Mind maps and primers in emergency remote teaching: an innovative educational proposal in the face of the Covid-19 pandemic

Mapas mentais e cartilhas no ensino remoto emergencial: uma proposta educacional inovadora frente à pandemia da Covid-19

Mapas mentales y primers en la enseñanza a distancia de emergencia: una propuesta educativa inovadora ante la pandemia Covid-19

Rejane Nunes Lopes de Oliveira[1], Gesline Fernandes de Almeida[2], Juliana Nascimento Andrade[3], Erica Maria Granjeiro[4]

How to cite: Oliveira RNL, Almeida GF, Andrade JN, Granjeiro EM. Mind maps and primers in emergency remote teaching: an innovative educational proposal in the face of the Covid-19 pandemic. 2024; 13(Esp1): 232-41. Doi: https://doi.org/10.36239/revisa.v13.nEsp232.p1a241

REVISA

1. State University of Feira de Santana. Feira de Santana. Department of Biological Sciences, Feira de Santana, Bahia, Brazil. https://orcid.org/0000-0001-7277-7538

2. State University of Feira de Santana. Feira de Santana. Department of Biological Sciences, Feira de Santana, Bahia, Brazil. https://orcid.org/0009-0008-8916-9844

3. State University of Feira de Santana. Feira de Santana. Department of Biological Sciences, Feira de Santana, Bahia, Brazil. https://orcid.org/0000-0002-9413-4733

4. State University of Feira de Santana. Feira de Santana. Department of Biological Sciences, Feira de Santana, Bahia, Brazil. https://orcid.org/0000-0002-6436-751X

Received: 23/10/2023
Accepted: 14/12/2023

RESUMO

Objetivo: Na perspectiva da formação continuada de professores universitários, o presente trabalho visa discutir os resultados obtidos através da aplicação de um tutorial virtual, com vistas à inovação da prática pedagógica docente. Método: Trata-se de um relato de experiência envolvendo a utilização de mapas mentais e cartilhas educativas em ambientes virtuais, no contexto do Ensino Remoto Emergencial (ERE), na Universidade Pública na Bahia. Resultados: Para tanto, por meio de trabalho colaborativo, foram realizadas atividades síncronas e assíncronas. Dois ambientes de aprendizagem foram utilizados, Google Classroom e Meet. Diferentes possibilidades para utilização dos mapas mentais e das cartilhas educativas foram apresentadas, considerando estudos anteriores da equipe proponente. Ademais, foram discutidas possibilidades para uso destas ferramentas didáticas durante o ERE. A atividade de capacitação docente envolveu doze professores universitários, os quais foram estimulados a inovarem as suas práticas pedagógicas, por meio da utilização das Tecnologias Digitais da Informação e Comunicação (TDICs). Conclusão: Diante da capacitação, os participantes atuaram como sujeitos reflexivos e ativos na vivência do processo de ensino-aprendizagem em ambientes virtuais. O tutorial, por meio de um processo educativo participativo, proporcionou ações de trabalho em equipe, com foco na inovação da prática pedagógica docente e na melhoria do processo de ensino-aprendizagem.

Descritores: Formação docente; Tutoriais virtuais; Tecnologias digitais da informação e comunicação.

ABSTRACT

Objective: From the perspective of the continued training of university teachers, this work aims to discuss the results obtained through the application of a virtual tutorial, with a view to innovating teaching pedagogical practice. Method: This is an experience report involving the use of mind maps and educational booklets in virtual environments, in the context of Emergency Remote Teaching (ERE), at the Public University in Bahia. Results: To this end, through collaborative work, synchronous and asynchronous activities were carried out. Two learning environments were used, Google Classroom and Meet. Different possibilities for using mental maps and educational booklets were presented, considering previous studies by the proposing team. Furthermore, possibilities for using these teaching tools during the ERE were discussed. The teaching training activity involved twelve university professors, who were encouraged to innovate their pedagogical practices, through the use of Digital Information and Communication Technologies (TDICs). Conclusion: During the training, participants acted as reflective and active subjects in experiencing the teaching-learning process in virtual environments. The tutorial, through a participatory educational process, provided teamwork actions, focusing on innovation in teaching pedagogical practice and improving the teaching-learning process.

Descriptors: Teacher training; Virtual tutorials; Digital information and communication technologies.

