LEARNING ASSESSMENT AS A PEDAGOGICAL MEDIATION IN CONCEPTUAL EDUCATION OF UNIVERSITY STUDENTS

AVALIAÇÃO DA APRENDIZAGEM COMO MEDIAÇÃO PEDAGÓGICA NA FORMAÇÃO CONCEITUAL DE UNIVERSITÁRIOS

EVALUACIÓN DEL APRENDIZAJE COMO MEDIACIÓN PEDAGÓGICA EN LA EDUCACIÓN CONCEPTUAL DE ESTUDIANTES UNIVERSITARIOS

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ABSTRACT: This study aimed to analyze how an assessment practice can contribute as a pedagogical mediation in the concept formation of university students in a teacher training course. This is qualitative research, with exploratory-explanatory approach, which focused on conducting a test based on the distributed cognition theory principles. The survey data were obtained from the following instruments: participant observation, document analysis and a questionnaire. The data reveal that the test suited as a pedagogical mediation as it highlighted the following categories: collaborative participation, interaction, intellectual partnership, and artifacts. In addition, it overcame the individualistic and isolated idea to provide more humanized experiences by affording opportunities for exchanges, dialogues, discussion, confrontations, mutual help, and support for cognitive processes regarding concept understanding, while providing teacher conditions to intervene in their students' zone of proximal development.

KEYWORDS: Learning assessment. Concept formation. Pedagogical mediation. Distributed cognition.

RESUMO: *Este estudo teve como objetivo analisar em que medida uma prática avaliativa pode contribuir como mediação pedagógica na formação conceitual de estudantes universitários em um curso de formação de professores. Trata-se de uma pesquisa qualitativa, de caráter exploratório-explicativo, que focalizou a realização de uma prova fundamentada nos pressupostos da teoria da cognição distribuída. Os dados da pesquisa foram obtidos a partir dos seguintes instrumentos: observação participante, análise documental e um questionário. Os dados revelam que a prova serviu como mediação pedagógica na medida em que evidenciou as seguintes categorias: participação colaborativa, interação, parceria*

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intelectual e artefatos. Além disso, superou a ideia individualista e isolada para oportunizar experiências mais humanizadas ao propor situações de trocas, diálogos, debates, confrontos, ajuda mútua e apoio aos processos cognitivos no tocante à compreensão conceitual, ao mesmo tempo que ofertou ao professor condições para intervir na zona de desenvolvimento iminente de seus alunos.

***PALAVRAS-CHAVE**: Avaliação da aprendizagem. Formação de conceitos. Mediação pedagógica. Cognição distribuída.*

***RESUMEN**: Este estudio tiene como objetivo analizar en qué medida una práctica evaluativa puede contribuir como mediación pedagógica en la formación conceptual de estudiantes universitarios en un curso de formación docente. Se trata de una investigación cualitativa, exploratoria-explicativa, que se enfocó en realizar una prueba basada en los principios de la teoría de la cognición distribuida. Los datos de la investigación se obtuvieron de los siguientes instrumentos: observación participante, análisis documental y cuestionario. Los datos revelan que la prueba sirvió como mediación pedagógica, ya que evidenció las siguientes categorías: participación colaborativa, interacción, asociación intelectual y artefactos. Además, superó la idea individualista y aislada para proporcionar experiencias más humanizadas al posibilitar situaciones de intercambios, diálogos, debates, confrontaciones, ayuda mutua y apoyo a los procesos cognitivos en torno a la comprensión conceptual, mientras ofreció al docente las condiciones para intervenir en la zona de desarrollo inminente de sus alumnos.*

***PALABRAS CLAVE**: Evaluación del aprendizaje. Formación de conceptos. Mediación pedagógica. Cognición distribuida.*

Introduction

The evaluation practice continues to be one of the most controversial activities in the educational context because it always causes doubts, uncertainties and instabilities, both for the teacher, who does not know exactly how the students will react to the proposals, and for the students, who often do not know if they are or are not meeting the expectations of their educators.

Despite being a constant action in the pedagogical context and the numerous studies in the area over the last decades, evaluation has advanced little beyond individualized and classifying practices at all schooling levels. This is because, most of the times, they cannot disconnect the evaluation from its social and classifying character, which only values the acts of verification, punishment, and charging, forgetting its pedagogical, humanizing value and other possibilities that the evaluation can offer to the subjects of the educational process.

