Interaction and Learning with the Resolution of Problems in Distance Education

Interação e Aprendizagem com a Resolução de Problemas na Educação a Distância

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Abstract

The interaction between educator and student is increasingly sought in the teaching and learning processes, and the active methodologies enable this involvement. The essential characteristics of distance education favor the adoption of methods that promote an active attitude in learning. In this work, the objective was to analyze the potential of the intervention of the application of the active methodology of Problem Based Learning in a distance learning course, implemented from problematic contexts of the students' daily life and with the use of TDIC, on the perspective of the subjects involved. A qualitative and applied research was adopted and, as procedures, bibliographic research and pedagogical intervention, intertwined with field research and participant observation. The results show that the ABRP methodology favored the engagement, interaction, and learning of students and the course participant's condition to create knowledge construction processes reflexively and collaboratively.

Keywords: Active methodologies. Distance education. Problem based learning.

HOW TO CITE THIS ARTICLE

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Resumo

A interação entre educador e educando é cada vez mais buscada nos processos de ensino e aprendizagem e as metodologias ativas possibilitam este envolvimento. As características essenciais da Educação a Distância favorecem a adoção de metodologias que promovem atitude ativa na aprendizagem. Neste trabalho, foi analisado o potencial da intervenção da aplicação da metodologia ativa da Aprendizagem Baseada na Resolução de Problemas em um curso na modalidade a distância, implementada a partir de contextos problemáticos do quotidiano dos cursistas e com o recurso das TDIC, sobre a ótica dos sujeitos envolvidos. Para tanto, adotou-se uma pesquisa qualitativa e aplicada e, como procedimentos, a pesquisa bibliográfica e a intervenção pedagógica, entrelaçadas a pesquisa de campo e a observação participante. Os resultados apontam que a metodologia ABRP favoreceu o engajamento, a interação e a aprendizagem dos alunos, bem como a condição do cursista em criar processos de construção de conhecimento, de modo reflexivo e colaborativo.

Palavras-chave: Metodologias ativas. Educação a distância. Aprendizagem baseada na resolução de problemas

1. So, Let's Get Started?

In the current context, in which individuals are immersed in an abundance of information, in order to promote knowledge, it is important that the processing of such information is encouraged and facilitated. Formal education is one of the possibilities of this path, favored by the interaction between educator and student, which is increasingly moving away from conservative teaching practices, which traditionally did not consider the active participation of the student, but a passive and receptive attitude towards of the teacher.

Active learning methods favor the interaction processes between the educator, the student and their peers, and have a positive result in the teaching-learning processes. Rodrigues and Souza (2021) showed in their research that the application of active methodology in the Physical Education course brought greater interaction and student performance. In the research by Souza, Vilaça and Teixeira (2021), it was possible to see that the methodology significantly stimulated the student to interact and actively participate in their knowledge construction process, so that they are not merely passive agents.

For Moran (2015, p. 18), "[...] active methodologies are starting points to advance towards more advanced processes of reflection, cognitive integration, generalization, re-elaboration of new practices". They also incite curiosity, propose challenges, engage the student in experiences, provide collaborative work, develop the autonomy of students in decision-making, emphasize the student's protagonist role, value their involvement and their effective participation in the construction of the learning process (MORAN; MASETTO; BEHRENS, 2013).

One of the teaching methods that can be considered as an active learning methodology is Problem Based Learning - ABRP, a Portuguese translation of the teaching methodology, known in English as Problem Based Learning (PBL) and translated in Brazil as Aprendizagem Baseada em Problemas (ABP). In this work, the Portuguese nomenclature ABRP was adopted, since most of the literature used in the research was of Portuguese influence.

ABRP provides the development, by the students, of scientific reasoning and reflective action, based on scientific investigation (collecting data, finding evidence, proposing solutions, arguing, communicating the results, etc. (VASCONCELOS; ALMEIDA, 2012). Therefore, the methodology suggests the development of skills in communication, critical thinking, decision-making, self and hetero-assessment, among others, and not merely the construction of knowledge. And, in this context, the position of the teacher changes for learning advisor and the student becomes the center of the process, with an active role. The construction of knowledge involves the constant monitoring of the teacher with the student, in order to propose challenges and help them to attribute meaning to what they are doing.