RESUMEN

Objetivo: Desde la perspectiva de la formación continua de docentes universitarios, este trabajo tiene como objetivo discutir los resultados obtenidos mediante la aplicación de una tutoría virtual, con miras a innovar la práctica pedagógica docente. Método: Se trata de un relato de experiencia sobre el uso de mapas mentales y folletos educativos en ambientes virtuales, en el contexto de la Enseñanza Remota de Emergencia (ERE), en la Universidad Pública de Bahía. Resultados: Para ello, a través del trabajo colaborativo, se realizaron actividades sincrónicas y asincrónicas. Se utilizaron dos entornos de aprendizaje, Google Classroom y Meet. Se presentaron diferentes posibilidades de uso de mapas mentales y folletos educativos, considerando estudios previos del equipo proponente. Además, se discutieron las posibilidades de utilizar estas herramientas didácticas durante el ERE. La actividad de formación docente involucró a doce profesores universitarios, quienes fueron incentivados a innovar en sus prácticas pedagógicas, mediante el uso de las Tecnologías de la Información y la Comunicación Digital (TDIC). Conclusión: Durante la capacitación, los participantes actuaron como sujetos reflexivos y activos al vivir el proceso de enseñanza-aprendizaje en ambientes virtuales. La tutoría, a través de un proceso educativo participativo, brindó acciones de trabajo en equipo, enfocando la innovación en la práctica pedagógica docente y la mejora del proceso de enseñanza-aprendizaje.

Descriptores: Formación docente; tutorías virtuales; Tecnologías digitales de la información y la comunicación.

EXPERIENCE REPORT

Introduction

The teaching-learning process is closely linked to the different uses of teaching materials, creativity on the part of the teacher and also objectives to be achieved.[1] Collaborative work, where all components share the decisions made and are responsible for the quality of what is produced together, according to their possibilities and interests[2], especially involving Edu-communication, is a pertinent and challenging proposal for innovation in teaching practice.

From this perspective, Edu-communication was widely used at the time of the COVID-19 pandemic, due to promoting a communicative and democratic interface in the management of information in various formats in favor of educational practices, involving various proposals in school pedagogy. According to Tassara[3], Edu-communication is the "process of communication with express educational intentionality and that involves the democratization of the production and management of information in the media in its various formats". Therefore, the proposition of tutorials, for didactic purposes, as educational practices and in Edu-communication was proposed in the present work.

Mental maps emerged in the mid-60's from business practices, as an instrument to synthesize goals, action plans, among other instruments that generated the organization of many ideas. Translated to the area of knowledge systematization, it has established itself as one of the most accepted learning tools, with several modern pedagogical applications, including being used as a suggestion of an effective pedagogical method in the consolidation of long-term memory.[4,5]

Buzan[4] highlighted mind maps as a powerful resource for learning, with a focus on the development of the human mind, because, in addition to presenting information, the very act of creating it activates the brain and stimulates memory in action, boosting the power of creative thinking. According to this author, the mind map is defined as a diagram that is characterized as a method of processing, storing, organizing and prioritizing information, using keywords or images, which trigger specific memories, stimulating new reflections and ideas, in addition to strengthening memory, which can help children and students of all ages to improve the degree of concentration and comprehension. memorize information more easily and confidently prepare for tests and exams.

In the methodological construction for structuring the creation of a mind map, a figure or keyword is chosen, from concepts interconnected to this central node, branches similar to a neural network are generated, where relevant derivations aggregated to the addressed theme compose the map. The sub-branches indicate hierarchical concepts within a given theme. Added to this possibility is the variation of colors or hues of the same color, to express varying degrees of importance of the theme addressed, creating patterns of associations. The structure of the maps, similar to a network of neurons, stimulates the brain to think faster and more efficiently, this structural link with the functioning of the brain is one of the reasons why mind mapping is so effective.[4,5,6]

Educational booklets, in turn, are pedagogical practices in the dissemination of knowledge, also widely used, as a remote resource. There are reports of discussion of the use of a booklet in 1873, where they were intended to

identify printed texts, to teach reading, writing and storytelling.[7] In Brazil, since the end of the nineteenth century, this tool has offered access to school culture and has been an emblematic instrument of literacy, helping in the constitution of a way of thinking. feeling, willing, and acting related to the idealized image of language/language.[8]

Currently, the educational booklet goes beyond the language of literacy and is used as a didactic resource for any age group and content, such as for the Teaching of Science and Biology, being a great tool as an instrument of pedagogical support.[9] In the booklets, we can use illustrations as part of cognitive acquisition and expand the ability to understand the contents. in a simple, direct and accessible way, configuring itself as a practical strategy and easily accessible to different populations, especially during this Pandemic. Thus, it reflects a differentiated construction dynamic in current times.