Facing this scenario, we believe it is necessary to propose practices that seek to break the established evaluation paradigms and constitute new pedagogical agendas, capable of providing opportunities for the teacher to teach and, for the students, different learning

experiences. Thus, this study aims to analyze to what extent an evaluation practice can contribute as pedagogical mediation in the conceptual formation of college students in a teacher-training course. The theory of distributed cognition was selected as the guiding basis for the development of the study.

Evaluative practice that provides an opportunity for pedagogical mediation in conceptual formation

Learning evaluation continues to be culturally understood as a static action that serves to assess and give a final verdict on the subject's abilities or incapacities, consolidating itself into bureaucratic actions that value the product and not the process, contributing little to pedagogical changes. In addition, it reveals a distancing and a dissociation between the teaching and learning processes and the evaluation itself. According to Roldão and Ferro (2015, p. 578), we need to "[...] deconstruct the most current evaluative practices, which dissociate the evaluation from the teaching process, which subsume the evaluation in the certifying dimension, with the omnipresence of the grade-note".

Understanding assessment beyond the verification of learning and individualized activity advances in relation to the aspects instituted to this practice in the educational context and allows subjects to experience meaningful and more humanized experiences.

Hoffmann (2009) defends the mediating evaluation proposal, which proposes that the teacher pays more attention and seeks to better understand the student, proposing more challenging questions that can ensure greater student autonomy and not only a certifying grade. The author emphasizes group work, but stresses that the evaluation activities must be done individually so that the teacher can observe and follow the process followed by the student individually.

On the other hand, Karasavvidis (2002) states that the evaluation processes practiced in the classroom seek to innovate by proposing activities such as problem solving or execution of tasks, however, they are still practiced in an isolated and punctual way, indicating the notion of cognition only in the head of the subject and not as a collective construction.

For the theory of distributed cognition, such practice needs to be overcome by collective experiences with the support of people and the different instruments available, which become mediating elements of the cognitive process. Researchers who defend this theory (KARASAVVIDIS, 2002; SALOMON *et al*., 1993) seek subsidies in the Vygotskian bases to

argue that mental processes are constituted from the mediation of collective cultural actions, interactions and the use of artifacts[4] in their practices.

For Vygotsky (2003), mediation occurs by means of signs or tools, the first orienting inward, serving as an auxiliary means to act in the psychological function. The second orientates outward and occurs when tools mediate human actions. In the words of Daniels (2011, p. 15), the "[...] mediating elements serve as the means by which the individual exerts action on, and suffers action from, social, cultural, and historical factors in the course of ongoing human activity." Thus, the other 'intermental' actions, such as interaction, collaboration, negotiation, language, and context itself are mediating resources of cognitive activities that become 'intramental' from the relationships that are established.

Mediation causes transformations, aims at the development of subjects and plays a crucial role in the process of distribution of cognition; however, it depends on working with different types of activities and various strategies (COLE; ENGESTRÕM, 1993). Werstch and Tulviste (2013) point out that mediation does not facilitate learning, but its effect is in making it qualitatively different, depending on how the subjects will use it to conduct their actions.

To this end, the different moments of the educational process should be designed to foster the zone of imminent development and assume an essentially dialogical stance (BROWN et al., 1993) and not individualized, in which the activities, of an evaluative nature or not, are performed in a mediated and interactive way in small or large groups, or sometimes by some artifact, in which each participant assumes part of the commitment to achieve the common goal.

Thus, when conceiving that learning occurs through a mediation process, it is understood that assessment is also a mediating activity, capable of serving as "[...] a favorable tool for interactions, as it is seen as a system of exchanges; of visualization of the bonds that are created from it, constituting a moment of study by all involved" (PINTO, 2016, p. 68) and of experiences that help the subject evaluated to understand his mistakes and successes, expanding the conceptual formation.

[4] Artifacts are classified into three levels: the primary, which refers to material instruments, understood as tools created to use in the production process, the secondary, considered an abstract representation of the primary artifacts and refers to the type of action that is performed using them, and the tertiary, which refers to the imaginary world (COLE, 1998).

Methodology

This study, of qualitative approach and exploratory-explanatory character (GIL, 2002), sought to analyze to what extent an evaluative practice can contribute as pedagogical mediation in the conceptual formation of college students in a teacher education course.

