroom.

The use of these technological resources in the literacy process awakens in student's motivation to participate and enables the development of reading and writing learning in an easier,

more playful, faster and more enjoyable way. According to the BNCC<sup>1</sup>, technology can help students in the learning process, as they can:

Understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices (including school ones) to communicate, access and disseminate information, produce knowledge, solve problems and exercise protagonism and authorship in life personal and collective (BRASIL, 2018, p. 11<sup>2</sup>).

Therefore, this article aims to analyze how the use of existing digital apps and games can help teachers in the literacy teaching-learning process. How the use of digital tools in working with literacy in the classroom seeks to break with the mechanical act in teaching regarding the use of tiring and repetitive exercises in the learning process, providing conditions to develop skills, to learn, interact and socialize with colleagues through the use of these resources within the area of literacy.

The article is organized in three stages, in addition to the introduction, methodology and final considerations. In the first part, digital technologies and their actions in the literacy process are discussed. In the second part, the types of existing digital applications and games for literacy are highlighted. At the end, some conclusions of the investigation carried out are presented.

## 2 Digital technologies and their actions in the literacy process

Digital technologies have changed the reality in which we live, some of the most affected parts have been work, education and communication. New technologies have influenced the whole of society, including education, as they offer resources for better learning development.

In education, technology is an instrument that can contribute to teaching, as it can generate new experiences, develop various skills, encourage and promote effective learning. According to Albuquerque (2018), for today's students, the first contact with technological devices can happen at home and also at school, reinforcing the use of these technologies in the classroom as they are known as a tool that it is part of everyday life.

---

<sup>1</sup> Base Nacional Comum Curricular in Portuguese, or Common Core Curriculum (BNCC), a normative document developed to guide educational institutions in their curriculum developed by the Brazilian Government in 2017.

<sup>2</sup> All citations were translated from Portuguese.

We are increasingly committed to making use of digital tools in teaching, as digital technologies have gained a lot of visibility in education as they function as a tool that facilitates communication and the collective interaction of students in the classroom, making the teaching process more meaningful and efficient.

In order not to be distant from this generation that is already growing up familiar with these technological devices, many teachers seek to innovate in the teaching culture, bringing these tools to the daily life of the classroom, to mediate student learning, which also brings personalization to teaching (GARAFALO, 2019, p. 1).

According to studies by Gonçalves (2015), literacy is related to learning the alphabetic system, that is, a system to present letters and writing with the rules that it has. Thus, literacy is the study of mastery of the linguistic system that enables reading, writing and interpretation skills of various textual genres.

The literacy process is a fantastic moment of discovery for students and adding digital resources in the classroom helps to make the environment more interactive, playful and attractive (GAROFALO, 2018). Virtual reality and augmented reality are technologies that have great potential in education and are currently being used in schools in Brazil. Barros et al. agree with this, when they say that

Understanding the game as an important didactic resource, as it brings playfulness as the main element, we affirm that it can and should be used by educators in order to develop students' cognitive and motor skills in the literacy process (BARROS; COSTA; ALMEIDA, 2021, p. 4).

In this sense, literacy is marked by immense discoveries, a period in which the ludic element must be present. Playfulness in this period enriches “the development of skills related to reading and writing, as long as they are worked systematically and with prior planning” (GONÇALVES, 2015, p. 8).

The teacher's role, in this context, is that of a mediator-facilitator of the teaching-learning process, encouraging, motivating and assisting in the development and learning of students, always looking for new methods to innovate their practices, and the use of planning with playful activities through digital tools can make all the difference in students' literacy learning.

The teacher, as an education worker and knowledge mediator, must be attentive to the choice of applications, to know in depth all the possibilities it offers and check whether there is alignment with the objectives outlined during the learning process (LIMA; ROCHA, 2022, p. 7).

The digital tools that have educational devices were created specially to carry out didactic purposes, therefore, they are used in education as a way to allow, through play, that students are motivated to learn. In literacy, they seek to provide learning to read and write in a pleasurable way with strategies that offer interaction and student participation.

The use of digital tools brings a lot of contribution to the training of students, providing the development of different skills, making them much more active in participating and building their learning. These digital resources help both the student's development, as well as the transformation of the teacher's educational practice. Learning is like an interaction process and students are seen as participants, and not just observers. Thus, it is impossible, in contemporary times, to think of a teaching that does not use technological tools in education. This is how Marta and Adriano reinforce when they state that "it is still possible to find schools that do not have computer labs and with this lack of access to ICTs, the teaching and learning process becomes unfeasible with such digital resources, thus configuring a digital exclusion" (2022, p. 2).

