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Work-in-Progress—Immersive, Inventive, and Gamified Narratives for Digital Citizenship Formation in the OnLIFE Education Paradigm

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Abstract. The advent of digitality and connectivity provoke constant transformations in the ways we relate, interact, and inhabit the world, expanding our experience in physical spaces to also begin to inhabit digital spaces. This allows us to talk about living, coexistence, and learning experience, not only of an analog-geographical (offline) or digital (online) nature, but OnLIFE, where there is not only an interaction between humans and technology, but there is the formation of connected ecologies that involve different entities, human, non-human, data, biodiversity, among others. Faced with these transformations, it is essential to rethink educational methodologies and practices in a digital context, promoting hybrid pedagogical approaches that encourage inventiveness, co-creation, and network collaboration, overcoming the idea of subject formation and adopting the perspective of forming connected ecologies. Therefore, this Work-in-Progress aims to understand how undergraduate students in Pedagogy, at a university in southern Brazil, experience the OnLIFE Education Paradigm and the concept of cibricity, in the co-creation of immersive, inventive, and gamified narratives with generative stochastic languages on Google Earth. It is qualitative research and adopts the rECOnectIVO Cartographic Method of Intervention-Research for data production and analysis. The first results indicate that the co-creation process with different generative stochastic languages and different digital technologies provided the formation of connected ecologies, enhanced by hybridisms between humans and technology and between physical and digital spaces, which not only enabled mobility through cibricity spaces, but also enhanced the digital citizenship education under the OnLIFE Education Paradigm.

Keywords: OnLIFE Education, Digital Citizenship, Connected Ecologies.

1 Introduction

The processes of digitalization, datafication, algorithmization, sensorization, and connectivity are transforming the world. Additionally, the need to live in a pandemic context and severe climate change has led to a shift away from society's anthropocentric way of thinking and operating. These changes are fostering the emergence of unprecedented ways of living that transcend geographical boundaries and extend into communicative forms of living [1, 2]. Such aspects modify our understanding of space and time and simultaneously expand our habitable condition, since we not only inhabit physical geographical spaces, but also digital spaces [3].

According to Di Felice [4], the sapiens of the third millennium no longer inhabits the polis, that is, a society composed only of subjects, but an interacting world, increasingly connected and hypercomplex. In this way, it can be understood that we inhabit a world made up of connections, nodes, which connect, intertwine, and show us that we exist because all the "others" also exist (atoms, bits, rivers, forests, different digital technologies), forming an ecological network of which we are co-members [5]. Thus, we build and develop skills, knowledge, and competencies in connection with different human and non-human entities that exist with us (from pencils, paper, buildings, rivers, to the most modern digital technologies) [4].

This helps us understand that we are no longer talking about an interaction just between humans and technology, but about the transorganic connective act [6], which occurs in a network and develops in an ecology that involves different forms of intelligence: human, non-human, data, and biodiversity. In this way, we need to

experience ways of co-creating information, producing knowledge, and learning in this network, thus transcending the boundaries between human and technology, between the physical and the digital, between the offline and online, giving rise to the term OnLIFE [1]. For Floridi [1], OnLIFE represents the emergence of a new hyperconnected reality, in which the distinction between the online and offline becomes increasingly blurred. As a result, he proposes the term OnLIFE to describe this condition in our society.

Considering these transformations, it is essential to rethink educational methodologies and practices in a digital context, promoting hybrid pedagogical approaches that stimulate inventiveness, co-creation, collaboration, and network cooperation. In view of this, the present WIP (Work-In-Progress) aims to understand how undergraduate students in Pedagogy, at a university in southern Brazil, experience the OnLIFE Education Paradigm and the concept of cibricity, in the co-creation of immersive, inventive, and gamified narratives with generative stochastic languages on Google Earth.