The analyzed evaluative practice is constituted as a didactic intervention with a first year class of the Pedagogy course of a public university, composed by 41 students, during a two-month term in a graduation course, having as a guiding proposal the realization of a didactic intervention based on the theory of distributed cognition to work on the concepts of the discipline and, as an assumption, the understanding that learning is not individual, but social, built through mediation, dialogue and collaborative participation of the subjects involved in different experiences.

To assess learning, the following activities were carried out: production of concept maps, tests, self-evaluation, and text production. Among the evaluative instruments, in this study the test was chosen as an object of analysis, precisely because it is still understood and used in the academic environment as an element of selection that only imprints the momentary and punctual learning of the student, with little chance of providing conceptual expansions, collective learning, and more humanized experiences.

The performance of the test consisted of three moments: preparing a text to answer a question with established criteria; exchanging proofs to read and appreciate your classmate's production; reworking your answer based on the analysis received. This involved situations in which students could engage in dialogue with the teacher and classmates, exchange ideas, consult various sources such as texts, notebooks, Facebook social network group, and others. The only rule established was that the answers should be composed of ideas produced and not copied.

The following tables present the question to be developed in the exam and the list of indicators for your appreciation.

Chart 1 – Test proposal

Kenski (2012) states that technologies are essential, while the author Sancho (1998) highlights that technologies are permeated by ambivalence. Thus, based on the texts by the two authors, on the discussions in class and in the Facebook group, write a text to answer the following question: **WHAT ARE TECHNOLOGIES, WHY ARE THEY SO ESSENTIAL AND AMBIVALENT AT THE SAME TIME, AND WHAT IS THEIR RELATIONSHIP TO THE HISTORICAL AND CULTURAL PROCESS?** **CRITERIA:** the text should present what the word technology means, where it is present, the ambivalences, the presence and role of technologies in society, the transformations in society and culture from technologies (all items should be explained and exemplified).

Source: Prepared by the authors (2019)

Chart 2 – Criteria for test assessment

Criteria:	Examiner observation:
Did you answer what and where technology is and provide examples?	
Explained the history and evolution of technology?	
Explained what the ambivalences of technology are and gave examples?	
Did you write about the presence and role of technologies in society?	
Did you present the transformations in society in culture from technologies and give examples?	

Source: Prepared by the authors (2019)

The theory of distributed cognition was selected as a unit of analysis because it considers that cognition is not in the individual head, but focuses on the mental processes that occur from the mediation and interaction between subjects, between them and the context and with the technological devices in the performance of a particular activity or even in the production of knowledge that involves collective actions, collaborative participation and various situations of mediation.

The participant observation (MINAYO, 2001) during the test, a questionnaire with open and closed questions, answered by the students after the test, and the documental analysis of the evaluation forms and the tests restructured based on the comments of the colleagues were the instruments to collect the data.

The data analysis was based, in the first moment, on the 'scenes' arising from the observation, searching for evidence of mediation from categories present in the theory of distributed cognition, which are: collaborative participation, interaction, intellectual partnership, and artifacts, and, in the second moment, on the data collected from the questionnaire and the reworked tests. After the data analysis we proceeded to triangulation to answer the objective. Triangulation is one way to ensure the validity of the research by

combining and colliding various sources and instruments, considering the meanings of the historical and cultural context in which the research takes place. This phase aims to "[...] encompass the maximum breadth in the description, explanation, and understanding of the focus under study" (TRIVIÑOS, 1990, p. 138).

Results and discussions

First moment: performance of the test

The test, as an evaluative activity, is culturally constituted as a fragmented moment of the educational process, in which the seriousness, the individuality and the "settling of scores" predominate, serving more to ascertain results in relation to the amount of mistakes and successes than to enable experiences and expansion of learning and cognitive processes.

Thus, in an attempt to go against this institutionalized pedagogical format, the didactic intervention in which the test analyzed occurred proposed another way to carry out this evaluative practice. This was composed of three moments that will be described and analyzed.

On the day of the test, the teacher began the class explaining that the students could talk, exchange knowledge, ask for help from other classmates and the teacher, and could use different artifacts to help in the elaboration of their thoughts. At this moment, as expected, we noticed an attitude of passivity explicit in the students' behavior towards the proposal. They sat in their seats, took the texts, started to read and write, quietly, as if they were taking a 'test with consultation', with the printed text as the only mediating element.

With this attitude the students showed that they are conditioned to have a specific behavior when it comes to 'taking a test', because they understand that this moment should be constituted as an individual activity, as if it were time to prove what they know, and not as another opportunity to learn or expand cognitive functions.

