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Article

The organization of the Virtual Learning Environment in the DE: the students' point of view

A organização do ambiente virtual de aprendizagem na EaD: o ponto de vista dos estudantes

La organización del Ambiente Virtual de Aprendizaje en Educación a Distancia: el punto de vista de los estudiantes

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Abstract: The article aims to discuss the didactic organization of the virtual page, located in a certain VLE, from the students' point of view, and understand the singularities of the interaction processes in this context. The data were built from a questionnaire applied to students from different courses, from a distance education center. The results indicate that the didactic organization of the pages depends on careful planning, which articulates the contents, the methodological strategies, the didactic resources, the evaluation and the information, in order to answer the needs of the distance education modality. As for the phenomenon of interaction, active and constant participation stands out, in addition to feedback, as enhancers of relationships between the actors involved in DE, which contributes to the student's engagement.

Keywords: distance education; virtual learning environment; didactic organization; interaction.

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Resumo: Este artigo objetiva discutir a organização didática do ambiente virtual de aprendizagem (AVA) a partir do ponto de vista dos estudantes e compreender as singularidades dos processos de interação nesse contexto. Os dados foram construídos com base em um questionário aplicado com estudantes de diferentes cursos de um polo da Educação a Distância. Os resultados indicam que a organização didática das páginas depende de um planejamento que articule os conteúdos, as estratégias metodológicas, os recursos didáticos, a avaliação e as informações, de modo a atender às especificidades da EaD. Quanto ao fenômeno da interação, destaca-se a participação ativa e constante, além dos *feedbacks*, como potencializadores das relações entre os atores envolvidos, o que contribui para o engajamento do estudante.

Palavras-chave: educação a distância; ambiente virtual de aprendizagem; organização didática; interação.

Resumen: El artículo pretende discutir la organización didáctica de la página virtual ubicada en un determinado AVA desde el punto de vista de los estudiantes, y comprender las singularidades de los procesos de interacción en este contexto. Los datos fueron construidos a partir de un cuestionario aplicado a estudiantes de diferentes cursos, de un centro de educación a distancia. Los resultados indican que la organización didáctica de las páginas depende de la planificación, que articula los contenidos, las estrategias metodológicas, los recursos didácticos, la evaluación y la información, para atender las especificidades de la educación a distancia. En cuanto al fenómeno de la interacción, se destaca, además de la retroalimentación, la participación activa y constante como potenciadores de las relaciones entre los actores involucrados, lo que contribuye al compromiso de los estudiantes.

Palavras clave: educación a distancia; ambiente virtual de aprendizaje; organización didáctica; interacción.

1 Introduction

Distance Education (DE), increasingly, is consolidated as a possibility of access to Higher Education. In Brazil, the demand for this type of teaching is growing significantly. Data presented by the Higher Education Census (2021) indicate that in 2011 the number of enrollments in distance higher education courses reached 431,597. Ten years later, in 2021, 2,477,374 enrollments were recorded, that is, a number five times greater.

The result in numbers proves the DE sedimentation process. However, it is necessary to draw attention to the increase in the number of enrollments, which, in itself, does not represent the conditions of supply and financing, nor does it expose didactic-pedagogical aspects, such as the organization of the distance education course pages in the Virtual Learning Environment (VLE).

This aspect has been the target of criticism and comments from, mainly, students, who often find themselves in a static and unmotivated learning environment, which leads to distancing from the course and, consequently, a lack of stimulus and of interest and even evasion/abandonment. In this context, the VLE is an extremely important communication channel in distance education courses, but, if misused, it can fall into the obscurantism of practices empty of sense and meanings.

Therefore, our objective is to discuss the didactic organization of the virtual learning environment from the students' point of view and understand the singularities of the interaction processes in this learning context.

From this perspective, we highlight that the didactic organization of the pages converges with the principles of structuring and planning the educational space. Both guide decision-making in relation to teaching and learning situations, aiming to achieve good results (LIBÂNEO, 2013). We start from this understanding and broaden our view to the insertion of digital technologies that are part of the educational process in distance education, whose singularities go beyond the simple didactic-

organizational transposition, taking into account its own structuring and internal specificities.