2 The OnLIFE Education Paradigm

As digital transformations take place in various social domains, there is a pressing need to rethink educational processes in a hyperconnected society, encouraging pedagogical approaches that truly resonate with our experiences in the third millennium. Schlemmer, Morgado, and Moreira [7] mention that these transformations enable us to discuss living, coexisting, and learning, not only in an analog-geographical nature (offline) but also in a digital nature (online), without placing online and offline in opposition, but rather co-engendering one with the other, referring to the term OnLIFE [1], and fostering the emergence of the OnLIFE Education Paradigm [7].

The OnLIFE Education Paradigm [8] refers to an education that, regardless of the modality, is linked and connected (On) in life (LIFE), where teaching and learning processes arise from problematizations of the world in the present time and are developed, enhanced by inventive methodologies and inventive, sympoietic, and gamified pedagogical practices [9] on a path of co-creation, invention, and transubstantiation of Education, in which the human is one of the entities in this network of connections that constitute Gaia [10].

From this, Schlemmer [11] argues that knowledge begins to develop in a connected ecology, based on inventive learning processes and paths that develop in transorganic connective acts [6], between humans and non-humans, whose knowledge is configured and developed through connections between different entities. In the specific case of this article, the connected ecology is being formed in the co-engendering of humans with different technologies and digital platforms (YouTube, Google Earth, Canva, Discord, Microsoft Teams, etc.), generative stochastic languages (ChatGPT, MidJourney, Bing!, and etc.), city, biodiversity, etc. This leads us to the need to transcend traditional binomials, such as subject-object (S-O), individual-environment (I-E), organism-environment (O-E), human intelligence-artificial intelligence (HI-AI), as well as centralities, whether in the content, in the teacher, or in the student. According to the author, it is therefore necessary, in the educational context, to overcome the idea of subject formation, and work with the formation of connected ecologies, from which these hybridisms emerge.

Furthermore, the author argues that, in the OnLIFE Education Paradigm, in addition to active methodologies and problem solving, it is necessary for the emergence of inventive methodologies that engage with problematization, and thus with the invention of problems [9]. This approach is implemented through critical reflection and problematization about the world in the present time, including the various spaces, both geographical and digital, that constitute today's habitat. In other words, we no longer solely inhabit cities, states, countries, or, in short, planet Earth, but also an infinite number of digital spaces and platforms that connect in a galaxy of bits, allowing us to speak of digital citizenship [12].

3 Digital Citizenship and Cibricity

Digital Citizenship [12] emerges as the characteristic citizenship of the third millennium, being deeply influenced, in addition to the Covid-19 pandemic and global warming, by the advancement of digitality and connectivity. These accelerated and comprehensive developments promote significant transformations in all processes, generating disruptive innovations and demanding a reconfiguration of our habitation condition.

In this scenario, new social actors, such as viruses, climate change, CO2 emissions, algorithms, big data, among others, become part of our daily lives, assuming an active and influential role in our decisions and actions. As Di Felice [6] highlights, from citizens associated with countries, cities, and nations, we become citizens integrated into the galaxy of bits.

From this perspective, the concept of cibricity [13] emerges, referring to the city that, in addition to existing in physical and geographical space, extends and hybridizes in digital spaces. This implies a broader and more

integrated understanding of our urban experience, connecting the physical and the digital in a more comprehensive context of citizen interaction and participation.

At this intersection, the broader and more integrated understanding of urban experience under the concept of cibricity, which connects the physical to the digital, paves the way for the training and formation of students who not only inhabit this 'galaxy of bits' but also act as agents in the construction of responsible digital citizenship. Thus, by exploring physical spaces that expand and hybridize with the digital, students are not only able to problematize the world in the present time and connect with the digital environment, but they also contribute to the formation of networks, connected ecosystems, in which humans and non-humans have agency and constitute the OnLIFE society [1] that we inhabit.