After further guidance by the teacher, some groups were formed and the students began to exchange ideas and discuss the indicators of the question. Others sat next to a classmate and talked in pairs. We noticed that few students (about four) chose not to sit next to anyone to exchange information, only calling the teacher when they felt the need. After the teacher insisted for them to dialogue and interact, it was possible to notice signs of mediation in the scenes resulting from the test.

Collaborative Participation

From the perspective of distributed cognition theory, this form of mediation refers to the exchanges, dialogue, and contributions between subjects during work to achieve goals, which can serve as support for those who need it to be able to advance toward more complex conceptual understandings. One student asked:

- *Teacher, what really is ambivalence?* (Student 19).

The question caused some astonishment, as this concept was much discussed and worked on during the classes. However, it was only possible to realize that some students had not really learned it at the time of the test. Doubts regarding the meaning of other concepts also arose and were expressed by the young people.

This scene makes evident how complex conceptual formation is, because it is a process that does not occur in a direct and simple way, but requires an effort and a more intense mental activity. Sforni (2004, p. 85) explains that "[...] the conceptual domain goes beyond the understanding of the meaning present in the word, and imposes as a condition for its appropriation the psychic activity that internalizes the material and external activity, determinants of the concept", that is, it requires mediation so that the process of conceptual appropriation occurs.

Faced with these questions, the teacher tried to establish dialogues and problematize these concepts so that the students could reorganize and rework their ideas, assuming the role of the more experienced peer.

The information manifested by the students about their learning is the basis to identify advances and difficulties and also to make necessary interventions in the zone of imminent development, aiming that these become zone of real development and that the students reach higher levels of thought (VIGOTSKI, 2005).

Thus, we consider that the test provided an opportune moment for the students to evaluate themselves and to realize that they still did not have ownership regarding concepts they thought they had understood during the classes, and for the teacher to be able to intervene in the student's learning. We understand that this is the role of the teacher who, with more experience and knowledge, accompanies, guides, and directs the students' work, favoring interaction, exchanges, dialogue, and partnership, based on didactic interventions that allow the construction of new 'scaffolding' (BROWN et al., 1993), overcoming classes in the 'bargaining

chip' format, in which the teacher teaches, the student learns, and gives everything back to the teacher at the time of the test.

Another scene observed was that of some students manifesting the need for confirmation about their productions. By understanding that the student needed some help, the teacher started to give immediate feedback on what they were writing, or sat next to the students to talk to them, not in the sense of saying whether they were right or wrong, but to guide and help them find their way.

According to Fernandes (2008, p. 356), feedback is important "[...] to activate students' cognitive and metacognitive processes, which in turn regulate and control learning processes, as well as to improve their motivation and self-esteem." As part of the evaluative process, feedback should enable the student "[...] important information about what he has already learned and the actual conditions of his learning, as well as the paths he needs to take to overcome difficulties and advance in this process" (MORAES, 2014, p. 276).

The two scenes made us understand that if it were a test formatted in the instituted molds, there would be little chance to perceive the real needs of students and make the necessary mediation in the process of conceptual appropriation. These two scenes express evidence of mediation based on collaborative participation, put into practice based on the needs expressed by the students. Pea (1993) explains that the mediation of other people in the performance of an activity can serve as a cognitive alternative to solve a problem and to learn, fundamental elements in the educational process.

Intellectual Partnership and Interaction

In the groups, the students began to interact through debates, confrontations, and sharing of ideas about the test subject. They also helped each other, evidencing the occurrence of mediation through interaction and intellectual partnership.

The mediation through intellectual partnership occurs when there is a cooperative attitude, in the sense of taking responsibility for oneself and also for the other, helping him in his needs, in which the subject helps the other in the development of thought, in the construction of new knowledge and in the performance of tasks that would not be possible only with the effort of the human being alone. According to Salomon (1993, p. 112), "the product of intellectual partnership that results from the distribution of cognitions between individuals or between individuals and cultural artifacts is an articulation between all subjects; it cannot be attributed solely to one or the other partner". In the mediation that occurs through interaction,

the subjects share their experiences and knowledge and receive the contributions of the other members, affecting each other reciprocally.