In order to discuss the didactic organization of the VLE from the students' point of view and understand the singularities of the interaction processes in this context, we were inspired by the studies of Libâneo (2013) and Belloni (2015). The choice is justified by considering that the teaching and learning processes in distance education must be thought of in the intertwining of the educational context with the didactic-methodological elements.

2 The virtual learning environment

The production of technological instruments can be situated in historical and social contexts, designed to solve problems of different natures. In this way, they are directly related to humanity's quality of life.

For Kerbauy and Santos (2011), the functions of communication technologies are directly related to changes in human perceptions. For these authors, in each historical moment, there were communication technologies that translated the period, according to changes in society. Initially, man used the technology of the alphabet, whose function changed the way of structuring thought. "Today, we have the computer and the Internet in the architecture of a technological society. As technologies were being developed, the gap between one and the other also decreased" (KERBAUY; SANTOS, 2011, p. 26).

The constant evolution of technologies enables transformations in different sectors of society. In the educational sphere, the technological impact expanded the walls of schools and enabled a paradigm shift in Distance Education (DE), which had its history marked by phases such as: teaching by correspondence; by radio, TV and live; in contemporary times, the phase of new Digital Information and Communication Technologies (DICT); and consequently by VLEs.

The first VLE projects created for education began in the mid-1990s, made possible through the evolution of the Internet. This context stands out due to the invention of web browsers with graphical window technology, which allows the representation of information in the form of images, as well as the iconic language on computer screens, which provides the user with an uncomplicated computing experience (FRANCO; CORDEIRO; DEL CASTILLO, 2003).

VLEs are considered scenarios that involve instructional interfaces for the interaction of learners, which include tools for autonomous and self-monitored action, offering resources for collective and individual learning (VIEIRA; LUCIANO, 2005). This conception highlights the interaction and autonomy of learners as necessary elements, enabling the integration of multiple media and resources, the organization of information and interactions between people and objects of knowledge (ALMEIDA, 2003).

That said, concepts about VLE, which privilege interaction as an essential element in the teaching and learning processes, can point to a more dialogical and desirable virtual environment model, bringing teachers and students together, as a simulating in-person environment. This model contributes to minimizing physical distance, since the virtuality of distance education is not configured as dispersion, absence, but, on the contrary, requires freedom and autonomy with responsibility.

It is also important to highlight that success in building knowledge in virtual environments with an interactionist approach does not depend solely on the tools designed for this purpose. In this context, the methodology used, the organization of materials, the training of the teacher and tutor, the non-automated assessment and the dedication of the student are aspects that can make a difference. These actions are made possible in VLE using specific tools. In this sense, each virtual environment has its own layout with the possibility of personalized pages, which can even be designed based on the visual identity of the institution of which it is part.

In general, as Filatro (2007, p. 119) highlights, VLEs "[...] allow the storage of information, consultation of this information, communication between users, data screening and the generation of reports on participants' progress." These elements are essential when we think about pedagogical approaches that prioritize student participation and the construction of knowledge through collaboration.

In this research, the study was developed based on a specific VLE, the Modular Object-Oriented Dynamic Learning Environment, better known in the world as Moodle. Moodle is licensed in a way that allows anyone to download the software for free and be able to modify the way it works by writing new code. It is also possible to add resources or resolve possible flaws (MOODLE, 2022).

According to Valentim (2022), Moodle Mandacaru offers a greater possibility of interaction, interactive materials, ease of navigation, better ergonomics and responsiveness. The aforementioned author also highlights that the new version can be used on various technologies, such as cell phones, tablets and computers, facilitating access and learning.