4 Methodology

Since the production of knowledge in this research is developed from a conception of co-creating and learning in network, the method used needs to be coherent with this conception, which highlights a problem regarding the traditional research methods used to produce science. To achieve the proposed objective in this research, we have appropriated the rECOnectIVO Cartographic Method of Intervention-Research (Schlemmer, Di Felice, 2023, in press), which assists us in investigating the journey of the inventive process that unfolds in network, through transorganic connective acts, forming connected ecologies.

In short, the rECOnectIVO Cartographic Method of Intervention-Research is being built based on the Cartographic Method of Intervention-Research proposed by Passos, Kastrup e Escóssia [14] and Passos, Kastrup e Tedesco [15]. In contrast to other research methods, in which the researcher collects data to then analyze it, in cartography, the researcher inhabits the investigated territory in order to observe, analyze, and, at the same time, intervene in the research process. In this method, research ceases to be seen as a search for predefined goals and becomes understood as a path that establishes its own goals along the journey. Cartography, therefore, aims to map a research territory, following clues that guide the observation of the effects that the research journey has on the object of study, on the researcher, and on the production of knowledge.

In view of this, understanding that researching in a context of digitality and connectivity develops through connective acts between human and non-human entities [6], we comprehend that knowledge production occurs increasingly within a connected ecology, generating hybrid and hyperconnected realities. From this understanding, the Cartographic Method of Intervention-Research has been investigated and adapted into the rECOnectIVO Cartographic Method of Intervention-Research, which investigates hybrid research contexts in hyperconnected realities. This method represents the beginning of the development of an approach capable of guiding networked research, which produces and analyzes data throughout the investigation process, in a context that also involves intervention, within a connected ecology.

The investigative journey took place over 60 hours, from August to December 2023. During this period, a connected ecology was formed by a professor, a doctoral student in a teaching internship, a scientific initiation scholarship holder, and twelve students from the Pedagogy course, who participated in the academic activity "Teaching and Learning in the Digital World". This connected ecology included various cities where the participants reside, as well as a variety of devices, technologies, and networked digital platforms such as Google Earth, Discord, Microsoft Teams, and Canvas. These elements were guided and articulated through an immersive, inventive, and gamified narrative, inspired by Lewis Carroll's book "Alice in Wonderland".

The literary work, adapted to the context of the OnLIFE Education Paradigm, was named "Alice on the Paths of OnLIFE Education", in which the character Alice meets, during the narrative, TomKat, the main character of the ConectaKat[1] Network. Firstly, TomKat introduces ConectaKat and the actions developed, which constitute the network. Among them, the experience of Digital Citizenship "MOVEonCibricity"[2].

In the action MOVEonCibricity, the character TomKat, who is an intergalactic citizen who lives in Katolândia - a Planet of Cats - highly connected, receives an alert on his super Tablet, coming from Planet Earth, where children and teenagers need help due to problems that are occurring. Upon arriving on Earth, the children, teenagers, and teachers who are part of the Network, with the help of Google Earth, present the cities that they live in to TomKat, sharing information, curiosities, problems and the historical and cultural aspects of different

[1] The ConectaKat Network is linked to the International OnLIFE Education Network (RIEOnLIFE), emerging during the Covid-19 pandemic. Its main goal is to create connections among people from different parts of the world. ConectaKat aims to promote the co-creation of educational experiences, particularly in digital context, aiming to strengthen inventive, engaged, and re-sponsible leadership in building OnLIFE Citizen Education.

[2] MOVEOn means to move forward, to change activity or space; and Cibricity refers to the city, which, in addition to being constituted in physical, geographical space, extends into digital spaces. It is a pedagogical practice that implies movement in the space of cibricity, instigated by digital mobility, favoring an ecology of presences [8].

locations. Alice, enchanted by everything she learned with TomKat about Planet Earth, linked to the MOVEonCibricity experience, is curious to know the cities that Pedagogy students inhabit and is interested in the concept of cibricity, which gives rise to the mission "My city in MOVEonCibricity". The proposed mission challenges students to co-create, using different Generative Stochastic Languages, a narrative that present their respective cities to the characters Alice and TomKat. The objective (beyond the appropriation and invention with different networked digital devices, technologies, and platforms, and expanding the physical/geographical space of each city into the digital space) is to understand what is significant, problematic, and worthy of reflection in cities from the perspective of teachers in initial training. This narrative is hybridized in a project developed with the digital technology of Google Earth. By incorporating elements such as narrative, characters, clues, challenges, and missions into the academic activity, we aim to promote a gamified approach to teaching and learning. This strategy aims to foster deeper engagement from students during the academic activity.