Some excerpts from the dialogues witnessed in the groups show the forms of mediation highlighted:

Group 1:

> *Girls, does anyone want to explain what they mean by technology? (Student 10).*
>
> *- For me, technology is everything around us (Student 37).*
>
> *- Be careful with this, remember that we can't say that it is everything, we have to explain what this everything is, it is everything that is artificial, that was modified (Student 33).*
>
> *- It is everything that man created to meet his needs (Pupil 19).*
>
> *- That, since the wheel the world has been becoming more technological (Student 41).*

Group 2:

> *Guys, you can't forget that you have the technical and scientific knowledge (Student 02).*
>
> *- Yes, and there is the issue of power, remember the first text, whoever has technology has power (Student 27).*

Group 3:

> *- - Technology means the power of technique (Student 14).*
>
> *- You can't say it means the power of technique. I understand technology as a planned intervention in order to create or build something and they are not only digital (Student 19).*

These scenes reveal the need that students have to seek support from a colleague or teacher to mediate their thinking and how a moment like this can enable evaluation and mediation of the cognitive process, which will result in conceptual formation. The scenes described here also reveal that learning is not individual, but social and collective, and will stimulate internal developmental processes when it is mediated (VIGOTSKI, 2003).

Another important aspect is that the mediation that occurs through the interaction and intellectual partnership of each subject will affect and also be affected by the contributions of peers, thus changing their mental processes and their possibilities of conceptual expansion. In this sense, Herrero and Brown (2010, p. 255) point out that one of the main goals of the school is to promote interaction and mediation in different learning situations, because "[...] people

learn, change, and develop based on the opportunities that others create for them in their environment."

Artifacts

Other scenes observed allowed us to perceive mediation through various artifacts, as in the group of students who chose to consult the texts and talk as they felt the need. Some students chose to use the computer to consult the text produced on Google drive and the notebook with the class notes.

For Cole and Engestrom (1993), by mediating the activities of human beings, the artifacts imply in the ways in which the distribution of the subjects' knowledge occurs, constituting a fundamental characteristic of the higher psychological processes.

One scene that caught our attention was to see some students looking for information and explanations about the concepts on the closed group page they had on Facebook and on the text produced on Google drive. When we asked why they did that, we got the following answers:

> *- I found the conversation on Facebook very interesting, so I think it is easier to understand than the way it is in the theoretical text (Student 27).*
>
> *- The text we did on the drive is explaining what technology means and that helps me to write here (Student 13).*

In view of the above, we understand that the artifacts also served as auxiliary tools for learning, at least for these students. Regarding the role of artifacts as mediators, Pea (1993) states that we live in an environment constituted by them and that the practices of use make them guide human actions, forming an activity structure.

Such attitudes are in line with what is proposed by the theory of distributed cognition when it argues that artifacts serve as support for our cognition, not in the sense of being extensions of memory, but as mediators of activities that lead to the complexification of thought.

Second moment: exchange the tests for reading and appreciating the colleague's production

The second moment of the test consisted in the exchange between pairs. To do this exercise, it was suggested to read the text of the peer and a sheet of indicators so that students could give each other feedback to help each other understand mistakes and failures, confirm the quality of the answers, or even guide the peer in what needed to be reworked. Here, the peer feedback had the role of mediator.

The peer evaluation is an exercise in the evaluative process favorable to the correction and understanding of errors, because by reading the colleague's productions and answers, the subject is able not only to help the other person in the reorganization of ideas, but also to evaluate his own work, think about what he did or did not do, what he learned or what he still needs to learn (SANMARTÍ, 2009).

The scenes observed at this moment revealed that some students performed the exercise calmly, but others did not feel comfortable, because they reported not feeling able to evaluate their classmate's production. It was then that they were told to be calm, that they did not need to identify themselves and that there was no quantitative mention (grade). Moreover, after receiving the form, each person was free to make or not the suggested changes. To finish the work, the students were free to choose whether or not to rewrite the text based on their classmate's observations and hand it in to the teacher in the next class.

The analysis that can be concluded from this moment is that young people are not used to this practice and everything new causes a certain discomfort and, because it is not a constant practice, it may not bring the contributions that are expected. In the analysis of the forms that served as guidelines for the students to evaluate their classmates' texts, we found that, of the 41 students, only 12 expressed comments to help their classmates to reformulate the text. This shows that the conceptions of evaluation are still based on individualized and verification formats, to the detriment of the understanding of the evaluation process as a moment of learning and mutual collaboration.