Research on VLE must be expanded in order to expand the perception of its functionalities, its human and technical interrelations. As Oliveira et. al. (2014), in an integrative review on the VLE, in Brazilian theses produced between 2003 and 2012, the investigations study specific aspects, which limits the understanding of the totality and complexity of the theme, making it necessary to expand the scope and the various dimensions, with a view to covering the object as a whole. From a macro perspective, as suggestions, the study indicates research that focuses on students' production functionality, coordination and communication in the environment, in addition to the cooperation and administration of VLEs, whose content may include didactic and pedagogical issues.

3 Methodology

The research was guided by the principles of the qualitative approach (GERHARDT; SILVEIRA, 2009), considering the meanings, motives, beliefs, values, expressed by the students, which revealed relevant aspects of the organization of the pages in the VLE. From this perspective, this is an exploratory study, in order to allow greater familiarity with the problem, with a view to making it more explicit, contributing to the improvement of ideas (GIL, 2002).

The data were constructed based on a questionnaire[1] with open questions, to obtain written information from the research subjects. The option for the questionnaire was due to the ease of application, the possibility of reaching a greater number of respondents and, consequently, obtaining information about what students think about the Moodle Mandacaru subject pages of the distance education degree courses at the Federal University of Rio Grande do Norte. Its application took place during face-to-face assessment days at the center, considering that it is a moment that brings together a significant number of students, since Resolution number 171/2013-CONSEPE, which governs UFRN's Regular Undergraduate Courses, defines that "At least in one of the units it is mandatory to carry out a written assessment carried out individually and in person".

A total of 95 students responded to the questionnaire, out of a total of 146, linked to a study center that is part of a Federal Public University, located in the countryside of the Brazilian Northeast. They are students studying Biological Sciences,

[1] We would like to thank professor Edneide Maria Pinheiro Galvão for her collaboration in applying the questionnaires and for her partnership in the construction of this work. The aforementioned professor is part of the teaching staff at the Federal University of Rio Grande do Norte (UFRN), and coordinates the face-to-face support center for distance learning courses in the city of Currais Novos - RN.

Physical Education, Physics, Geography, History, Portuguese Literature, Mathematics, Pedagogy and Chemistry.

To organize and analyze the statements, we named the subjects with the initial letter of the course and a sequential number, e.g.: M11, G6, etc. The data were organized into categories and subcategories, which allowed an approach to the theme of didactic organization of pages and interaction processes in the virtual environment from the students' perspective.

4 Organization and interaction on the VLE pages

The discussion of data in the present study was constructed in two sections, according to the categories organized based on the analysis of the students' statements. The first presents elements highlighted about the didactic organization of the pages and the second discusses singularities related to interaction in this context.

4.1 About the didactic organization of the pages

The discussion about the didactic organization of pages in virtual environments goes beyond the simple organization of teaching materials and the construction of discussion forums for interaction between people. This phenomenon may involve variables that are rarely discussed within the scope of distance education, but which directly impact the understanding and construction of knowledge, so that its usability may be influenced by structuralist or post-structuralist principles, according to planning and teaching practice. It approaches pedagogical and didactic issues related to teaching, distinct from the construction categories of web browsers, which refer to criteria for the choice and functionality of environments, for example, interface, navigation, coordination and administrative support. From this perspective, we will

discuss the didactic organization of the pages, based on the students' vision, based on Content, Assessment, Teaching Resources, Visual Pollution and Information.

The way content is organized in the VLE greatly interferes with the teaching and learning process. It is not just about highlighting what will be studied, but, above all, about presenting "a set of knowledge, skills, habits, evaluative and attitudinal modes of social action, organized pedagogically and didactically [...]" (LIBÂNEO, 2013, p. 142). For student M11, it is essential when "The contents are organized in a logical sequence that favors learning; easy-to-understand language and well-designed activities according to the sequence of content". From this perspective, Q6 highlights the importance of organizing "by sections, according to the chapter/class of the material" or even "by themes and units", as highlighted by F5.