In this context, the analysis and data collection of this research take place during the development of the Mission "My city in MOVEonCibricity" by students, seeking to understand how they experience the OnLIFE Education Paradigm and the concept of cibricity, in the co-creation of immersive, inventive, and gamified narratives with generative stochastic languages on Google Earth.

The academic activity meetings were organized at synchronous times, through Microsoft Teams, and at asynchronous times, through Discord platform, on different channels, including the #conversations channel, where students discussed the texts read each week, supporting the formative process, and the #missions channel, where they shared their experiences and productions for each mission challenge.

5 Data Production and Analysis

The mission "My City in MOVEonCibricity" was developed based on six challenges:

Table 1. Table captions should be placed above the tables.

Challenges	Description
Challenge 1	Explore MOVEonCibricity action at https://conectakat.com/acoes/ and record questions, problems, curiosities, and particularities about the city they live in on the #Missions channel on Discord;
Challenge 2	Explore the generative stochastic languages ChatGPT and Bing Image Creator and co-create a narrative in which Alice and TomKat get to know the city they live in;
Challenge 3	Read articles published on the ConectaKaT Network in order to learn about examples of pedagogical practices developed in the OnLIFE Education Paradigm and record reflections about the texts on the #Conversations channel on Discord;
Challenge 4	Read the text "Thumbelina" [16], reflect on how 21st century students live and learn in a hyperconnected world, and record their reflections on the #Conversations channel on Discord;
Challenge 5	Create a project on Google Earth with the name of the city they inhabit and define a cover for the project exploring different generative stochastic languages;
Challenge 6	Geolocate a point of the city on Google Earth where Alice and TomKat passed, according to the co-created narrative.

In the first challenge, the students got to know a little more about the MOVEonCibricity action by visiting Google Earth and touring different cities, through the points geolocated by the children and teenagers who took part in the action, which reveal important information, as well as problems and challenges identified by them, regarding their respective cities. In this first activity, by immersing themselves in immersive, inventive, and gamified narratives created by children and teenagers from different states and regions of Brazil, the students in their initial training realized that many of the problems and challenges presented by the children and teenagers were also repeated in their own cities. Issues such as the lack of urban security, negligence in the treatment and care of animals at the zoo, precarious health services for the population and inadequate waste disposal, resulting in flooding, were some of the major problems highlighted by the students.

This problematization of the world, in the present time, resulted in reflection on situations that had long been part of their local realities, but which had not previously been debated. This shows an inhabiting of teaching and

learning that develops in the OnLIFE Education paradigm, instigating students to not only collect and assimilate information, but to question, explore and co-create knowledge from the complexities of their local contexts, culminating in a learning experience connected to life in a reality that is increasingly constituted as hybrid.

Exploring and inhabiting their cities on Google Earth, observing them from a new perspective, gave rise to the motivation to develop the second challenge. Faced with the problems and challenges identified in their respective cities, the students inventively incorporated elements of gamification by co-creating narratives that invited Alice and TomKat to explore their cities. These narratives not only highlighted the attractive points that the students enjoyed, but also pointed out areas of their respective cities that needed improvement.

The narratives were co-created in a sympoetic process [5], since the process of developing and inventing the narrative took place in a transorganic connective act, in which human entities (students) connected and acted with non-human entities (ChatGPT and Bing Image Creator). The students described aspects of their cities to ChatGPT, sharing their preferences, tastes, and highlights, while discussing the challenges faced in these urban environments. This partnership culminated in the co-creation of engaging narratives that were cohesively interwoven with the trajectories of the characters Alice and TomKat. The images that accompany the narrative texts were generated by Bing Image Creator, using prompts created by the students, containing detailed descriptions. The product generated was the result of a process of co-creation between different intelligences (HI and AI) (Fig. 1)[3].