An important factor identified in the sheets evaluated was the respectful relationship with the work of the other, and also the presence of suggestions favorable to the improvement of the work. The following is an excerpt:

> *- Your text is excellent, but it has too many examples and there are also words that are repeated in the same sentence, which makes it a bit repetitive and even confusing. Just be careful with the number of examples so that the text is not too heavy. But all the questions were successfully addressed (Student 21).*

The comments portray an analysis performed before the established criteria to help the colleague in directing what was missing in the text. Thus, peer evaluation is understood as an effective strategy in the process of knowledge construction, because "[...] when one examines other works, one not only identifies their inconsistencies, but also better recognizes one's own" (SANMARTÍ, 2009, p. 66).

Thus, even though the experience was not positive for some of the students, we understand that it achieved its purposes in some aspects. For example, if we think from the point of view of future teachers' training, this is an activity that provides students with a broader understanding and new experiences related to the evaluation process. As students, the experience could help them reorganize their ideas, weaken their learning and rethink about how to prepare a text or an answer, because "[...] the ultimate goal of these aids is to make each student able to self-regulate autonomously" (SANMARTÍ, 2009, p. 67).

Third moment: rework your answer from the analysis received

To conclude, we analyzed the proofs restructured by the students from the comments of their peers. Of the 41 students, only 14 made this option. At first, we thought that the rate was small, but when we talked to some students, they reported that the dialogues, the exchanges, and the other opportunities to rework their thoughts during the exam were enough to answer the question, and it was not necessary to restructure it.

When analyzing the proofs of the 14 students, we noticed that five rewrote the text and that nine restructured it, expanding and complementing the ideas. Here we also find this small number, however, we need to consider that the students are not used to this practice regarding evaluation, and that they would need more experiences to overcome certain paradigms.

What happens very often is the ritual of a graded test in which, first, it is answered, then corrected by the teacher and handed out to the students. Upon receiving it, the student looks at the grade and what he or she got wrong, without the commitment to try to overcome the flaws identified or even understand the reasons for certain mistakes. However, unlike a traditional test, in which students just answer the questions without confronting anyone or making themselves available to the other, this proposal was opportune to help in the understanding of what was still fragile and to advance in the appropriation of concepts.

At the end of the process, with the purpose of obtaining more concrete data about the students' perceptions, we asked them to express, through a questionnaire, their impressions about the test. The answers were organized into categories: significant, with 65.90%, complex,

with 22.73%, and different, with 11.37% frequency. These data refer to the number of arguments, not of participants.

The 'significant' category, more expressive among the students, considers that the test allowed learning, interaction and exchange of information with colleagues. In addition, it allowed the students to expose the understood knowledge, and stimulated reasoning and reflection. For this group, the test was simple, constructive, and easy to understand. Pinto (2016, p. 119) understands that "[...] any assessment instrument is valid, including tests, as long as the questions are not mechanical, empty, meaningless, and have objectives of contributing to learning, with the mediations of this learning".

The following is an excerpt that illustrates the students' views:

> *- I had never had an assessment like that. I hope that evaluations like this one always happen during my academic life, because it really extracted our knowledge acquired in the classroom and through the texts (Student 29).*

For assessment to become an element that contributes to conceptual formation in a meaningful way, its function must go beyond noting, verifying, measuring learning and confirming it with grades, but must enable learning experiences. Only then can it help the teacher and students map the real difficulties and needs, the weaknesses or certainties of their learning, verify the unmet goals and thus propose the best interventions to help students move forward in the process.

Fernandes (2009, p. 40) points out that the way to proceed and organize the assessment process can bring different and varied consequences, such as "[...] motivate or demotivate students, constitute important levers to overcome obstacles or be, themselves, another obstacle to overcome, can help students to study and understand well their limitations and potentialities".

The category 'complex', with 22.73% frequency, expresses that the lived experience was not bad, but difficult, complicated, extensive and stressful. Some excerpts about the students' opinions:

> *- I found the test very stressful, a little long and complicated, but it only covered the content very well studied in class and outside of it (Student 18).*

> *- It was reasonably difficult and very complicated to take (Student 23).*

The test caused some discomfort in students because they are used to institutionalized standards and do not know very well how to deal with situations that lead them to other experiences. According to Fernandes (2008, p. 350-351), "[...] the construction of an evaluation theory in the field of students' learning requires an effort of systematization, clarification,

identification and understanding of its essential elements and the relationships between them". This leads us to conclude that students need to experience a variety of situations, in which they can exchange knowledge and help each other, in order to understand assessment as a mediating activity in the formative process.