ABRP seems to be favored by the essential characteristics of distance education, among which, the necessary autonomy, organization, critical spirit, communicative ability of the student, which deserves to be highlighted for the promising development of cognitive skills of communication, critical thinking, taking action. decisions, of self and hetero-evaluation. The implementation of this methodological approach in a distance learning course, immersed in the potential of digital communication and information technologies, is a challenging proposal.

The Pedagogical Intervention of this research was based on theoretical subsidies to provide a discussion of the problematic scenario. The subsidies were presented with multimodal materials related to the themes of distance education and school dropout. The course professors sought continuing education in the guidance of course completion works, in the form of distance education, which characterizes them primarily as course participants with academic and professional experience, with prior knowledge of the content and scenario of the final works of course.

The aim of the study was to analyze the potential of a pedagogical intervention with the application of the ABRP methodology, in the students' perception, in a distance learning course, implemented from problematic contexts of the daily life of course participants, distance education and school dropout, and using DICT, from the perspective of the subjects involved.

The study is of great relevance because it is an opportunity to deepen the application of the ABRP methodological approach, an active methodology that contrasts with the traditional teaching model, in a distance learning course, which can generate other interventions that include the experience.

2. Active Methodologies and Problem Solving

Active methodologies emerged as pedagogical models in contrast to the traditional teaching model, based on several theorists, including Freire (2009), Rogers (1973), Dewey (1950) and Novack (1999) (MORAN, 2015), who emphasize, for a long time, the importance of focusing on student learning. Active methodologies, therefore, are based on the teacher's mediating role in a teaching and learning process in which the student is at the center, in order to develop autonomy, questioning reality, teamwork, reflection and innovation (DIESEL; BALDEZ; MARTINS, 2017).

Learning presupposes relationships, social interactions between students and mediators. There is a sharing of knowledge, intentionally, oriented to the ability to learn. According to Vygotsky (1987), man's development must be understood from the perspective of interaction with the environment in which he is inserted, an approach brought by the theory that is known as socio-constructivism or socio-interactionism. The teaching-learning process, with its social and cultural structure, interconnects the psychological (cognitive) processes of the mediated (student) with the teacher (mediator). In this sense, learning is a process in which the individual has access to knowledge and information and appropriates them, starting to internalize them in their interaction processes with the environment in which they are or are participating (VYGOTSKY, 1987). It is more significant when we motivate students intimately, when they find meaning in the activities we propose, when we consult their deep motivations, when they engage in projects in which they bring contributions, when there is dialogue about the activities and how to carry them out (MORAN ; MASETTO; BEHRENS, 2013).

Thus, it is essential to adopt active learning methods that offer methodologies that encourage the student to research and discuss content, scenarios, themes, in a participatory and mediated way by the teacher. The teacher, who has more knowledge and experience, must guide, promote activities that motivate, involve and encourage students to learn from their peers, with the available instruments, based on their previous knowledge and life experience.

This is precisely the objective to be achieved with the use of active learning methodologies: the possibility of the student's involvement and interest, as well as the promotion of their active attitude in the learning process, by contributing to the construction of knowledge in a collaborative way and motivating, in addition to promoting autonomy, reflection and developing different skills such as intellectual, emotional, personal and communicational skills of students (MORAN, 2015),

2.1. Problem-Based Learning (ABRP)

Among the methods of active learning, there is Problem-Based Learning (ABRP), which assumes that students decide what they need to learn, research, select and synthesize information, oriented to the solution of a problematic situation. . While in traditional education, problems are presented by the teacher based on the content taught, in ABRP students are encouraged to formulate problematic questions from scenarios and contexts conceived by the teacher, as a mediator, and the content support will be developed from then. Students have to deepen their research and knowledge in order to resolve the issues. It is a model that excels in interaction, as students are organized into small groups in the search for finding meaningful solutions to real problems, experiencing future real-world issues in school in advance.

According to Ottz (2014), the proposal of the ABRP methodology adopts, as a principle, the student as an active subject in the construction of knowledge and the teacher as a mediator in this teaching-learning process. It also states that, working collaboratively in groups, students solve problems related to the context in which they live and develop skills related to group work and decision-making.