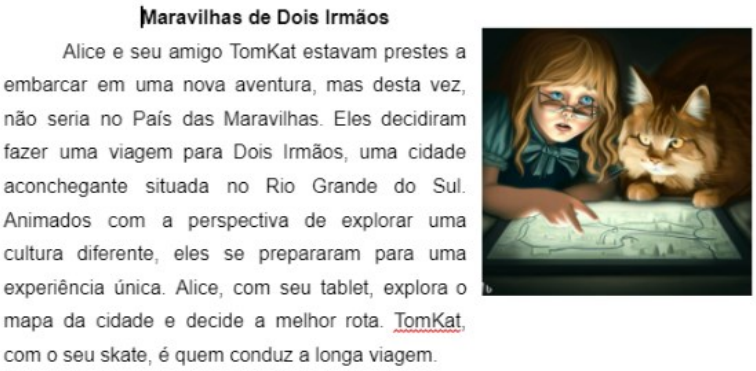

Fig. 1. Example of a co-created narrative with ChatGPT and Bing Image Creator.

Challenges three and four culminated in critical reflection on the work being carried out by the students in partnership with different devices, technologies and networked digital platforms, by reading theoretical texts that provided a conceptual basis for analyzing pedagogical practices in a context of education and digital transformation. By exploring these texts, the students were encouraged to reflect on the relationship between theory and practice, identifying connections between the concepts covered in the texts and the experiences they were going through in their training process.

Sharing insights on the Discord channel also allowed future teachers to reflect and dialog together about the importance of developing teaching strategies that are more consistent with the challenges of an OnLIFE society [1]. Instead of simply using networked digital devices, technologies and platforms as tools, resources, or support for the educational process, reproducing old methodologies and practices, a true appropriation was observed, characterized by coupling, as an agency between human and non-human entities, as previously also evidenced by Schlemmer [8, 17]. This process has been boosted by a deeper understanding of networked digital devices, technologies, and platforms as environmental forces [1], overcoming a merely instrumental vision.

Challenge five encouraged students to deepen their understanding of Google Earth, create a cover for the project, develop the design by coengendering different technologies and digital platforms for editing and producing images, such as MidJourney, Bing Image Creator and Canva.

In challenge six, students were encouraged to explore different points of their respective cities on Google Earth, taking advantage of mobility in the cibricity space. This not only gave them a more detailed understanding of the local geography, but also encouraged them to visualize and learn about the specific characteristics of their

[3] Text of Fig. 1. translated into English: Alice and her friend TomKat were about to embark on a new adventure, but this time it wouldn't be in Wonderland. They decided to take a trip to Dois Irmãos, a cozy town in Rio Grande do Sul. Excited about the chance to explore a different culture, they prepared themselves for a unique experience. Alice, with her tablet, explores the map of the town and decides the best route. TomKat, with his skateboard, leads the long journey.

communities, making it possible to reflect on potential solutions to the problems highlighted in the immersive, inventive, and gamified narratives and also to understand why these problems were happening in their cities.

One example is a student who identified that the flooding in her town always started in the same place, the Luiz Rau stream, due to incorrect waste disposal. In the co-created narrative, the student took the characters Alice and TomKat there to find out about the situation and help with garbage collection (Fig. 2)[4].