The closure of basic schools and higher education institutions as a result of the COVID-1 pandemic has brought an unprecedented challenge to global education. Many institutions around the world have been forced to implement new technologies and innovate their virtual learning methodologies to maintain the relationship between students and teachers.[10] Faced with this new reality, in order to reduce the impacts or effects of social isolation on the education of thousands of students, flexible and virtual learning opportunities were provided. Thus, teachers and students migrated to the online reality, transposing methodologies and pedagogical practices typical of physical learning territories, in what has been called emergency remote teaching.[11]

Remote teaching has boosted the use of new technologies, media, and digital tools and, given the variability of resources, strategies, and pedagogical practices, the choice can be defined based on the teacher's familiarity and ability to adopt and use such resources during their classes.[12] In fact, the profound educational changes, in the context of the pandemic, with the support of technologies marked an acceleration of the process already started in the globalized society, among them, the expansion of the use of Digital Information and Communication Technologies (TDICs). In this context, the teaching performance was confronted with training needs for non-face-to-face teaching.

The study by Lima et al.[13] shows that the use of active methodologies in remote teaching is feasible and relevant, with emphasis on mind maps, which are an important didactic tool since each individual, when participating in its construction, is the protagonist of his or her own knowledge, promoting meaningful learning and contributing to the storage and organization of information and content in a connected way. In addition, educational booklets have also been shown to be didactic materials that encourage creativity, reasoning and participation of students, encouraging critical thinking, and can be used as a means of communication, in which their content sometimes reflects the needs of society.[14,15] In general, during the pandemic period, they were widely used with the aim of disseminating guidance related to education and health about COVID-19, in the context of a possible resumption of face-to-face teaching.[16]

In this direction, the present work was developed, considering the importance of the continuing education of university professors, especially focusing on the use of mind maps and educational booklets, during the Emergency Remote Teaching (ERE), in the period of the COVID-19 Pandemic.

This proposal corroborates a study by Souza[17], which indicates that collaborative groups of teachers and tutoring in educational institutions are models of continuing education that can be alternatives to the traditional courses offered to teachers.

Nowadays, through reflection on the teaching-learning processes, there is an urgent need for training activities that stimulate teachers in their pedagogical practice and enable the insertion of students in a more dynamic, interactive and participatory way in this process. From this perspective, mental maps and online booklets are pertinent proposals for pedagogical support in the teaching-learning process. Although some studies in the literature[4,18] indicate mind maps and educational booklets as useful didactic tools to structure information in an organized and personalized way, providing reading on a topic in an objective, simple and targeted way, teachers linked to the NUPEECBio/UEFS team reported a lack of familiarity and skills to adopt such technological resources in virtual environments during their classes.

Thus, considering the educational challenges in the face of the pandemic, in an innovative way, it was necessary to think of a space for continuing education for teachers linked to the Center for Research and Extension in Science Teaching (NUPEECBio) of the State University of Feira de Santana (UEFS), in the remote teaching model for various educational actions, aiming to reflect on the different didactic possibilities for technology-mediated teaching. To this end, in the present work, it was proposed the elaboration of a pedagogical practice based on tutorials, with a view to the continuous training of teachers for the use of mind maps and booklets in virtual environments.

Thus, this study is an experience of university teacher training, through a tutorial, focusing on the use of mind maps and educational booklets in virtual environments, in a Brazilian public university, in the midst of the COVID-19 pandemic, problematizing the challenges, the training needs for non-face-to-face teaching, as well as advantages and disadvantages of the method. Thus, the present work aims to discuss the results obtained through the application of a virtual tutorial, with a view to the innovation of the teaching pedagogical practice.

Method

This is an experience report related to a teacher training activity for the use of mental maps and educational booklets, described qualitatively, based on observational methods experienced by the NUPEECBio team during the COVID-19 pandemic.