The application of the active methodology of ABRP permeates some stages of learning, guided by the studies by Coll, Mauri and Onrubia (2010) as concentrated on the identification and presentation of the problem, based on the information initially available; the generation of possible explanations, considering the initial knowledge and hypothetical solutions that will be investigated throughout the process; the rereading of knowledge about the problem and new statements about it; the expansion of the level of consensus among group members and the search for solutions to the problem and the sharing of results and sources of learning.

Similarly, Leite and Afonso (2001) suggest an organization of ABRP-oriented teaching in four phases: Selection, by the teacher, of the problematic context or scenario; Formulation of problems, by students, based on the scenario presented; the Solving of proposed problems, in which students implement the solving strategies and obtain solutions (if any) and evaluate them in the Synthesis and evaluation of the process.

ABRP is characterized by the focus of learning on the problems of real situations that do not have a single correct answer; students work the problem in heterogeneous groups, which facilitates learning through the existence of interaction, identifying gaps and developing viable solutions; students acquire new knowledge; develop problem solving skills; as problems are open, creativity is required to find the paths to be followed to solve them. But teachers are also challenged in adopting ABRP, since the problematic scenario to be built has to be able to motivate, provoke and lead to the formulation of questions whose answers allow the acquisition of cognitive, procedural and attitudinal skills.

2.2. Learning with Problem Solving in DE

Distance Education (DE) is a modality in which DICT are widely explored; in it, students and teachers are separated, physically or temporally. This type of education is carried out through the intense use of infor-

mation and communication technologies, which may or may not present in-person moments (MORAN, 2015). Passos (2018, p.16) corroborates the concept, as it characterizes distance education by a "spatial and temporal separation between teacher and students and also between students; the intensive use of instructional media to unite teacher and students and communication between teacher and students in a double way". Passos (2018) also indicates a fundamental difference in the teaching and learning process in distance education, which is the active and autonomous attitude of the student in their organization. Still, the student needs to assume some responsibilities, which in conventional education were attributed only to the teacher.

Anderson, Dron and Mattar (2012) contextualized distance education in three generations of pedagogy: cognitive-behaviorist, socio-constructivist and connectivist. Precisely because Socio-constructivist Pedagogy assumes that learners are actively engaged and interaction with colleagues is very effective in the teaching and learning process (ANDERSON; DRON; MATTAR, 2012) is the foundation of the second generation of distance education pedagogy that us interested in the approach of active teaching methodologies in the modality of distance education.

As society connects, uses virtual environments to access information and communication, formal education needs to explore these possibilities, focusing on the student and their participation in an active and transformative education, with the adoption of collaborative teaching models (MORAN, 2015). In this context of mediation between society and education, there is no place for traditional teaching methods, with a focus on the transmission of information by teachers, which justifies the adoption of teaching models that encourage and facilitate collaboration and interaction, and that the teacher communicates face to face with students, but also digitally, with mobile technologies, balancing interaction with each and every one (MORAN, 2015).

The teaching and learning process can be seen as the search for "[...] an autonomous, independent learning, in which the user becomes the subject of their own learning and the center of the entire system" (RIANO, 1997, p. 21). And in DE, it breaks with the concept of presence in the teaching and learning process and with the idea that the pedagogical act is centered on the teacher. This feature is quite relevant when considering the adoption of an active methodology with DE.

Online use of ABRP is relatively recent. For Caliman (2009), ABRP associated with new technologies creates opportunities for interaction and cooperative work, changing the approach to problems for an online approach, with advantages and disadvantages. Some advantages indicated by the author are the breadth and diversification of the profile of the actors involved in the learning process; computer-mediated communication, which allows for greater freedom of expression; participants react more assertively to the content of the communication. With the intention of developing autonomy, curiosity, decision making and providing collective and individual activities. [...] It is intended, with its application, to favor student autonomy, arouse curiosity and encourage individual and collective decision-making, arising from essential activities of social practice and in student contexts (CAMAS; BRITO, 2016) .

Therefore, the evaluation of the approach and the course participants is relevant, especially because it demands process and group evaluation, which is a challenge. In the research, diagnostic evaluation, self--assessment and hetero-assessment were adopted. Self-assessment is understood as the process by which the student himself reflects his/her own development, the activities developed by him/her, their perceptions, their progress and obstacles, their feelings and identifies future actions, changes and needs so that there is progress in learning. The diagnostic evaluation, to assess the group, aims to detect the concepts already acquired about the course content and is taken into account in the course's procedural (re)planning, with the teacher being able to redefine objectives, outline strategies and contents and determine other instruments evaluative. The diagnostic evaluation materializes what Vygotsky (1987, p. 94) called "[...] real developmental level, that is, the level of development of mental functions", that is, what we already know about a given object of knowledge.

