Self-regulation of learning and its interface for the development of students of the pedagogy course in distance education of UNINASSAU

Charles Everton Oliveira Gomes
Professor - Master in Computer Science from UFPE and Coordinator of ICT courses in the distance learning modality of the Ser Educacional Group
E-mail: charleseverton@gmail.com

Charles Gomes Martins
Professor - Pedagogue, Master in Education from UFPE, PhD student in Education from UFPE and Coordinator of the Pedagogy Course in EAD of the Ser Educacional Group (2017-2021)
E-mail: consultoriaeducacional@gmail.com

José Luís Simões
PhD in Education from the Federal University of Pernambuco, Professor at UFPE
E-mail: joseluis2711@yahoo.com.br

ABSTRACT
The research carried out aimed to analyze the self-regulation of learning and its interface for the development of Pedagogy students in distance education of the Ser Educacional Group. After analyzing the data, we can conclude that there was an interface of the principles adopted by the institution that contributed to the development of students. We interviewed 322 students and we highlight that the majority of students are female. This may be a striking feature of Pedagogy courses in Brazil. The 8th period students showed evidence that they mostly adopted learning strategies in their study routine. We also saw that the VLE (Virtual Learning Environment) enhances the development of strategies and can foster new habits and biopsychosocial development in students.

Keywords: Self-regulation of learning, Educational Technologies, Learning strategies.

1 INTRODUCTION

The literature has pointed out the recurrent need for the promotion and insertion of educational proposals that use learning strategies, aiming to foster the development of self-regulation through new technologies that enable the realization of individual activities and provide collaborative, interactive and flexible teaching applied to distance learning (SIMÃO, 2004) (ZIMMERMAN; SCHUNK, 2011).

Researchers have repeatedly shown the improving effects of self-regulatory behaviors on students' academic performance in regular classrooms. If self-regulatory learning skills were important for successful learning in the traditional classroom, with the teacher in a face-to-face manner, it can be expected that self-regulation of learning will play an even more important role in learning in the online environment.

In the Ser Educacional Group, the Pedagogy Course in Distance Learning accounts for 28% of the Group's enrollments in this type of Education. Having in 2019 the quantitative of 5200 students enrolled. Our interest in researching the self-regulation of student learning arose during the Coordination of the Pedagogy Course in EAD. Being this course, recognized by MEC in 2018, and

occupying the prominence in the country as the 4th best Pedagogy Course in Brazil. This data is relevant and in fact represents the efforts of all the teams involved. In view of this national result of great notoriety, we identified that some students have difficulties in the teaching-learning process. This was evidenced in their academic performance through the evaluations and in their participation in the virtual spaces of interaction in the VLE. Moment when students interact in the evaluative activity called collaborative challenge.

In view of the students' difficulties, we seek to understand whether in the virtual classroom (Virtual Learning Environment - VLE), we offer inputs that enable the development of self-regulation of learning and autonomy of students. In this endeavor we formulate the following questions:

a) How does the students' self-regulation process occur when using the Virtual Learning Environment (VLE)? b) Are the learning paths offered in the VLE related to the assessment instruments offered to students? c) What are the strategies used by students in their teaching-learning process? As a premise of our reflection, we can ask: does the Pedagogy Course in Distance Education contribute to the development of self-regulatory behavior as a competence developed throughout their university education?

The exposed questions and the daily practice in the monitoring of students point out that the Pedagogy Course in EAD enables in its structure elements that will enhance the competences of students regarding academic development. This is the proposed hypothesis that will need to be proven or not in this research.

This research presents academic relevance that can guide not only the operation of the course, but also enable internal reflection if in fact the problems identified in students when taking the disciplines are gaps in their training or indications of pedagogical problems in the elaboration of the learning trails proposed in the VLE (Virtual Learning Environment).

To guide our research, we formulated the following specific objectives: to unveil the learning strategies used by students in their teaching-learning process; to identify in the Pedagogical Project of the Pedagogy Course concepts that promote the self-regulation of student learning; and to verify in the VLE (Virtual Learning Environment) evidence of encouraging self-regulation of student learning in their development process.

In our research we used the qualitative approach of exploratory objective, through the application of a survey of intentional non-probabilistic sample with the objective of analyzing the perception of 322 students from the 1st to the 8th period of the Pedagogy Course in EAD of UNINASSAU.

In this sense, the contribution becomes relevant in light of the recognition that students, future professionals in pedagogy, need to develop critical thinking skills, continuous learning and the ability to conduct the development of monitoring and self-regulation of students' own intellectual processing.

Next, in chapter 2 the theoretical foundation is presented, in chapter 3 the research methodology and in chapter 4 and 5 the results and conclusion, finally, in chapter 6 the references.

2 LITERATURE REVIEW

In this chapter an overview of ODL is provided, followed by the concept of self-regulation and learning strategies, and finally the clarification of meaningful learning and its relationship to the development of self-regulation strategies.