In this way, the importance of tutorials in teacher training was highlighted; mental maps and booklets as didactic resources in the teaching-learning process; described the adaptation of the face-to-face teaching methodology to the remote one; and report on the perception of the teachers who participated in this training activity. In this sense, dialogued collaboration and tutoring for the use of mind maps and educational booklets and how they can help in the professional development and pedagogical practices of teachers was discussed.

In the present study, the teacher training tutorial mediated by TDICs was carried out for three consecutive weeks, involving synchronous and

asynchronous activities. In this context, a virtual space was created to foster learning and exchange experiences among teachers. Google Classroom was used as a learning environment for the management of the proposed activities and a repository for the asynchronous activities. The synchronous activities, in turn, were carried out through virtual meetings on the Google Meet platform.

In the first two weeks of the tutorial, through collaborative work, teachers read scientific articles, debates, and discuss groups, as well as watched different targeted educational videos available on the YouTube platform. In this first stage, mutual learning involving the use of the basic technological tools of the learning environments, Google Classroom and Google Meet, was prioritized, since many of the participating teachers were not familiar with technology-mediated teaching.

In the third week, in turn, two teaching researchers linked to the NUPEECBio team, who were already using mental maps and educational booklets in the classroom at UEFS, were challenged to prepare and apply a pedagogical dynamic with the use of these methodologies in virtual environments. Thus, the tutorial was conducted by two researchers and had the participation of ten professors from the Department of Biological Sciences at UEFS.

At the end of the tutorial, a perception questionnaire was sent to the participants' e-mails. This questionnaire was elaborated on the Google Forms platform and contained objective and subjective questions related to the teachers' experiences in relation to mind maps and booklets, as well as their perceptions regarding the positive and negative aspects for the use of these methodologies. Of the total of ten teachers who participated in the tutorial as listeners, seven of them answered the perception questionnaire.

Results and Discussion

In the present work, a virtual tutorial of teacher training was carried out, within the scope of NUPEECBio, a learning community, which through collaborative work develops pedagogical innovation actions, involving the use of participatory teaching methodologies.[19]

Before the COVID-19 pandemic, the teaching, research and extension activities performed by the proposing team were traditionally offered in person, and were carried out exclusively remotely during this period. In order to meet these new health requirements arising from the Pandemic, the teaching team needed to expand their skills and abilities for the use of ICTs during the ERE.

To this end, several possible methodologies in the virtual environment permeated the teachers' debates, from the perspective of structuring and planning the pedagogical training of the proposing team. In this way, the need to carry out training tutorials was detected in order to uniformly train the team of teachers, in the most varied teaching possibilities, especially adapting the experiences of face-to-face classes to remote ones.

The methodologies mind maps and educational booklets, before the COVID-19 pandemic, were frequently used during the face-to-face teaching of the disciplines of Human Anatomy and Animal Physiology, for students regularly enrolled in undergraduate courses in the area of Health and Biology at UEFS. In the classroom, these methodological tools were used in short projects

to contextualize Anatomy and Physiology content in a simple, organized and dynamic way. The university students were encouraged to work in small groups (3 or 4 people), and the maps and booklets could be elaborated, in handwritten and/or digitized modalities.

Such methodologies were used as teaching-learning tools, as well as evaluation. To this end, the final products developed by the students, throughout the course, were presented to the entire class near the end of the school semester. Participants were encouraged to share with their colleagues their productions of mind maps and booklets, in PowerPoint projection.

Through this methodology, the working groups had the opportunity to present and discuss the contents addressed, as well as were given the opportunity to present their doubts and difficulties in the production of these materials, which were discussed with the professors responsible for the disciplines. In addition, the students were also encouraged to build an individual portfolio of the discipline, containing the mind maps initially elaborated in a Word document.

The experiences lived, with the use of mental maps and booklets, by the teachers responsible for the disciplines of Anatomy and Physiology, during face-to-face teaching, constituted the basis for the construction of the virtual tutorial for the other teachers of NUPEECBio, during the ERE period. Thus, during the synchronous moments of the tutorial, via the Google Meet platform, ten participating teachers received instructions on the history, concepts, development methodologies, advantages and disadvantages of these tools. In this context, with the help of PowerPoint, the experiences of the two teachers during face-to-face teaching were presented, as well as possibilities of using this methodology in remote teaching.