Combining active learning methodologies with the virtual environment is what is intended. The adoption of active methodologies in distance education is far from the mere use of virtual space to reproduce the traditional teaching model. What is wanted is to advance towards processes of reflection, integration, re-elaboration of new teaching practices. It is the student at the center and the teacher in the tutoring, mediation, interaction of the teaching and learning process. The student gains autonomy, is the focus of the teaching and learning process, develops reflection and critical capacity in the face of real everyday problems.

3. Methodological Path and Intervention

The choice of a theoretical-methodological framework that collaborates with the unveiling of the possible issues and relationships to be established with the research question is something complex. With a qualitative approach, with a descriptive content, the applied nature of the project is aimed at the solution of a specific problem, that is, to what extent the adoption of the Problem-Based Learning approach, in a distance course, in the perception of the subjects involved, it contributes to the teaching-learning process. This research proposal consists of a qualitative investigation, as it considered the opinions, perceptions, representations, feelings and focuses on the view of the interviewees, in order to achieve the proposed objectives (GATTI, 2010) . For the production of data, participant observation, the field diary and the research questionnaire were applied, to monitor the interviewees' experience and their experience with the ABRP method.

Regarding data collection, semi-structured questionnaires were applied, using the Google Forms tool, as well as self- and hetero-assessment instruments, with a script of questions related to the course-taker's training, their perceptions and their pedagogical practices, activities aimed at distance education and its possible concerns. An initial questionnaire was applied to the students for profile purposes, in addition to forms about the ABRP's pedagogical approach. At the end, the evaluations were carried out. The questions in the questionnaires are opinion questions and were categorized into two blocks. The first block, referring to questions about ABRP, the respondent subjects from the perspective of students who attended the course based on this methodology. The second block, for the subjects to answer the questionnaire from the perspective of a teacher. It is important to clarify that all forms and questionnaires that were applied in the Course follow the assumptions of Vasconcelos and Almeida (2012) and were previously elaborated and validated in scientific research by Rocha (2016). In order to preserve the identity of the respondent course participants, fictitious names were created to indicate the authorship of the reports presented in the research. The open questions from the questionnaires and interviews were transcribed and organized in order to identify the relevant patterns and trends in the responses of the research participants. The organization into categories based on Content Analysis was intended, according to Bardin (2011).

It is understood that the use of these methodological paths and analysis tools allow for problematization and dialogue with the course participants and other subjects involved in the research in a horizontal and non-vertical way.

The research took place through the pedagogical intervention that was developed in the first semester of 2020, in a Training Course for Advisors of Final Course Conclusion in DE, offered entirely at distance, in a Public Education Institution, and lasted for five weeks. The virtual learning room was submitted to evaluation by specialists, in the intervention planning phase, for which a form developed in Google Forms was used. The evaluators were chosen for their expertise in the subject and received the invitation by e-mail, as well as the room link in the Virtual Learning Environment – VLE – Moodle. The evaluation of the adoption of the ABRP pedagogical approach, as well as the proposed scenario, was validated by 02 specialists in the field and the evaluation of the discipline by 02 specialists in distance education, with the indication of assistance regarding: scenario, contextualization, curricular contextualization, time for application, prerequisites and content, specific objectives, disciplinary articulations, concepts, survey of problem-questions, final product, data source, steps and steps, evaluation proposal, originality, clarity and intelligibility of the

proposal, as well as spaces for indications of changes, which were attended to before the implementation of the intervention. All suggestions for improving the practice were accepted. The perception of specialists in the area reflects that the intervention was well planned and structured regarding the ABRP and the virtual room. Some contributions regarding the evaluation criteria, as well as the evidence of strengths and weaknesses of the proposal and suggestions for changes were recorded in the reports of the evaluators. Such validation was essential for the critical and reflective analysis of teaching practice.