Thus, one of the most positive and significant ludic activities that can be used by teachers in the literacy context is the digital game in the teaching-learning process. According to Oliveira (2017), with the circulation of mobile devices, more and more applications and digital games are used and created to help in the learning of educational content.

A multiplicity of applications and digital games can be used in education as educational tools to help the teaching-learning process, developing skills with the function of enriching the educational environment and building knowledge. And, despite the application and the game chosen, "the teacher's performance is paramount to obtain good results in the development of the planned skills" (BURIGO, 2016, p. 15).

According to Lima and Rocha (2022), during the use of digital technologies in the classroom, students become critical and autonomous in their learning development, while they express their thoughts, ask questions and draw conclusions. That is, when technological resources are used in education, there is an awakening in students through motivation for participation, concentration, observation and approximation with the reality of learning itself. Therefore, "educational digital games are attractive and interactive environments that capture the user's attention by offering challenges that require ever-increasing levels of agility and skill" (SAVI; ULBRICHT, 2008 apud SANTOS, 2017, p. 6).

Therefore, the use of ludic applications and digital games in the literacy process is considered significant, since their use promotes a positive result in the development of students, awakens interest, attention, motivation, active participation in the development of activities and collaborative work among students, in addition, it expands a dialogue between teacher and student, helping to develop reading and writing skills.

The school, as a space for continuous learning, must consider experiences with technological resources as an indispensable factor. In addition, as the school opens its doors to technological and social evolution, it becomes a space of happiness and fulfillment. Where there are people who are continuously motivated, there are people who learn non-stop; where there is motivation to learn, there is happiness in experiencing the ludic and pleasurable in the continuous apprehension of knowledge (SANTOS; SILVA, 2022, p. 14).

Therefore, education needs to provide situations in which the student is able to experience knowledge. The school needs to be aware of technological advances, collaborating with cognitive development and also enable students to develop as individuals and to feel safe in the educational process. And, with the use of various digital tools, the school can apply numerous strategies to achieve the educational purposes presented in literacy.

### 3 Methodology

This study aimed to analyze existing educational digital apps and games that help teachers and students in the school literacy process, through a qualitative bibliographical research.

The first step was to carry out an initial search in the databases on Google Scholar and in websites on the proposed topic, thus, scientific articles, texts and blogs made available in these were included in this study for the elaboration and contribution of the research.

Then, a search was carried out on Google and other sites in search of digital applications and games for literacy. Therefore, the key phrase was “educational digital apps and games for literacy”. We chose two apps and two digital games according to the following criteria: 1- to be available for download; 2- to be free, and 3- to be related to the initial literacy process. For digital games, the criteria were: 1- to be online, 2- to be available on easily accessible sites, 3- to be free, and 4- to be related to the initial literacy process.

Thus, we opted for the applications: *Aprenda ler a escrever - Aprenda o alfabeto* and *Graphogame*, and for the online digital games: *Forma palavra* and *Palavra secreta*, which are presented below.

These applications and digital games were analyzed in relation to the development of skills in the BNCC, considering the skills related to the literacy of the document in question. The analyzes were carried out by playing the games and observing the images on the screen, the words and the guidelines in the text, in addition, we used Lemos (2020) as a methodology for the game analyzes undertaken.

#### 4 Existing digital apps and games for literacy

With the advancement of technological innovations, many digital tools have appeared, such as educational applications and games and others that help the teaching-learning process. According to Burigo (2016), we live in a digital age, where applications and digital games are available at any time on mobile devices, such as cell phones, tablets and laptops, with flexibility and internet access. Nowadays we find a lot of children using these devices, using them for their fun, so including these new digital tools in the daily lives of students at school contributes to a much more meaningful learning.

Applications are understood as software programs. For Pessoa, Silva and Lira (2017), they are virtual resources with some purpose. Currently, many software are games for cell phones, tablets and computers, etc., being accessible means of communication, therefore, they can be used as study tools.