The students' statements open space for us to think about the organization of content, which, regardless of the modality – face-to-face teaching or distance education – presupposes organization and planning in an intentional way. It is worth highlighting the need to systematize the content, in a logical and clear sequence, with connections between the parts, so that the student understands the path defined by the teacher, whether by sections, themes or units. This way, the student will be able to come into contact with the content autonomously (TORREZZAN; BEHAR, 2009).

We agree with the authors, since the perspective of autonomy in distance education is fundamental for the construction of knowledge. On the one hand, it means recognizing in the other individual his capacity to be, to participate, to have something to offer, to decide. On the other hand, it also means becoming free to manage the construction of his own knowledge, which allows for his own training time, respect for his learning pace and the possibility of better organization in his study routine (PRETI, 2005). In this way, we can affirm that the didactic organization of the pages can contribute to the structuring of thinking and, thus, favor the student's autonomy in distance education, considering that the student is expected to have the ability to manage the construction of his learning. This implies the dimension of self-direction

and self-determination in the education process, which is not an easy task for some DE students (BELLONI, 2015). Therefore, thinking about DE students from the perspective of autonomy means building possible paths for their development, given that appropriate teaching strategies and methods can contribute to individuals with this characteristic.

Student H2 expands and confirms the discussion, highlighting: "In some subjects, the organization of content and activities makes understanding and learning difficult, perhaps due to the outdated methodology of some teachers". The speech expresses the relationship between objectives, content and methodology, in addition to ratifying the necessary systematization of content. It also denounces the absence of innovative proposals, consistent with the educational advancement that we want to achieve. His thinking is close to Libâneo's vision, since for this author the contents must be "organized into teaching subjects and energized by the articulation of objectives-content-methods and forms of organization of teaching, in the real conditions in which the teaching process occurs [...]" (LIBÂNEO, 2013, p. 142).

Such conditions may refer, in this case, to the specificities of teaching in DE, which makes us think about technical rationality, which transforms teaching into watertight models of information transfer, moving away from practices consistent with the digital world in contemporary times. This method works with content in a rigid way, as absolute truths, with no room for questioning or considering students' prior knowledge. From this perspective, the relevance of the teaching process predominates over learning (PIMENTA; ANASTASIOU, 2005), so that there is no space for interaction between subjects or exchange of information that could contribute to the construction of knowledge.

In this regard, student P12 warns that it is "essential that each content is complemented by an activity [...]", which tells us that the dynamics of DE requires a didactic organization that considers the way students study content, in order to provide means and resources that assist in the acquisition of knowledge.

Regarding this topic, student G6 points out: "Some subjects do not provide work that counts towards the grade; they only provide the test, which in my opinion should not be the only resource available". In this same understanding, Q1 mentions that in some subjects "[...] the teacher just enunciates the content and gives a test and that's it, no activity is posted or anything". As pointed out by student Q1, just "enunciate" the content in the VLE and then evaluating the student through a test characterizes the use of an instructional approach, which refers to the programmed instruction model.

Choosing this strategy does not provide opportunities for interaction between subjects and transfers the task of teaching to the computer (VALENTE, 2000). Such delegation mischaracterizes the construction of knowledge based on the balance between methodological elements, selected based on the profile of students aligned with digital tools. Furthermore, one of the functions of teaching is to help students understand their learning possibilities, guide their difficulties and study methods, as well as provide activities that lead them to learn autonomously (LIBÂNEO, 2013). However, the speech of students G6 and Q1 goes against what is proposed, revealing weak training for teaching.

Having said this, we understand that the use of the aforementioned evaluation method is extremely inefficient, considering that it does not contribute to a problematizing and awareness-raising education, as well as not providing opportunities for students to participate in the learning processes. Offering students a single evaluation moment, as revealed by students G6 and Q1, to the detriment of a procedural evaluation, contradicts what the Political-Pedagogical Project of the analyzed course points out, in which the evaluation is understood as monitoring the student's learning, to be carried out at different times and not just at the end (UFRN, 2010).