The chosen methodology was ABRP, which seems to be a teaching strategy with great potential, it develops ethical awareness and a critical spirit (LEITE; AFONSO, 2001). Unlike the traditional model, in which the concepts were introduced and then the problems, in ABRP-oriented teaching it is intended to confront students with the problems at the beginning of the process and lead them to search for concepts that solve the problem (LEITE; AFONSO, 2001). Thus, we sought to combine the potential of distance education in an approach that would stimulate the processing of information, the advancement of knowledge, in a collaborative way, on the part of the course participants, and realize to what extent the ABRP methodology would contribute to the formation of course participants, from the evaluation of the types of questions formulated in a proposed problematic scenario, that is, the scenario of school dropout in distance education at the time of elaboration of the final course completion work, as well as the evaluation of the final products elaborated and the study of the perception of the subjects involved. As a final product, it was proposed the development of a Mental Map about distance education and school dropout in the Final Course Work phase.

The contents and activities were presented in a multimodal way, being slides, texts, video and audios. The planning took place following the proposed course syllabus, as well as the phase orientation proposed by Leite and Afonso (2001), with the selection of the problematic context or scenario; Formulation of problems, by students, based on the scenario presented; Solving proposed problems, in which students implement solving strategies and obtain solutions (if any) and evaluate them; Synthesis and evaluation of the process.

The problematic scenario was presented to the course participants in the first section of the course, with the topic entitled: "To start the conversation… what about distance education in Brazil?". Materials were made available as theoretical support, such as Moodle books about the historical aspects and characteristics of DE, presentation of DE data in Brazil in higher education, 2019 School Census, articles about school dropout, as well as the approach to work end of course and the relationship between advisee and adviser. On that occasion, after accessing the material, the course participants were encouraged to participate in a discussion forum about their experiences in DE and to reflect on the role of supervisor of completion works in distance education courses.

The target audience of the research was formed by professors who work and/or seek to work with undergraduate and specialization courses in the distance education modality. This time, their profile is of students with minimal graduation training. There were 96 course participants, 75 of whom voluntarily participated in the questionnaires regarding perceptions of the application of the ABRP methodology, with a participation percentage of 78% (seventy-eight percent). Such subjects were previously informed about the importance, the objectives of the study and the activities proposed in the didactic intervention. At the same time, authorization was requested, by signing the Informed Consent Form (ICF).

4. Research Findings and Conversations with the Authors

The research findings were organized taking into account the phases of applying the methodology, proposed by Leite and Afonso (2001). The analysis of the perception of the course participants in relation to the adoption of the active methodology was based on responses to forms. It should be noted that 78% of course participants voluntarily participated in data collection, questionnaires, self and hetero-assessment,

which were carried out using the Google Forms tool. The link to the forms was made available to course participants and the responses obtained were analyzed from the report of the tool itself. Such participation demonstrates the representativeness of the research findings.

In a profile questionnaire applied at the beginning of the intervention, it was configured: average age of students, 50.5% in the range of 31 and 40 years; 73% with a master's or doctorate as the highest level of education; 52% with experience and working in the distance education modality and, of these, 67.4% with less than 2 years of experience; 42.1% of the students worked as a higher education teacher, 26.3% as a graduate teacher, 32.6% as a high school teacher and 20% as a technical course teacher. The majority of course participants (79%) claimed to have no experience with the application of active learning methodology in the context of distance education modality.

In the discussion of results regarding the selection of the problematic context or scenario, the application of the ABRP steps, the understanding and contextualization of the scenario "DE in Brazil and School Dropout", 72% of the course participants indicated that they had no difficulty and 26.7 % indicated little difficulty, with the suggested reference material having contributed. As for the data sources available for consultation, 86.6% of the course participants indicated that they had excellent or good contribution to the resolution of the problem-questions and construction of the final product of the course.

The lack of experience with active methodologies in the distance education modality can be confirmed by the moderate difficulty presented by 20% of the respondent course participants regarding the understanding of the steps of the ABRP methodology applied during the course, which was presented at the beginning of the course. Overcoming the difficulties by the students, however, took place through the encouragement of knowledge, their ability to understand, their view of the world, the encouragement of their integral development, corroborating the teachings of Caliman (2009).