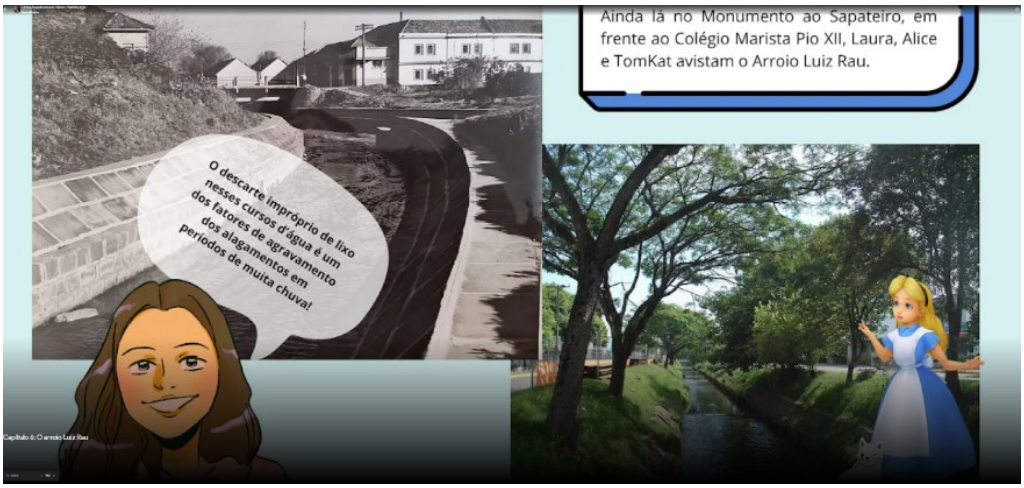

Fig. 2. Example of a problem identified by the student in the co-creation of her immersive, inventive, and gamified narrative about her city.

By connecting the information found about their respective cities in the cibricity space with the reality of their cities in the physical/geographical space, the students were challenged to reflect on how different networked devices, technologies and digital platforms can help map, report, and assist, in a practical and innovative way, to solve the challenges encountered. Thus, learning developed in transorganic connective acts, in a linked, connected way, "On", in life, "LIFE", provoked by the problematizations of the world, in the present time, thus highlighting the OnLIFE Education Paradigm.

The OnLIFE Education Paradigm was also evidenced in this practice by working from a transformative perspective, in which students are challenged to become active agents in understanding and resolving relevant social issues. After all, the teaching and learning processes were developed in a network, made up of students, teachers, places, things, software, data, algorithms, in transorganic connective acts [6], in a context of co-creation of narratives and development of missions, instigating inventiveness. Different devices, technologies and networked digital platforms were appropriated and mobilized to create characters, text narratives, illustrations, covers, geolocated points on the map, etc. In this process, students were encouraged to experience digital citizenship and to inhabit complex and hybridized spaces, perceiving themselves as inhabitants of infoworlds in an ecology of presences and diverse intelligences [18].

6 Final Remarks

Considering that the aim of this Work-in-Progress was to understand how undergraduate students in Pedagogy, at a university in southern Brazil, experience the OnLIFE Education Paradigm and the concept of cibricity, in the co-creation of immersive, inventive, and gamified narratives with generative stochastic languages on Google Earth, we can conclude that the process of co-creation with different generative stochastic languages and various devices, technologies and networked digital platforms provided a practical experience that resulted in the construction of knowledge in a collaborative and inventive way, in partnership with diverse intelligences.

Although this is still a Work-in-Progress, we can also preliminarily conclude that the sympoietic approach described here has favored the formation of connected ecologies, enhanced by hybridisms between human and technology, between offline and online, between physical and digital space, not only provided opportunities for mobility through cibricity spaces but also enhanced training for digital citizenship, under the OnLIFE Education

[4] Text of Fig. 2. translated into English. In the girl's conversation bubble, she says: “The improper disposal of waste in these waterways is one of the factors that aggravate flooding during periods of heavy rain!”. Above the image of the character Alice is written: “At the Monument of Sapateiro, in front of the Pio XII Marista School, Alice and TomKat see the Luiz Rau stream”.

Paradigm. This paradigm is based on the invention of problems, where knowledge emerges from questions raised by the students based on problematizations of the world in the present time.