This contradiction between the course's guiding document and the assessment adopted reveals the use of authoritarian and centralizing forms in verifying academic performance. This finding becomes even more disastrous as it occurs in the initial

training of teachers who already work or will work in Basic Education, whose model is a retrograde assessment that disregards the weaknesses and needs of students. When evaluating, the teacher will be able to objectively collect, analyze and synthesize the manifestations of students' cognitive and affective behaviors, producing a configuration of what was learned, as well as making decisions based on this information (LUCKESI, 1991).

In this sense, Moodle Mandacaru allows teachers to carry out a personalized assessment throughout the training process, taking into account the availability of monitoring reports with information on students' participation in all proposed activities, as well as the frequency of visits to the page. Furthermore, it is also possible to check whether the student has accessed the materials made available for study, such as texts, videos, questionnaires, among other elements that allow for systematic monitoring. In other words, it is not enough to put the content on the page, but it is necessary to stick to strategies and tools for understanding and interpreting that help the teaching and learning process, such as defining a formative evaluation process and choosing good teaching resources. (CASTOLDI; POLINARKI, 2009).

This perspective is confirmed in the speech of NI5, when he reports: "[...] It is clear that when in a subject the teacher is concerned with making various resources available to the student, learning occurs in a deeper way". For L9, resources cannot be made available in any way, but it is important that the page is "[...] well divided into the options and resources that each one makes available, such as: forum, chats, online assessment". The statements confirm the relationship between the choice and definition of teaching resources depending on the profile and educational needs of the class.

This discussion draws attention to a necessary change in the perspective of DE centered on teaching material. DE practices that focus on the study of teaching material supplant a diversity of learning paths and ways of teaching and learning, made possible by the advancement of the information and communication society. For Torrezzan and

Behar (2009), digital resources allow new practices, also enabling content to be addressed in the form of digital images, hypertexts, animations, simulations, learning objects, educational games, among others.

However, caution is needed regarding the use of digital technology, as its use in learning situations must be accompanied by critical reflection (BELLONI, 2015). Furthermore, there must be a connection with the didactic-pedagogical proposal of the course, otherwise there is a risk of spreading agile methods and active methodologies through the simple use of technological resources.

The linking of technology to pedagogical practice must consider the interests of students, in an appropriate, egalitarian, scalable and sustainable way, as suggested by the report on technology in education from the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023).

The adoption of the principles defended in the UNESCO report, linked to the didactic organization of virtual pages, can result in the quality of courses and students' satisfaction, as L8 points out "the pages are very organized, easy to use and access. The contents are carefully planned so that the student can understand them."

The student's speech can reveal the convergence of three dimensions necessary when doing pedagogy in DE: pedagogical, technological and didactic. The pedagogical dimension relates to guidance and counseling activities and includes knowledge of pedagogy. The technological dimension covers the relationships between technology and education, including digital resources and usage strategy. The didactic dimension concerns the specific training of the teacher and the constant need for updating regarding the evolution of the subject (Belloni, 2015). Therefore, the use of digital resources connected to the pedagogical and didactic dimensions can culminate in successful practices, according to the L8 student's report.

Given this scenario, it is important to clarify that VLEs do not always have specific digital resources for each educational intention, as they have restrictions on the infinite possibilities of presenting content from different media. However, these elements can

be selected in external environments and added to virtual pages, contributing to the composition of a didactic organization aligned with the real educational needs of students.

The didactic organization of the VLE involves, in addition to the choice and selection of content and resources, the way these elements are arranged on the pages, that is, the use of instructional design principles for the construction of knowledge in virtual world.

Instructional design is an intentional action and involves the planning and use of methods, techniques, activities, materials, events and educational products in specific didactic situations, with the purpose of facilitating learning among subjects based on principles of learning and instruction already known (Filatro, 2007). Therefore, it is important to consider the educational context in balance with the methods and resources, both in an organized way and aligned with the learning needs presented. From this perspective, the design can vary, according to teaching planning, by decomposing the content into parts – lesson, didactic sequences; by units of meaning; by temporality, in which access is structured with limits and forms or according to dynamics specific to each teacher or curricular proposal.