Regarding the formulation of problems from the scenario presented, as well as when dealing with the resolution of the proposed problems, in which students implement the solving strategies and obtain solutions (if any) and evaluate them, it is relevant to present the developed educational products by the groups. The choice of maps presented below - Figures 1 to 3 - was made at random, seeking the representation of the groups by the problems raised, strategies and different proposals.
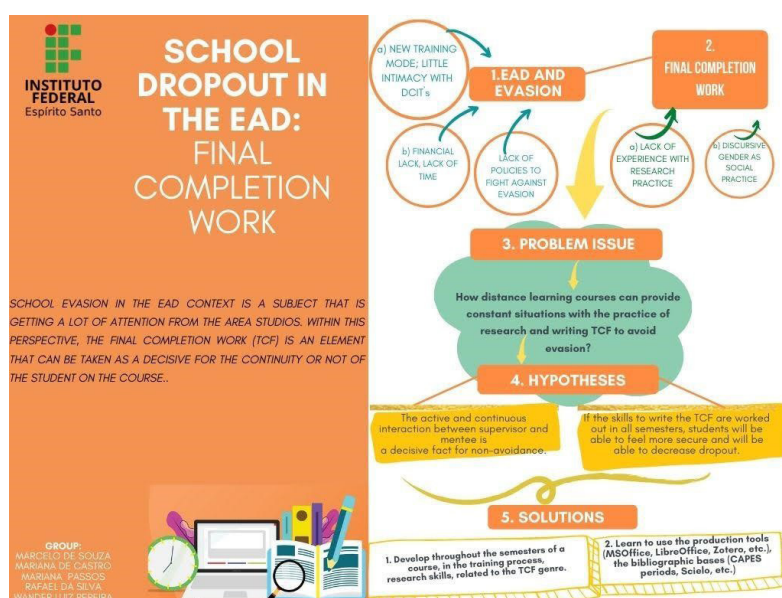

Figure 1: Group 4 mental map.
Source: Prepared by students from Group 4 of the Final Completion Work (TCF) Training Course
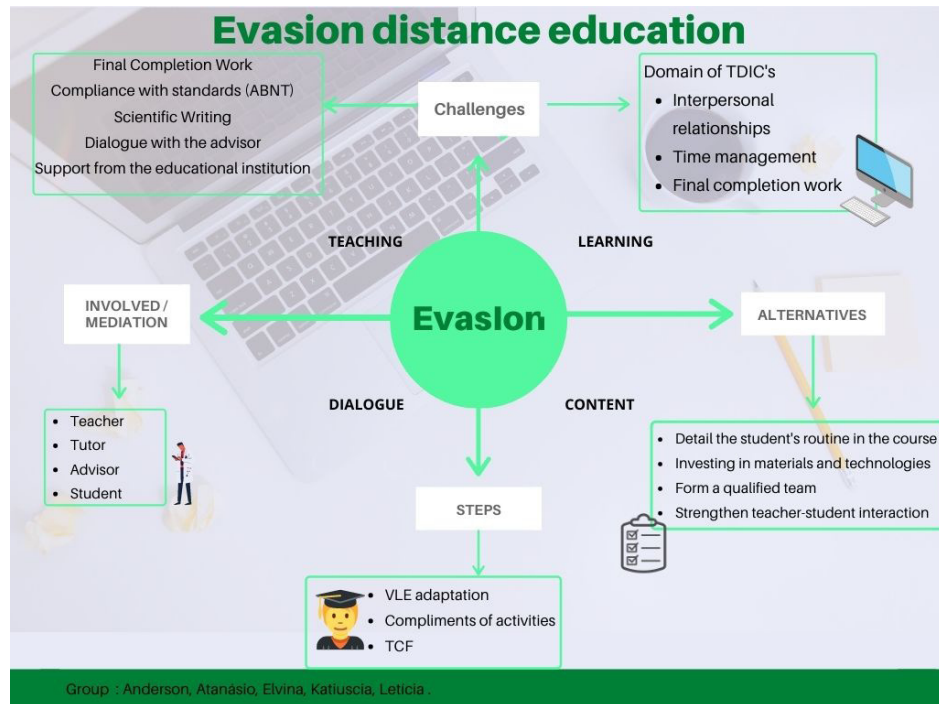
Figure 2: Group 7 mental map