Digital games are software that run on hardware, which can be a computer, a cell phone, a tablet, etc. Games can be used in education, as we postulated earlier, with the aim of entertaining and motivating the player. In addition, games are defined by rules, when a player plays, he is performing under game rules and simultaneously developing ludic activities. When games are used in education, “students feel interested in learning, since the challenge embedded in the playfulness of games constantly motivates them” (SANTOS; SILVA, 2022, p. 4). That way,

We see in digital games a good tool to be used in classrooms because they favor the construction of knowledge, since they allow the capture of children’s attention due to well-elaborated gameplay structures and interface with visual and sound resources (BARROS, COSTA, ALMEIDA, 2021, p. 3).

Thus, education is allied to entertainment, so that students can achieve pedagogical objectives without directly following a purely educational methodology. It is as if teaching were closer to the perspective of playing, when the student manages to learn without his activity being structured as a teaching-learning activity.

## 5 Literacy Skills in the BNCC

According to the skills provided in the BNCC, we selected those related to literacy that are present in digital apps and games.

**Table 1** – Apps and digital literacy games analyzed.

Literacy Skills in the BNCC	Apps		Digital games	
	Aprenda a ler e escrever- Aprenda o alfabeto	Graphogame	Forma Palavra	Palavra Secreta.
(EF01LP02) To write, spontaneously or by dictation, words and phrases alphabetically – using letters/graphemes that represent phonemes.				X



Literacy Skills in the BNCC	Apps		Digital games		
	Aprenda a ler e escrever- Aprenda o alfabeto		Graphogame	Forma Palavra	Palavra Secreta.
(EF01LP04) To distinguish letters of the alphabet from other graphic signs.	X		X	X	
(EF02LP04) To read and correctly write words with syllables CV, V, CVC, CCV, identifying that there are vowels in all syllables.	X				
(EF01LP08) To establish relations between sound elements (syllables, phonemes, parts of words) and their written representation.				X	X
(EF01LP09) To compare words, identifying similarities and differences between initial, middle and final syllable sounds.			X		
(EF01LP11) To know, differentiate and relate letters in print and cursive format, uppercase and lowercase.	X		X		

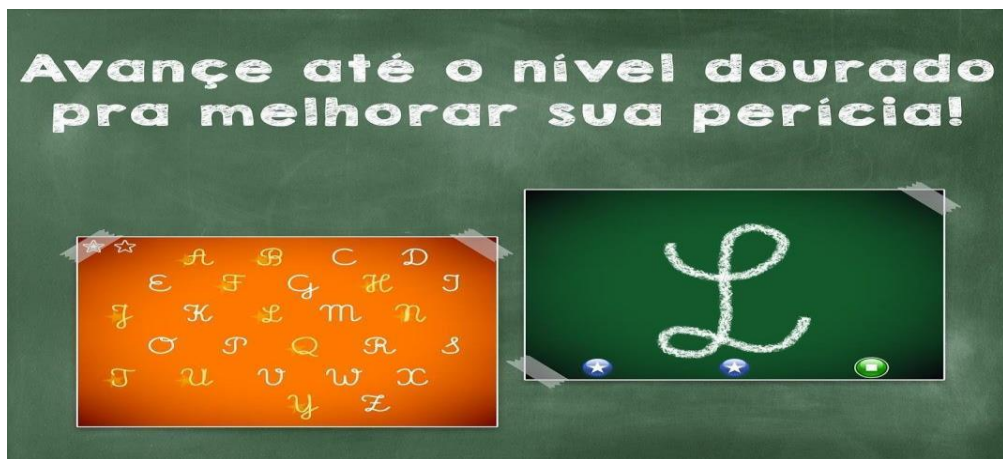
Source: Elaborated by the authors.

The table was elaborated using data from the BNCC and the skills understood as part of what a student is expected to achieve in the literacy stage. Observing what is expected, it is possible to understand that mobile applications and digital games provide means for students to

reach important stages. Based on the table above, educators can select which skills they want to foster in their pedagogical practices and choose the appropriate game.

## 6 Analysis of educational digital apps and games that can help with literacy

Image 1 –*Aprenda a ler e escrever - Aprenda o alfabeto!* App.



**Source:** Screenshot by the authors.

The educational application *Aprenda a ler e escrever - Aprenda o alfabeto*<sup>3</sup> is available on the Google Play platform for download, and is suitable for preschoolers, aiming to teach children to read and write. For this, they need to learn by touching where they start writing the letters and finish by tracing the dots in the correct order. Then, they write, testing their knowledge. The application is interesting because it offers a very engaging and fun didactic material, which can also be used by parents and therapists. Kids can learn to write and spell the letters of the alphabet by playing with their own little fingers.