The configuration of content in the VLE becomes a task, not always simple, as, in didactic transposition, teaching objectives and student experience/expectations need to converge in a way that does not cause visual pollution, as the students drew attention to. : "some teachers [...] provide information in a very unstructured way, with strange fonts, in short, sometimes it is arranged in a way that causes visual pollution" (statement from L1).

Studies on visual pollution in virtual learning environments are still scarce. Visual pollution is most discussed in the context of social communication and urban landscapes. However, we can borrow the concept of this phenomenon and make some notes within the scope of DE.

For Ferreto (2007), visual pollution occurs when any given landscape is compromised, with an excess of visual information interfering with the landscape, causing people to feel uncomfortable and insecure. As the VLE is a communication environment that integrates the visualization of various media, its structuring, when disorganized, with texts of different fonts, colors and sizes, with the use of images, gifts and other elements detached from the pedagogical context, can generate in the student the feeling of discouragement and insecurity.

Such discomfort, caused by visual pollution, can compromise navigation through the environment, negatively impacting students' experience with the VLE itself, as well as causing distractions due to excess information or even cognitively overloading students.

It is important to highlight that visual pollution is not only related to the colors and fonts used in writing and proposing activities or the exaggerated use of figures. This lack of synchronization may also be related to the arrangement of materials, as M12 points out, "I think the arrangement of files could be divided into columns (e.g.: PDF, videos...)".

The student's speech draws attention to the organization of the materials inserted on the page. Moodle Mandacaru enables such organization in specific folders, such as the folder entitled "Teaching Material", which can be fed with files of up to 150 megabytes. This folder also allows the use of electronic addresses external to the VLE, which expands access to different sources, with different points of view that corroborate the expansion and deepening of content. The student's proposal could be resolved by indicating the type of media that is being made available, in order to make it clear to the students what they will access.

The visual pollution reported by students opens up space to reflect on the training of teachers who work in the field of DE, since this type of teaching has singularities that face-to-face training does not cover.

In general, DE higher education courses at public universities are offered through the Open University of Brazil (OUB), which operate through public notices, a fact that marks their lack of perpetuity, causing turnover of teachers and tutors.

It is true that OUB directly contributes to the expansion of DE, as it expands the offer of places in Higher Education. However, pedagogical training, for those who work on these courses, is the responsibility of the offering institutions. Therefore, it is necessary to include debates on the pedagogical training of university professors for this role (Morosini; Souza, 2009).

In contrast to the indicated visual pollution, some students reported experiences with organized environments without visual pollution, as N14 points out, when he states that some pages are "[...] clean, have icons in the correct places and little pollution". Student P2 adds that "the presentation varies according to the teaching style of each teacher, but most subjects are well organized".

We can infer that the organization may be related to teaching expertise in the use of the tools made available by the VLE, which deserves greater accuracy, in order to investigate the relationship between the organization, teaching training and the course.

Within the scope of this discussion, the students also highlighted the way in which information is made available by the discipline team, the content of which points to various clarifications about the progress of the course, activities, materials, among other aspects. It is important to clarify that this information is made possible in Moodle Mandacaru through specific tools, namely: news and notices, calendar, teaching material folder, schedule, notes, among others.

We highlight the calendar tool, which allows students to be informed about activities, classes, participation in forums, tests, synchronous meetings, among other events. This way, students can organize themselves according to the information provided.

The use of tools to share the necessary information may depend on the expertise of each teacher on the platform and mastery of the use of DICT, as reported by F2 "I believe it depends on each teacher, some know how to make better use of Moodle tools to better understand the student in relation to the subjects and others not so much".

Gugliano's (2018) research, entitled "Application of interface requirements to facilitate user collaboration in Moodle", points to the facilitation of collaboration between users with the help of digital interfaces. The study understands that the proposal for new elements and functionalities in the Moodle interface highlights some of the possible ways to facilitate collaboration between students and their teachers in digital environments.