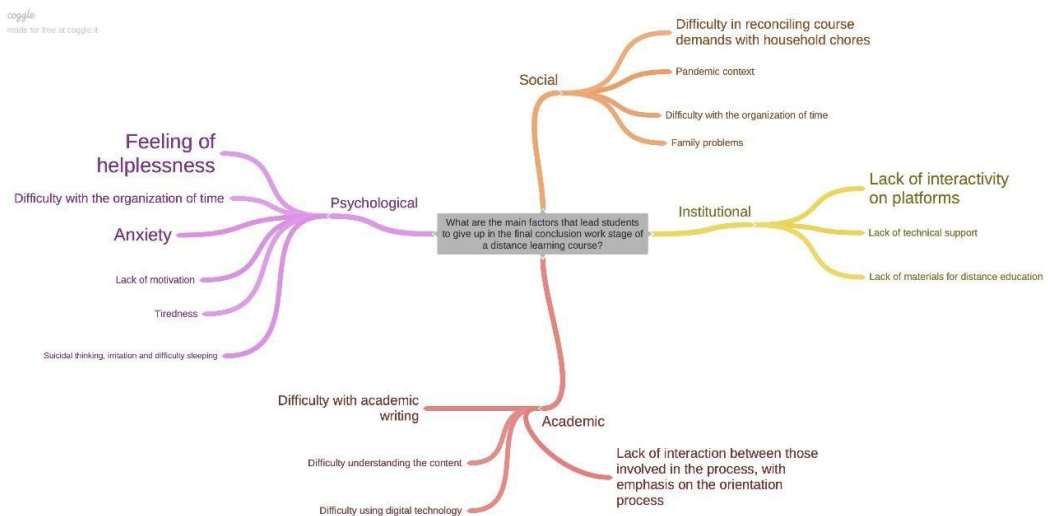**Source**: Prepared by students from Group 7 of the Final Completion Work (TCF) Training Course

Figure 3: Group 8 mental map

Source: Prepared by students from Group 8 of the Final Completion Work (TCF) Training Course

The educational products developed by the course participants presented completeness regarding the presented scenario, with the groups having formulated different problems, which were interrelated at various points, as well as proposed complementary solutions, which can be perceived by the teacher and first researcher as a satisfactory result. the adoption of the ABRP methodology along with the proposed scenario.

In the synthesis and evaluation phase of the process, course participants were asked to evaluate the activities proposed in the ABRP and the perception was positive regarding the application of the methodology in the distance learning course (76% of respondents considered them good and very good). Some reports also highlight the students' perception.:

Table 1: Course participants' reports about the intervention - general evaluation of the methodology.

Student, Collection Instrument	Report
Jair, evaluation questionnaire	I think the activities provided the development of the student's autonomy and interaction among colleagues in the course, providing greater learning.
Sandro, evaluation questionnaire	Learning through a problem is attractive and thought-provoking because we want to discover causes and possible solutions.

The research findings are covered by the theory that underlies this study and justify a greater depth in the application of active learning methodologies in DE, since teaching models that encourage and provide for collaboration and interaction (VALENTE, 2014) expand participation it activates and guides the student in his/her role as the center of the teaching and learning process (MORAN, 2015), in addition to configuring "learning from the interiorization of knowledge and the synthesis that favors personal re-elaboration" (MORAN; MASETTO; BEHRENS 2013) .

In the perception of 89% of students, the use of the ABRP methodology contributed to the understanding of the contents covered. The records dialogue with the findings of other authors, such as Moran (2015), Ottz (2014) and Bergmann and Sams (2016), for whom the active methodology contributes to the construction of knowledge in a collaborative and motivating way; works on the student's autonomy, reflection and develops different skills such as intellectual, emotional, personal and communicational; develops skills related to group work and decision-making and learning from experience, collaboration.

The research results and the theoretical framework of the work are also correlated, especially in Camas and Brito (2016) Diesel, Baldez and Martins (2017); and Moran (2007, 2015), for whom there is the potential to develop autonomy, criticality, decision making, teamwork, reflection and the mediating role of the teacher in a teaching and learning process with the student at the center. When the course participants were given the opportunity to point out the positive aspects of adopting the ABRP methodology in the course and, likewise, the negative points, they were observed:

Table 2: Course participants' reports about the intervention - positive points of ABRP.