2.1 DISTANCE EDUCATION AND INNOVATIVE ASPECTS

In distance education (DE), the innovative elements of practice that are introduced through the physical separation between the teacher and the student, as well as the use of modern technology, create an educational environment characterized by learning autonomy and active engagement. This means that the student, in order to facilitate his/her own learning, manage the learning process and achieve academic success, is required to monitor, control and modify his/her own action through self-assessment of his/her cognitive skills and behaviors (PRETI, 2005).

Learning autonomy is considered an important factor for academic success in distance education. Learning in distance education presents challenges. Lack of self-regulation capacity is a significant reason for the increased dropout rate in online courses. This may be due, in part, to students not recognizing the effort and effort they put in the organization required to succeed in this modality (BELLONI, 2015).

Success in distance learning correlates positively with learners' ability to self-regulate and direct their own learning efforts. As a critical factor affecting learning performance in distance education, self-regulated learning has attracted considerable interest. Self-regulated learners can manage their learning activities efficiently, but researchers indicate that learners have difficulties in promoting self-regulated learning (SRL). Thus, providing support to facilitate the process of self-regulated learning becomes extremely important.

For Zimmerman (1989) self-regulation is the competence of the individual to self-manage thoughts, feelings and actions that are planned and cyclically adapted for the attainment of personal goals and objectives. Self-regulated learning emphasizes the role of learners in setting goals and strategies, dynamically approaching task planning and execution, and acknowledging and reflecting on perceptions and their influences alongside the learning task. Self-regulated learners can be defined as proactive in their efforts to learn, because they are aware of their strengths and limitations and because they are guided by personally set goals and task-related strategies. These learners monitor their behavior in terms of their goals and reflect on their increasing effectiveness. This increases their self-satisfaction and motivation to continue to improve their learning methods. Because of their

superior motivation and adaptive methods of learning, self-regulated students are not only more likely to succeed academically, but also to view their future optimistically (ZIMMERMAN, 2002).

2.2 SELF-REGULATION OF LEARNING

Self-regulated learning is the process by which students plan, monitor and regulate their own learning. It refers to thoughts, feelings and actions that are planned and adjusted to improve motivation and learning (ZIMMERMAN, 2008). For Zimmerman (2000), within the framework of the sociocognitive approach to learning processes, describes the structure of the self-regulatory process in three phases. The previous phase refers to the processes and beliefs that influence and precede the students' efforts to learn, marking the pace and level of this learning. The second phase of the self-regulatory process, is influenced by the previous one and involves the processes that occur during learning affecting the execution of the task, with emphasis on attention and self-monitoring. These processes help the learner to concentrate better on activities and improve their achievements. Finally, self-assessment is linked to actions that occur after the task is completed, giving the student the opportunity to review the directions taken and the choices made (ZIMMERMAN, 1998).

Cognitive and metacognitive theories of learning show that self-regulation actually influences the learner's actions. Therefore, any act of regulation depends on their active attitude (SCHUNK; ZIMMERMAN, 2012). Self-regulated students have a systematic view of their learning and control their cognitive processes, through planning, goal setting, monitoring and learning assessment of their own understanding at various points in the study process (BORUCHOVITCH, 2007).

According to Zimmerman (1989), Zimmerman (2008), motivation is an essential variable of self-regulated learning. Students will only employ learning strategies if they are motivated to do so. Bzuneck (2010) states that motivation is a theoretical construct that arises from the interaction between many factors, such as success, values, gratification, interests and self-esteem, among others. These aspects explain, according to the theory, the initiation, direction, intensity and persistence of goal-oriented behavior.

2.3 LEARNING STRATEGIES

All students, regardless of their level, use self-regulation strategies during the learning process (ZIMMERMAN, 1990). What distinguishes self-regulated learners is the fact that not only the value of this reciprocal relationship between cognitive learning strategies and learning outcome has been realized, but also these strategies are used to achieve their learning goals. Research findings in mainstream education confirm that more effective learners make use of more self-regulated learning strategies and that self-regulated learning is significantly correlated with high academic performance (ROSÁRIO, 2004).

Self-regulatory learning strategies refer to specific skills that are part of the process of self-regulation of learning and can be taught to learners so that they apply them in contexts (ZIMMERMAN; SCHUNK, 2008). This includes strategies such as Self-assessment, Goal setting and planning, Environmental structure, Seeking social help, Organization and transformation, Information seeking, Note taking, Repetition and memorization, Self consequences and Data review (ZIMMERMAN; PONS, 1986).

Educators (teachers and tutors) are recommended to use instructional support to help learners set appropriate learning goals and strategies (GANDA, 2016). In addition, educators need to develop students' attention and create moments of reflection, planning and evaluation, improving students' competence to make decisions about how to use learning resources during the course and the ability to coordinate learning skills, motivation and emotions to achieve the objectives (PANADERO; BROWN; STRIJBOS, 2016). According to (HAGENAUER; VOLET, 2014), the relation teacher-student in higher education is considered a condition for successful learning and can explain and prevent the phenomenon of school dropout.