One of these elements is the use of the calendar, considering that collaborative activities require coordination and organization.

It is important to highlight that the information entered on the pages is not limited to editing the calendar tool to meet established deadlines, as other tools can be used for the same purpose.

Although Moodle presents a variety of tools that enable the posting of general information for students, these resources are not always used, as reported by student F5:

> *"About the presentation of the subject pages [...] I consider it dynamic, organized, everything standardized and indicating the delivery date of certain activities; however some virtual classrooms from past subjects did not demonstrate these aspects, one has excessive information, others have almost nothing".*

The lack of information declared by student F5 opens space for us to discuss the use of tools that enable such action. From this angle, the research by Barbosa and Neri (2014) evaluated the use of tools made available through Moodle from the perspective of students and teachers. This investigation verified the preference for some tools, such

as forums, files, tasks and videos, as opposed to the use of tools that enable news, notices or marking of activities, such as the calendar.

The reason for being overlooked may point to pedagogical issues or even a lack of knowledge about the potential offered by the environment, which could even be the subject of future research.

According to the notes given by the students, it is important to pay attention to the elements discussed, as their use in an instructional manner may create obstacles to the production of knowledge and, thus, hinder the learning process.

4.2 About aspects related to interaction

We understand that, in DE, the process of knowledge construction can be mediated by digital technologies, which enable interaction between subjects. In this context, we can observe a direct relationship between interactions and the didactic-organizational aspects of the pages, since these, to a large extent, depend on interactions to develop.

Distance education (DE) students, as they are immersed in virtual environments, end up maintaining a closer relationship with DICT, and their presence is marked by interactions "with the object of study and with the group (reading the materials, interacting with the tools, contributing with colleagues, tutors and teachers, solving challenges, publishing their productions, etc.)" (Behar, 2009, p. 5).

In this way, we highlight aspects related to interaction mentioned by undergraduate students, as looking carefully at this phenomenon is essential to the didactic organization and teaching and learning processes. Thus, the elements highlighted by the students were: interaction in discussion forums, constant participation of teachers and tutors in the course and feedback.

This study understands the term interaction in the light of Belloni (2015, p. 63), when he considers that interaction is a "reciprocal action between two or more actors

where intersubjectivity occurs; that is, a meeting of two subjects – which can be direct or indirect (mediated by some technical means of communication) [...]".

VLEs allow subjects different forms of interaction, whether through the teaching materials available, proposed activities or discussion forums, an essential environment in DE courses.

Regarding interaction in the discussion forum, P6 states "[...] I think there should be means of interaction beyond the forum. Even among students." Still regarding the forum, student NI3 adds that "Professors' good participation in the forums is of utmost importance for the student's growth in the courses".

The students' notes are relevant and make us think about the VLE used by them, which allows forms of interaction beyond the discussion forum, namely: online chat, diary, lesson, questionnaire, wiki activity, among others. Furthermore, it is possible to use external tools that contribute to interaction between subjects, such as video calls, blogs, construction of online documents, etc.

However, the discussion forum can be considered the most used tool in virtual environments. We understand that this choice may be due to the fact that the forum "represents the face-to-face classroom in virtuality, as it facilitates the sharing of information, the clarification of doubts, discussion, collaboration, reporting of experiences, [.. .]" (Duarte, 2010, p. 43).

Forums should value individual students' participation, the confrontation of ideas and critical thinking. Opposing this understanding, forums organized in the format of automated questionnaires, with simplistic answers, whose essence does not encourage interaction and problematization, should be discouraged.

On the other hand, the exclusive choice for the discussion forum may indicate a lack of knowledge about the use of other tools available in the VLE or even a resistance to using digital technologies in the teaching process. For Almeida and Valente (2011), there is still difficulty for some teachers in using technologies in education. This reality can also encompass students, directly impacting the interaction processes in the VLE.

In this context, both resistance to the use of tools and a possible deliberate choice of a forum model with occasional teacher participation impact interaction and, consequently, the construction of knowledge.