Another category evidenced considers the test as 'different', with 11.37% frequency. For the students it was a new experience, never experienced before, and for this reason it generated discomfort, insecurity, and a certain uneasiness, but at the same time it allowed them to learn. The following is an excerpt from a student:

> *- What we don't know causes strangeness, but every new activity is welcome, everything that can broaden our knowledge is good. It was completely different, with a proposal to really reflect and learn from it, not just do it because of the grade. But to learn through it (Student 39).*

The opportunity to live a differentiated experience in relation to evaluation is an important aspect in the process of teacher education, even if it causes strangeness. Thus, they will be able to understand that evaluation also "[...] acts in partnership, without losing the rigor and seriousness that the activity imposes. On the contrary, evaluation becomes more demanding, because it becomes transparent" (VILLAS BOAS, 2008, p. 116-117).

In order to evaluate the second part of the test, we also asked the students to express their opinions about the task of evaluating their classmate's test. In this activity the opinions were divided, 50.63% of the students considered the experience positive and 47.37% negative. For those who considered the task positive, the reasons that led them to this conclusion were: knowing what their colleague thinks about the concept, realizing that the other has a different thought, improving their understanding of the subject from what the other presents, and learning more. Some excerpts from this category:

> *- It was interesting because I had the opportunity to see the same subject in another way (Student 05).*

> *- It was the experience of learning from colleagues' and our own mistakes. And also to see other important points that we did not observe in our own (Student 15).*

The 47.37% of students who considered the experience negative judged the task of peer evaluation as complex and of great responsibility. For them, it generated doubts, discomfort and insecurity. Some excerpts of what the students think:

> *- I didn't feel very comfortable, because I don't think I was fully capable of doing that. So, I was afraid of being unfair or asking for reformulation of something that was already satisfactory (Student 16).*
>
> *- Not a very pleasant feeling, because it is strange to evaluate a colleague's test if you are not even sure that yours is right (Student 31).*

Given the data presented, we realize that this second proposal partially achieved its purposes. We can assume that, because they had not had this experience before, the students were surprised, and this generated some instability, as the students themselves stated. Thus, we understand that it is necessary to provide other moments in which they can experience different situations, perhaps not exactly on the day of the exam.

Final considerations

This study sought to analyze to what extent an evaluative practice can contribute as pedagogical mediation in the conceptual formation of college students in a teacher training course. By comparing the data collected and analyzed in the observations, the document analysis, and the questionnaire, it was possible to infer that the test served as pedagogical mediation insofar as it evidenced the following categories of the theory of distributed cognition: collaborative participation, interaction, intellectual partnership, and artifacts. Moreover, the form of the didactic intervention favored the overcoming of the individualistic and isolated idea of evaluation by providing the opportunity for situations of exchange, dialogues, debates, confrontations, mutual help, and support of cognitive processes in terms of understanding and conceptual formation, while providing the teacher with conditions to evaluate and intervene in the imminent development zone of his students.

The test also allowed the understanding that it is possible to teach and learn during a test, overcoming the compartmentalized idea between teaching, learning, and assessment, and also that this moment can be useful for some students to realize what they have learned and what they have not learned in a clearer way and, based on this, seek alternatives to make adjustments in the learning process. Thus, we understand that the test was not used to prove what the student knows or does not know, but as a mediating tool in conceptual formation.

On the other hand, it is important to remember that in several moments we were faced with individualized performance, partial participation by some students, resistance to the proposal of the test and to collaborative work. Besides, because it was a totally different activity from what they are used to, for some students the experience was not positive, it generated discomfort and demanded attitudes that perhaps were not part of their practices.

When proposing a new experience in the educational context it is necessary to consider that the students, adapted to the hegemonic model of education, are used to the plastering of an academic routine in which their task is to perform a large load of activities, mostly in an individualized way, in which, even working in groups, they act alone, and this intensifies when it comes to the evaluation process, because they understand the test as a verification of learning a certain content, which results in a terminal act, without providing any possibility of mediation. Thus, in order to have higher successes with activities of this nature, it is necessary to change the culture of the university classroom, where students have more opportunities to have experiences that help in the formation of a collective work conscience.

For this, they need meaningful and interactive moments that provide different and challenging experiences, understanding that not only learning practices are important in conceptual formation, but the test can also be constituted as an activity intentionally directed to the formation of concepts, provided that it enables formative experiences to students and not only the verification of acquired learning.

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