Student, Collection Instrument	Report
Vinícius, questionannaire	Among the aspects that in my understanding are related to ABPR, which were developed throughout the course and which I can consider as positive are: the encouragement of debate, student autonomy, critical perspective in relation to the teaching object and student involvement in a way collective through group debates.
Francisco, questionnaire	Development of autonomy on the part of the student, as he/she should seek (research) information about a proposed scenario, establish questions, elaborate hypotheses and seek solutions to the problem. Another positive aspect is the favorable environment for the development of skills to work in groups (team). Knowing how to listen to colleagues, dialogue, argue, be proactive, work collaboratively in order to solve the problem.

Of the respondents, 63% did not indicate negative aspects of applying ABRP in the course. Others indicated points that can be concentrated on the reasons reported below.

Table 3: Course participants' reports about the intervention - negative points of the ABRP.

Student, Collection Instrument	Report
Júnior, evaluation questionnaire	Little time to develop a satisfactory discussion and prepare the final work. In addition, like all group work, not all components make a satisfactory effort, limiting the power of the applied methodology.
Clara, evaluation questionnaire	The methodology requires an intense exercise in synthesizing ideas, which for many is not an easy exercise; it demands a lot of consensus, which can sometimes also be harmful, as a good idea can be discarded so that the will of a more dominant member prevails; in addition to requiring synergy from the teams, which can sometimes be difficult to achieve due to the distance, in the case of the DE modality.

As for the adoption of self-assessment and hetero-assessment to verify the learning and individual contribution of students to groups, 50.7% considered it important and 42.7% very important, with some written records being listed that contribute to the understanding of the reasons indicated.

The assessment of learning in the context of the active methodology of ABRP presupposes necessary changes given the differences already explained in the teachings of Moran (2007, 2015). Formal education needs to explore the possibilities of these new environments, focusing on the student and their active and transforming participation, with the adoption of collaborative teaching models and available instruments, based on their previous knowledge and life experience.

The research findings show how positive was the perception of the majority of students taking the course. 58% of the course participants realized that the ABRP methodology often allowed for an improvement in their critical thinking in the development of the course. 50.7% of the course participants stated that they often improved their argumentation skills with the adoption of the ABRP methodology in the course. 69% of respondents stated that they frequently or sometimes noticed an improvement in their communication skills due to the adoption of the ABRP methodology in the course. 66% of students performed good teamwork with the active ABRP methodology in the course. Almost half of the students realized that the ABRP methodology facilitated learning in the course and 58% understood that the methodology allowed for their active role in the teaching and learning process.

The active methodology of ABRP promoted protagonism and autonomy for the student to carry out activities, solve problems, develop educational products, reflect, analyze, discuss with colleagues and with the teacher and, at the end, present the final product, mental maps.

5. After all, where are we with Research?

The application of the intervention in a distance learning course sought the students' perception of the teaching and learning process, with the adoption of the Problem-Solving Based Learning methodology, implemented from problematic contexts of the daily life of the course participants and with the DICT resource.

With the choice of the ABRP methodology, it was intended that the course-takers would follow their own learning path, with the mediation of the teacher, so that they would be able to find ways to solve the issues involving the modality of distance education, especially regarding the orientation work of course completion work, and do it in a group, which allows you to experience the depth of relationships and learning.

From the theoretical approach studied, as well as from the analysis and discussions regarding the research results, it was concluded that the perception of the course students regarding the application of the active methodology of the ABRP, implemented from problematic contexts of the daily life of the course

participants, was positive. and with the resource of the DICT, in the Training Course for Work Advisors of Final Conclusion in Distance Learning Courses, in the distance modality, especially regarding the active role of the student in the teaching and learning process, interaction, teamwork, communication skills, ability to argue, deepening the content. As for the negative points presented, the intention is to expand the groups' discussion opportunities, with the inclusion of workload in a later course offering, as well as to stimulate the development of synchronous moments beyond the mandatory ones.

It was possible, with the study, to reach the proposed objectives, among which those of characterizing the profile of the multiple subjects who act as advisors of final works of courses in the distance education modality; that of knowing the perception of the course participants regarding the approach of ABRP in the course and bringing together the educational products generated by the course participants, with the solution of problems arising from the scenario of school dropout in DE.

The study brought contributions to the pedagogical practice of active methodologies in a distance learning course, which should be further explored in future studies.

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