In order to continue this work, it is important that in a future paper we carry out a literature review on the subject in order to identify similar studies or projects, analyze the results achieved and understand the existing limitations. In addition, it is essential that we assess how the proposal presented in this article adds value to the field. As future work, we will develop a data collection methodology (quantitative and qualitative) to measure the impact of this approach and present the results of the quality of experience in a meaningful way, since this preliminary study did not address this aspect.

References

1. Floridi, L.: The OnLIFE Manifesto: Being Human in a Hyperconnected Era. Springer Open, London (2015).
2. Schlemmer, E., Di Felice, M., Serra, I.: Educação OnLIFE: a dimensão ecológica das arquiteturas digitais de aprendizagem. Journal Educar em Revista(36), 1-20 (2020).
3. Di Felice, M.: Paisagens Pós-urbanas: O fim da experiência urbana e as formas comunicativas do habitar. Annablume, São Paulo (2009).
4. Di Felice, M.: Depois do natural e do artificial. As hiperinteligências, os LLMs e as qualidades conectivas da episteme do terceiro milênio. In: Accoto, C., Di Felice, M., Schlemmer, E. (eds) DEPOIS DA INTELIGÊNCIA ARTIFICIAL, CADERNOS IHU IDEIAS, vol 21, pp. 33-50. Instituto Humanitas Unisinos (2023).
5. Haraway, D.: Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press, London (2016).
6. Di Felice, M.: Net-ativismo: da ação social para o ato conectivo. Paulus, São Paulo (2017).
7. Schlemmer, E., Morgado, L., Moreira, J.: Educação e transformação digital: o habitar do ensinar e do aprender, epistemologias reticulares e ecossistemas de inovação. Journal Interfaces da Educação(11), 764-790 (2020).
8. Schlemmer, E.: A vida está On. Journal Educatrix, 44-51 (2021).
9. Schlemmer, E.: Projetos de aprendizagem gamificados: uma metodologia inventiva para a educação na cultura híbrida e multimodal. Journal Diálogos em Educação(27), 42-69 (2018).
10. Lovelock, J.: Novaceno: o advento da era da hiperinteligência. Ed. 70, São Paulo (2020).
11. Schlemmer, E.: O protagonismo ecológico conectivo e a emergência das hiperinteligências no Paradigma da Educação OnLIFE. In: Accoto, C., Di Felice, M., Schlemmer, E. (eds) DEPOIS DA INTELIGÊNCIA ARTIFICIAL, CADERNOS IHU IDEIAS, vol 21, pp. 53-83. Instituto Humanitas Unisinos (2023).
12. Di Felice, M.: A cidadania digital: a crise da ideia ocidental de democracia e a participação nas redes digitais. Paulus, São Paulo (2020).
13. Ribeiro, E., Schlemmer, E.: O problema da indeterminação dos espaços da cidadania: mídias digitais e identidades culturais na educação básica. Journal Polyphonia(31), 41-56 (2020).
14. Passos, E., Kastrup, V. & Escóssia, L. D. Pistas do método da cartografia: pesquisa-intervenção e produção de subjetividade. Porto Alegre:Sulina (2015).
15. Passos E., Kastrup, V. & Tedesco, S. Pistas do método da cartografia: a experiência da pesquisa e o plano comum. Porto Alegre: Soluna (2016).
16. Serres, M. Polegarzinha. Bertrand Brasil, Rio de Janeiro (2013).
17. Schlemmer, E.: Metodologias inventivas na educação híbrida e OnLIFE. In: Dias, P., Freitas, J. (eds) EDUCAÇÃO DIGITAL, A DISTÂNCIA E EM REDE, IMPRENSA DA UNIVERSIDADE DE COIMBA, vol 1, pp. 124-150. Universidade Aberta (2022).
18. Di Felice, M., Schlemmer, E.: Ecologias dos Metaversos e Formas Comunicativas do Habitar, uma Oportunidade para Repensar a Educação. Journal E-curriculum(20), 1799-1825 (2022).