Another important element highlighted by the students was the need for constant participation of teachers throughout the course, as NI5 points out, "the little contact between teachers and students discourages them [...]". Student NI1 also gave his opinion on this context, stating "I believe that contact with the subject teacher should be improved via Moodle [...] contact via the page is still weak".

From this perspective, the students' notes draw our attention to the interaction between subjects, which is necessary, since it is through interaction mediated by digital technologies that knowledge is constructed in the VLE.

According to Valente and Moran (2011), being virtually accompanied means that the educational process goes through multiple interactions in the sense of walking together and advising the student who will be able to understand what is being done, making it possible to overcome new challenges and, thus, attribute new meanings to a given study. Furthermore, loneliness and lack of interaction between DE subjects can contribute to higher dropout rates (Favero; Franco, 2006).

Therefore, the teacher's participation on the course page must be constant, since interaction with students can contribute to the development of a feeling of belonging, as well as reducing the students' feeling of isolation and loss of interest.

In addition to the participation of teachers, students pointed out the need for feedback from teachers and tutors, which are related to interaction processes, intrinsically linked to resolutions of proposed activities, doubts about the content covered, student contributions to the construction of knowledge, among others. . According to the Portuguese Language Dictionary, the word feedback means "Return of information or process; obtaining a response" (Michaellis, 2022).

For Perrenoud (1999), feedback can be considered a form of intervention in the learning process and must consider its insertion in the didactic organization, as well as in class management.

Regarding this discussion, NI3 indicates that "expectations of answers for each class, which should always be posted in each subject, but that only some teachers present them". In this same point of view, student NI1 contributes by saying that one should "Post [...] feedback from teachers and tutors".

Under this perspective, the students' statements draw our attention to the implementation of learning processes, which, in DE, to a large extent, depend on feedback from teachers and tutors, given that, to advance in their performance, students need to know how they are progressing, and can even reformulate or intensify the construction of knowledge.

Both in DE and face to face teaching, learning processes cannot be conceived in silence or inertia. It is necessary to discuss the paths taken in order to reevaluate the routes.

The study by Dose (2017), entitled "The importance of Feedback in Distance Education", understands that this phenomenon must be elaborated following criteria to achieve the proposed objective, with its use being essential to ensure that the contents were assimilated and so that new interactions and stimuli can be proposed, according to the reality of each educational scenario. Based on this understanding, we add that the conscious elaboration of criteria for the construction of feedback in DE, in a personalized way and considering the difficulties of each student, prevents the valorization of automated feedbacks that do not contribute to a quality didactic organization.

5 Final considerations

Distance Education, as a field of research, offers countless possibilities for scientific investigation, given that its official regulation is recent. Research like this, which aims to investigate the didactic organization of virtual pages from the students' perspective, as well as the interaction processes related to this context, can contribute to expanding the understanding of this field of study and, at the same time, bring theoretical support and practical aspects of teaching in the VLE.

The students' statements demonstrated knowledge, resistance and pointed out obstacles to the didactic organization of the pages, referring to content, assessment, teaching resources, visual pollution and information.

The aspects highlighted by the students indicate the need for planning that considers, in addition to the content, the student profile, the context of the study, the specificities of the DE modality and the VLE, mainly regarding the use and availability of digital tools, the functionality of the environment, the form of communication and the appropriate media. Compliance with these aspects contributes to a didactic transposition that includes multimedia content, without losing sight of the restrictions imposed by educational VLEs, with student learning as a fundamental premise.

Regarding the phenomenon of interaction, students highlighted the interaction in discussion forums, the constant participation of teachers and tutors in the course, in addition to feedback, as enhancers of relationships between the actors involved in DE that favor the active participation of students in learning processes, as well as contributing to student engagement, a sense of belonging and appreciation.

The didactic organization of virtual pages, in DE, demands specific knowledge of the modality and requires decision-making, in order to replace models close to programmed, individualized instruction, with an ecology of teaching and learning mediated by technologies.

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