Image 2 –*Graphogame* app.

<sup>3</sup> Available at: [https://play.google.com/store/apps/details?id=com.letterschool.br&hl=pt\\_BR&gl=US](https://play.google.com/store/apps/details?id=com.letterschool.br&hl=pt_BR&gl=US). Last access on: 19 jul. 2022.



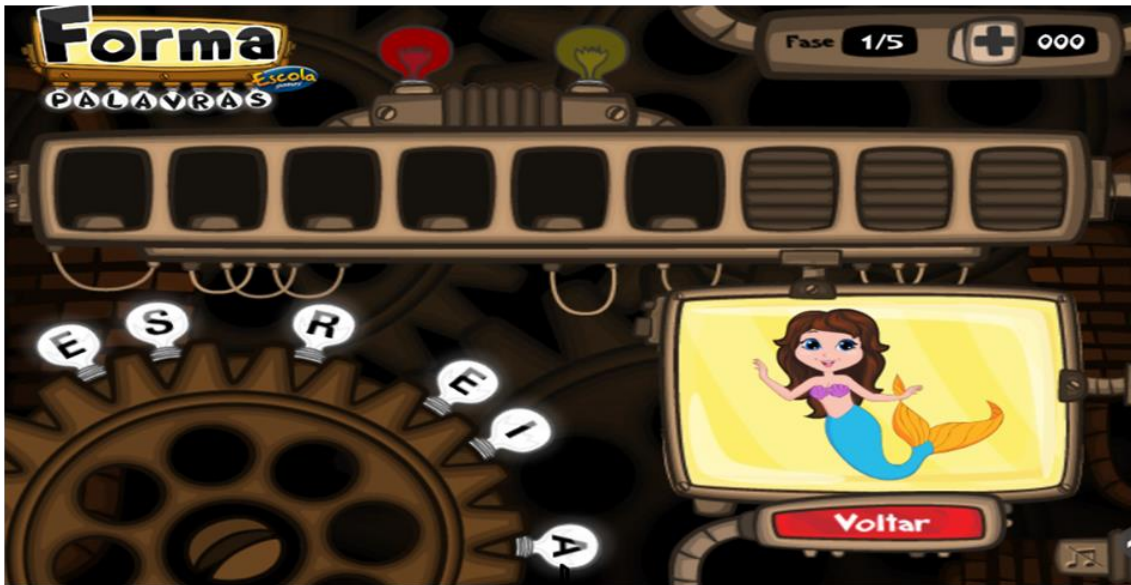
**Source:** Screenshot by the authors.

The educational application *Graphogame*<sup>4</sup> is available for download on the App Store, Google Play, Microsoft and Manual platforms, and was launched by the Brazilian Ministry of Education (MEC) in order to help students from Preschool to the early years of Elementary School, teaching them to read the first letters, syllables and words with sounds and indications. It was designed using scientific evidence and makes the student want to play to pass through the stages developing literacy through small lessons. The teachings contain spelling, word sound, syllable set and reading skills. *Graphogame* is a great proposal for teaching, because it is very effective for children who are learning the connections between letters and sounds, in addition, it has a very attractive graphic design with avatars that appear right at the beginning of the game.

**Image 3** – *Forma Palavras* digital game.

---

<sup>4</sup> Available at: <<https://alfabetizacao.mec.gov.br/grapho-game>>. Last access on: 19 jul. 2022.



Source: Screenshot by the authors.

*Forma palavras*<sup>5</sup> is an online game available on the Escola Games website for Elementary School I, in the first, second- and third-year grades. The game aims to help in learning the unions of letters, lead the student to understand the function of the alphabet in the construction of words and to create words from the letters recommended in the game. For this, students have to adjust the light bulbs until they create the word presented by the drawing. Shape words can help the teacher to develop different skills and make teaching more productive in literacy. The game is fun to play, it has images to help the player discover the words and it would also be interesting to have more colors and other scenarios so it would not be as repetitive as it is.

Image 4 – *Palavra Secreta* digital game.

<sup>5</sup> Available at: <<https://www.escolagames.com.br/jogos/formaPalavras>>. Last access on: 19 jul. 2022.



Source: Screenshot by the authors.