Studies in the literature highlight that with the advent of technological advances in the twenty-first century, mental maps can be accessed and used in new ways, reflecting innovative didactic strategies mediated by technologies4,9. Corroborating these findings, in the present study, in the training activity carried out in a virtual environment, the mind maps and online booklets were prepared through different possibilities, including the use of Power point slides, as well as the use of other free applications, such as Cmaptools (https://cmaptools.br.uptodown.com/windows).

Such productions were carried out, in a practical way, during a synchronous moment on the Google Meet platform, and a broad debate was stimulated with the participants via audio and/or chat. In addition, in the learning environment, Google Classroom, the teacher trainers were able to share scientific articles and educational videos related to this theme. Thus, through the realization of this virtual tutorial, the participants were able to detect their difficulties, doubts and possibilities of application of these digital tools, articulating and elaborating new didactic forms for innovation in their teaching practice.

Regarding the previous experiences of teachers in relation to the use of mind maps and booklets, 57.1% of the participating teachers reported that they did not use these tools in their teaching practices before the pandemic, highlighting the opportunity to add this didactic method in their future classes. In addition, the teachers explained that, through their participation in the tutorial, they were stimulated to think about new perspectives for structuring the

contents of the disciplines they teach at UEFS, based on the use of TIDCS presented as tools for pedagogical practice.

According to the participants, through the elaboration of mind maps and booklets in the virtual environment, the information was presented in a more dynamic and less tiring way when compared to the conventional way. With regard to the positive aspects regarding its use, the teachers also highlighted the following elements: synthesis, organization, dynamism, creativity, flexibility and ease, as can be seen in Chart 1.

Chart 1 - Teachers' perception of the positive and negative aspects of the use of mental maps and educational booklets for the teaching-learning process (n=7). 2023.

COMENTARISTAS	PONTOS POSITIVOS	PONTOS NEGATIVOS
Comentário 1	"sintetiza e organiza temas amplos".	"pode tornar simplista a aquisição de conteúdos".
Comentário 2	"demonstração de conteúdo de forma mais dinâmica e atraente".	"a depender do conteúdo de informações, é um pouco trabalhoso elaborar os mapas mentais seja na ferramenta específica ou Powerpoint".
Comentário 3	"facilidade de confecção e estímulo à criatividade".	"Pequenas dificuldades no manuseio dos programas utilizados para construção dos mapas e das cartilhas".
Comentário 4	"Em relação aos mapas, que já fiz uso como ferramenta metodológica, considero positivo o poder de síntese e de organização da ferramenta, onde o raciocínio pode ser acompanhado pela exposição gradual de ideias, imagens etc".	"O negativo que achei, é a limitação da abrangência de informações, se o tema for muito vasto, acaba sendo necessário ser mais superficial, ou quebrar em mais de um mapa. Em relação as cartilhas, ainda não tive a experiência de uso, espero em breve ter."
Comentário 5	"Facilidade em apresentar os conteúdos de forma objetiva e ilustrativa e consolidar as principais informações sobre os temas".	----------
Comentário 6	"segue uma lógica no desenvolvimento do conteúdo para o professor, já para os alunos é uma forma de sumarizar o seu estudo".	(se for somente utilizar estas ferramentas) não aprofunda os conhecimentos.
Comentário 7	"destaco a flexibilidade para demonstrar conteúdos de uma forma mais dinâmica e conectada."	"poderia indicar o tempo gasto para a construção, bem como a habilidade necessária para usar alguns programas disponíveis na internet".

Despite the various advantages in the use of these methodological resources for the systematization of knowledge, when reflecting on the possibilities of using these tools in their pedagogical practice, the participants of the tutorial also highlighted negative aspects, among which "the superficial approach to the contents" stand out. In view of this, considering the possibility of learners limiting themselves to a reductionism of the contents studied, which may generate little depth in important themes, it is necessary to point out to students the relevance of not being simplistic in their continuing education, as also pointed out by some professors in the Table 1.

In addition, questions regarding the difficulty in handling the technological tools presented were also highlighted by the participants. Therefore, the proposing team envisioned the need to continue teacher training activities, in the perspective of improving pedagogical practice, with regard to the use of these tools, as well as other didactic possibilities. In this perspective, the proponent team amplified the debate on this topic, through a presentation on the YouTube channel, during the UEFS Virtual Journey, whose event was attended by hundreds of professors from different departments of the institution. The presentation is available at the link https://www.youtube.com/watch?v=g9MoqVBgt2Y .