*Palavra secreta*<sup>6</sup> is an online game available on the website Jogos Educativos Viruá for Elementary School I, in the first and second grades. It is a simple game with many difficulty levels where students need to complete all squares and unlock new words. The game aims to help in the process of reading and writing. Secret word is a great game for literacy, as it helps in identifying the letters of the alphabet and also in reading. It is fun and has several levels, but it would be interesting to have more animations and music, to make it even more fun.

### Final considerations

This study was carried out through a bibliographical research, which sought to highlight an analysis of existing educational digital apps and games that could be used by teachers in the literacy process as tools in the students' development process. From the listed studies, we can say that digital apps and games can be considered important because they develop a variety of skills and performance in the educational space.

With this study, it was possible to observe that we are facing a generation of children who have a lot of technological knowledge, since, from a young age, they have contact with digital tools. In education, these are seen as instruments that offer resources for a better development of the

<sup>6</sup> Available at: <<https://jogoseducativos.hvirtua.com/palavra-secreta>>. Last access on: 19 jul. 2022.

learning of the concepts discussed, and their role in education is not intended to replace teachers, in fact, they serve as an aid for the teaching-learning process. We realize that the school and the teachers need to accompany the digitization of teaching-learning practices with a focus on the changes that occur in teaching, through the use of digital tools in education. It is necessary to bring such resources to be routinely worked with students in the classroom, and the teacher's mediation in this process is necessary so that a meaningful and playful learning can take place. Mediation happens from the moment the teacher chooses what will be worked on, when the game is inserted until the interaction and the moment to help students with doubts, that is, mediation is a constant need.

Digital tools, applications and digital games are of great value in helping the student to acquire knowledge and, to the teacher, in teaching literacy. There are numerous applications and digital games available on websites, on the internet and on platforms such as Android and Windows, which can be used in education to carry out individual and collective exercises, in order to facilitate learning. In addition, we point out that the use of applications and digital games in literacy is very important because it enables effective and meaningful learning, developing different techniques and procedures in students, encouraging interaction and communication among colleagues, arousing interest, stimulation and the motivation for their academic development, making, therefore, with that the students read and write with fluency and understanding.

In view of everything that has already been analyzed and observed, it is possible to conclude that this work can contribute both to education and to parents and guardians who have children who are in the literacy phase. Their education can be improved by the help of these apps and games and the research we developed here can bring concepts about how teachers deal with digital education. In the reality of the school, this work can be used as a complementary tool that helps teachers in the teaching-learning process. We are aware that studies in the field of digital technologies to aid education need constant research, because, with technological advances, education and teachers need to have more and more knowledge to be able to understand their roles with the arrival of different resources within of the educational process.

CRediT

Acknowledgement: Not applicable.

Financing: Not applicable.



**Conflicts of interest:** The authors certify that they have no commercial or associative interest that represents a conflict of interest in relation to the manuscript.

**Ethical Approval:** Not applicable.

**Contributor Roles:**

Data curation, Methodology, Project administration, Supervision, Validation, Visualization, Writing – review & editing: LEMOS, Adriana Falqueto.

Conceptualization, Data curation, Formal Analysis, Investigation, Resources, Writing – original draft, Writing – review & editing: VILELA. Janaína Franciele do Couto,

Conceptualization, Data curation, Formal Analysis, Investigation, Resources, Writing – original draft, Writing – review & editing: COUTO. Tiele Pereira do,

## References

ALBUQUERQUE, N. BNCC: como a escola deve usar a tecnologia na alfabetização? *Nova Escola*, 2018. Disponível em: <<https://novaescola.org.br/conteudo/12443/bncc-como-a-escola-deve-usar-a-tecnologia-na-alfabetizacao>> Acesso em: 02 mai. 2022.

BRASIL. Ministério da Educação. *Base Nacional Comum Curricular*. Brasília, 2018.

BARROS, S. C. et al. Jogos virtuais de alfabetização: análise de um aplicativo. V *Conbalf*, Florianópolis- SP, p.1-9, agosto, 2021. Disponível em: <[http://eventos.udesc.br/ocs/index.php/V\\_CBA/ppr/paper/viewFile/1450/950](http://eventos.udesc.br/ocs/index.php/V_CBA/ppr/paper/viewFile/1450/950)> Acesso em: 10 jul. 2022.