Different studies in the literature emphasize that it is necessary to build, in face-to-face or remote teaching, spaces for contemporary, creative training that generate meaningful learning, so that knowledge is stored for an applicable purpose, thus, the tutorials are in line with this purpose.[4,5,20]

In line with these findings, in the present study, it was observed that tutorials can be allies, as important tools for teacher training, with a view to innovating pedagogical practices in remote teaching, as learners are motivated and oriented towards a self-planned and self-organized study[21]. It is noteworthy that, in the present study, the virtual tutorial was carried out through collaborative work, which has the potential to enrich their way of thinking, acting and solving problems, creating possibilities of success in the difficult pedagogical task[2], especially in the use of ICTs.

Conclusion

In the present work, the experience of teacher training, through the realization of a virtual tutorial, was successful, since through Edu-communication it was possible to improve the teaching practice for the TIDCs, especially for the use and application of mind maps and educational booklets in virtual environments.

The current scenario imposes changes in education in the sense of having: 1- A methodology that is capable of transposing the theoretical content to the day-to-day practice. 2- Content that has a connection with life and makes sense to the student. 3- Development of interpersonal skills and intrapersonal intelligence. Thus, considering the contemporary foundations of education, where a collaborative, cooperative and creative learner is intended, increasingly focused on meaningful learning for their future professional performance, maps and booklets are configured as an adjunct instrument and facilitator of the transformation of general knowledge into essential knowledge, even facilitating the possible storage in the form of definitive memory. Thus, these didactic tools can be used in various modalities in the teaching-learning process.

Ackowledgment

National Council for Scientific and Technological Development (CNPQ, CNPQ/MCTI Notice No. 06/2021); Pro-Rectory of Extension (PROEX) of the State University of Feira de Santana; Department of Education of the State of Bahia (SEC/BA).

References

1. Santos ES. O professor como mediador no processo ensino-aprendizagem. 2004. Disponível em: http://www.gestaouniversitaria.com.br/artigos/o-professor-como-mediador-no-processo-ensino-aprendizagem . Acesso em 27 set. 2023.

2. Damiani MF. Entendendo o trabalho colaborativo em educação e revelando seus benefícios. Curitiba: Educar. 2008; 31: 213-30.

3. Tassara E. Dicionário Socioambiental: ideias, definições e conceitos. São Paulo: FAART, 2008.

4. Buzan T. Dominando a Técnica dos Mapas Mentais: Guia Completo de Aprendizado e o Uso da Mais Poderosa Ferramenta de Desenvolvimento da Mente Humana. EUA: Cultrix; 2019.

5. Foureaux GS, Schetino LPL, Guerra LB, Silva JH. O ensino-aprendizagem da anatomia humana: avaliação do desempenho dos alunos após a utilização de mapas conceituais como uma estratégia pedagógica. Ciências e educação, Bauru. 2018; 24(1): 95-110.

6. Kraisig ÂR, Braibante MEF. Mapas mentais: instrumento para a construção do conhecimento científico relacionado à temática "cores". South American Journal of Basic Education, Technical and Technological. 2017; 4(2), 70-83.

7. Boto C. Aprender a ler entre cartilhas: civilidade, civilização e civismo pelas lentes do livro didático. São Paulo: Educação e Pesquisa. 2004; 30(3):493-511, set./dez. ISSN 1678-4634. Disponível em: https://www.scielo.br/j/ep/a/jxhVX3NN5mKdMBCCnfzgN6n/?lang=pt . Acesso em: 22 set. 2023.

8. Mortatti MRL. Cartilha de alfabetização e cultura escolar: Um pacto secular. Cadernos CEDES, Centro de Estudos Educação e Sociedade. 2000; 20(52):41-54.

9. Silva MM. Elaboração de uma cartilha como recurso didático para o ensino de histologia. Vitória do Santo Antão. TCC (graduação) Universidade Federal de Pernambuco [Internet], 48p. Disponível em: https://repositorio.ufpe.br/handle/123456789/26258 . 2018. Acesso em: 22 set. 2023.

10. Granjeiro ÉM, Musse JO, Peixoto TM, Nunes IV, Soares IMSC, Silva ICO, Carvalho TB, Dias YO. Estratégias de ensino à distância para a educação interprofissional em saúde frente à pandemia COVID-19. Revisa. 2020; 9:591-602.

11. Oliveira JFAC, Fernandes JCC, Andrade ELM. Educação Brasileira e a EaD no contexto da pandemia de Covid- 19: perspectivas e desafios. Jataí: Intinerarius Reflectionis: Revista da Pós-Graduação da Universidade de Jataí. 2020; 16(1).

12. Garcia TCM, Morais IRD, Zaros LG, Rego MCF. D. Ensino remoto emergencial: proposta de design para organização de aulas. UFRN: SEDIS, 2020. Disponível em: https://repositorio.ufrn.br . Acesso em: 23 ago. 2021.

13. Lima ACB, Santos DCM, Pereira APS. Mapas mentais e conceituais como ferramentas para a aprendizagem significativa no ensino remoto. Educação e Tecnologias Digitais em Cenários de transição: múltiplos olhares para a aprendizagem. IntegraEaD/Anais 2020; 2(1). Disponível em: https://periodicos.ufms.br/index.php/IntegraEaD/article/view/11785 . Acesso em: 23 set. 2023.

14. Torres HC, Candido NA, Alexandre LR, Pereira FL. O processo de elaboração de cartilhas para orientação do autocuidado no programa educativo em Diabetes. Brasília: Rev. Bras. Enferm. 2009; 62(2):312-6. Disponível em: http://www.scielo.br/pdf/reben/v62n2/a23v62n2.pdf . Acesso em: 12 out. 2023.

15. Collares SAO. O uso da cartilha progressiva (1907) nas escolas do estado do Paraná. In: XXVI Simpósio Nacional de História – ANPUH. São Paulo, 2011. CMAPTOOLS. Programa para construção de Mapas. Disponível em: https://cmaptools.br.uptodown.com/windows . Acesso: 04 out.2023.

16. Brandenburg C, Silva Maciel JC, Baron MV, Costa BEP, Fialho LMF, Silva JCda. Cartilha educação e saúde no combate a pandemia da (Covid-19). Práticas Educativas, Memórias e Oralidades - Rev. Pemo. [S. l] 2020; 2(2):1–35. DOI: 10.47149/pemo.v2i2.3670. Disponível em:

https://revistas.uece.br/index.php/revpemo/article/view/3670 . Acesso em: 22 out. 2023.

17. Sousa AMO, Alves RRN. A Neurociência na formação de educadores e sua contribuição no processo de aprendizagem. São Paulo: Revista Psicopedagogia. 2017; 34(105).

18. Silva KAS, Silva ACM, Teixeira FM, Pimenta AL. Elaboração de uma cartilha como material educativo para preservação da tartaruga verde (*Chelonia mydas*) em Itaipú, Niterói, Rio de Janeiro: Revista Presença. [S.l] 2017; 2:35-58. ISSN 2447-1534. Disponível em: https://revistapresenca.celsolisboa.edu.br/index.php/numerohum/article/view/117 . Acesso em: 05 set. 2023.

19. Santos LSB, Benevides RG, Amorim CRN, Santos RMF, Oliveira SS, Amorim CRN, Granjeiro ÉM. Innovation in the teaching of human physiology at university and school: pedagogical process based on interdisciplinarity and learning station rotation. Advances Physiology Education. 2021; 45:541–46.

20. Quadros-Flores PA, Raposo-Rivas M. A inclusão de tecnologias digitais na educação: (re)construção da identidade profissional docente na prática. Ourense: Revista Practicum. 2017; 2:2-17.

21. Zoboli F, Mezzaroba C. A estratégia do tutorial no ensinar aprender esporte: relato de uma experiência com o atletismo. Cadernos de Formação RBCE. 2017; 33-43. Disponível em: http://revista.cbce.org.br/index.php/cadernos/article/view/2254 . Acesso em 04 out.2023.

Correspondent Author
Gesline Fernandes de Almeida
Universidade Estadual Feira de Santana.
Transnordestina Avenue, s/n. Novo Horizonte.
ZIP: 44036-900. Feira de Santana, Bahia, Brazil.
gfalmeida@uefs.br