BURIGO, V. O. *Jogo digital como ferramenta pedagógica nos ciclos de alfabetização*. 31f, 2016. Monografia (Trabalho de Conclusão de Curso de Especialização em Educação na Cultura Digital). Universidade Federal de Santa Catarina, Florianópolis, 2016. Disponível em: <[https://repositorio.ufsc.br/bitstream/handle/123456789/167421/TCC\\_Burigo.pdf?sequence=1&isAllowed=y](https://repositorio.ufsc.br/bitstream/handle/123456789/167421/TCC_Burigo.pdf?sequence=1&isAllowed=y)>. Acesso em: 20 mai. 2022.

GAROFALO, D. Como as tecnologias contribuem para o processo de Alfabetização. *Tecnologia na Educação*, 2018. Disponível em: <<https://novaescola.org.br/conteudo/4854/blog-tecnologia-como-as-tecnologias-contribuem-para-o-processo-de-alfabetizacao>> Acesso em: 02 mai. 2022.

GAROFALO, D. Jogos digitais e alfabetização: como dar mais dinamismo ao aprendizado. *Tecnologia na Educação*. 07, 2019. Disponível em: <<https://nova-escola-producao.s3.amazonaws.com/xZFrJkhQa8EHwcm9hRADYCS6NH7t68aHcJ6KZ5rmgXWjjMzkC>>

5B7xGpQRR3A/jogos-digitais-e-alfabetizacao-como-dar-mais-dinamismo-ao-aprendizado.pdf.>  
Acesso em: 02 mai. 2022.

GONÇALVES, G. S. *Alfabetização em tempos tecnológicos: influência dos jogos digitais e não digitais e das atividades digitais na rotina da sala de aula*. 125f, 2015. – Universidade Federal de Minas Gerais: Faculdade de Letras da UFMG (Linguística Aplicada). Belo Horizonte, 2015. Disponível em: <<https://repositorio.ufmg.br/bitstream/1843/MGSS-A77L74/1/1675m.pdf>>. Acesso em: 10 mai. 2022.

LEMOS, A. F. *Literatura e videogame: Como pesquisar e analisar videogames dentro dos Estudos Literários [recurso eletrônico]*. 1. ed. Vitória: Pedregulho, 2020.

LIMA, M. G; ROCHA, A. A. S. As tecnologias digitais no ensino de matemática. *Revista Ibero-Americana de Humanidades, Ciências e Educação- REASE*, São Paulo, v. 8, n. 05, p. 1-11, maio, 2022. Disponível em: <<https://www.periodicorease.pro.br/rease/article/view/5513/2077>>. Acesso em 05 jul. 2022.

OLIVEIRA, D. M. *Proposta de um aplicativo personalizável para auxiliar no processo de alfabetização baseado no jogo da forca*. 48f, 2017. Monografia (Trabalho de Conclusão de Curso de Licenciatura em Ciência da Computação). Universidade Federal da Paraíba (UFPB), Rio Tinto PB, Brasil, 2017. Disponível em: <<https://repositorio.ufpb.br/jspui/bitstream/123456789/3849/1/DMO12062017.pdf>> Acesso em: 29 abr. 2022.

PESSOA, J. G. M. et al. A utilização de softwares como estratégias promotoras da argumentação no ensino de química. *Plataforma Espaço digital*. Anais VI CONEDU. Instituto Federal de Educação, Ciências e Tecnologia de Pernambuco campus Vitória de Santo Antão – IFPE VSA. Brasil, 2019. Disponível em: <<https://editorarealize.com.br/artigo/visualizar/58874>> Acesso em: 18 abr. 2022.

SANTOS, T. P.; CECCHIN, A. Jogos Educacionais como recurso para alfabetização de pessoas com deficiência intelectual. *GESTÃO UNIVERSITÁRIA*, v. 13, p. 01-19, 2020. Disponível em: <<http://gestaouniversitaria.com.br/artigos-cientificos/jogos-educacionais-digitais-como-recurso-para-alfabetizacao-de-pessoas-com-deficiencia-intelectual>> Acesso em: 17 ago. 2022.

SANTOS, M. C. R. G. B. DOS; SILVA, G. DA. O uso do jogo digital no processo de alfabetização: um relato de experiência. *Educação: Teoria e Prática*, v. 32, n. 65, p. e18[2022], 4 abr. 2022. Disponível em: <<https://www.periodicos.rc.biblioteca.unesp.br/index.php/educacao/article/view/15386/12329>> Acesso em: 17 maio. 2022.

SOARES, M. B. *Letramento: um tema em três gêneros*. Belo Horizonte: Autêntica, 1998.