2.4 MEANINGFUL LEARNING

The challenges imposed by the contemporary world have indicated the need to consider more systemic and complex conceptions regarding the construction of knowledge and human formation. In this direction, it was necessary to conceive methodologies consistent with the production of senses and meanings about their learning, in a way that would contextualized and protagonist, taking into account the prior knowledge they bring from the school sphere and beyond (TRIFONE, 2017).

Promoting meaningful approaches to learning in the 21st century classroom follows in the tradition of transformative education by fostering a constructivist pedagogical framework that promotes the development of an epistemology necessary for the creation of personal meaning. This framework promotes the acquisition of higher reasoning, critical and creative thinking skills. Under this perspective, the learner is not perceived as someone disconnected from the learning environment. Instead, the learner is a participatory member of a learning system composed of the teacher, the students, and the physical and virtual learning environment in which they are embedded (BACICH; JOSÉ, 2017).

For Piaget (1973) two mechanisms occur during intellectual development, assimilation and accommodation. In assimilation the individual uses what he already has to give meaning to what he is receiving, the second mechanism is accommodation, and is considered every modification of assimilation schemes under the influence of external situations to which they apply (TAFNER).

For meaningful learning to take place, it is necessary to be available for the student's involvement in this process, in addition to the commitment to establish relationships between what

they already know and what they are learning, to use the appropriate instruments they know and have to achieve the greatest possible understanding (MOREIRA, 2012). Meaningful learning and thinking consist of the application of cognitive and metacognitive learning strategies and experiences. that challenge their preconceived assumptions and level of conceptual understanding. These learning experiences create a disparity between what learners observe and what is predicted based on their current level of understanding. Thus, they promote the development of a unique and personalized relationship between the individual and the ideas and information under consideration. Meaningful learning occurs if the learning task can be related in a non-arbitrary and substantive (non-verbal) way to what the learner already knows (AUSUBEL, 1963). This is where the constructivist educator can capitalize on the state of cognitive dissonance of learners to make a real difference by motivating them to reconstruct their cognitive schema in a way that transforms misconceptions into valid concepts.

3 MATERIALS AND METHODS

This work is based on qualitative research, as it involves obtaining descriptive data about people, places and interactive processes by the direct contact of the researcher with the studied situation, seeking to understand the phenomena according to the perspective of the subjects, that is, the participants of the situation under study (GODOY, 1995).

We used the Survey as a methodological instrument for exploratory collection of initial research on the topic addressed (BABBIE, 1999). 322 students of the Pedagogy Course in EAD answered closed and open questions about the application of self-regulation strategies of learning.

The criteria for choosing the students were: the degree course in pedagogy, due to the character of their training in contributing to the quality of teaching and learning, strengthening the construction of knowledge; and the teaching modality in distance education.

4 RESULTS AND DISCUSSION

Throughout our research we can find data that can be considered relevant for professionals who develop the educational process in distance education with students. It is not only about listening to students, but also about developing new principles that enable students to develop learning strategies.

Before presenting the data, it is necessary to contextualize who the interviewees are. We interviewed 322 students, 291 women (18 to 61 years old) and 31 men (33 to 53 years old). With this we verified that the majority of the interviewees are women. This female representation can happen in view of the fact that the female public mostly makes up the Pedagogy course.

In our sample we identified that 46 students attend their first distance learning higher education course. And 276 students have already attended a higher education course in distance learning. By understanding that most students have never attended any distance learning course, we can see the

results, understanding that the first experience for these students not only impacts their lives, routines, habits, but also inserts them into new technologies, new habits and challenges. Bearing in mind that our Brazilian culture for centuries has been traditional and without the use of digital technologies. Especially for those who present an average of 40 years.

Throughout our research we can find data that can be considered relevant for professionals who develop their educational process in distance education with students. It is not only about listening to students, but also about developing new principles that enable students to develop learning strategies.

Before presenting the data, it is necessary to contextualize who the interviewees are. We interviewed 322 students, 291 women (18 to 61 years old) and 31 men (33 to 53 years old). With this we verified that the majority of the interviewees are women. This female representation can happen in view of the fact that the female public mostly makes up the Pedagogy course.

In our sample we identified that 46 students attend their first distance learning higher education course. And 276 students have already attended a higher education course in distance education. By understanding that most students have never attended any distance learning course, we can see the results, understanding that the first experience for these students not only impacts their lives, routines, habits, but also inserts them into new technologies, new habits and challenges. Bearing in mind that our Brazilian culture for centuries has been traditional and without the use of digital technologies. Especially for those who present an average of 40 years.

To facilitate data analysis and reader understanding we will present graphs of the results and our reflection.

Regarding the student's self-assessment of their performance, we found that the majority reported that they have the habit of self-assessment, with 37% and 34% reporting that they always and often, respectively, evaluate their performance to overcome possible problems difficulties. This is a good percentage compared to the number of students. Self-assessment results in the development of self-regulation of their own learning. Let's see in Figure 1.
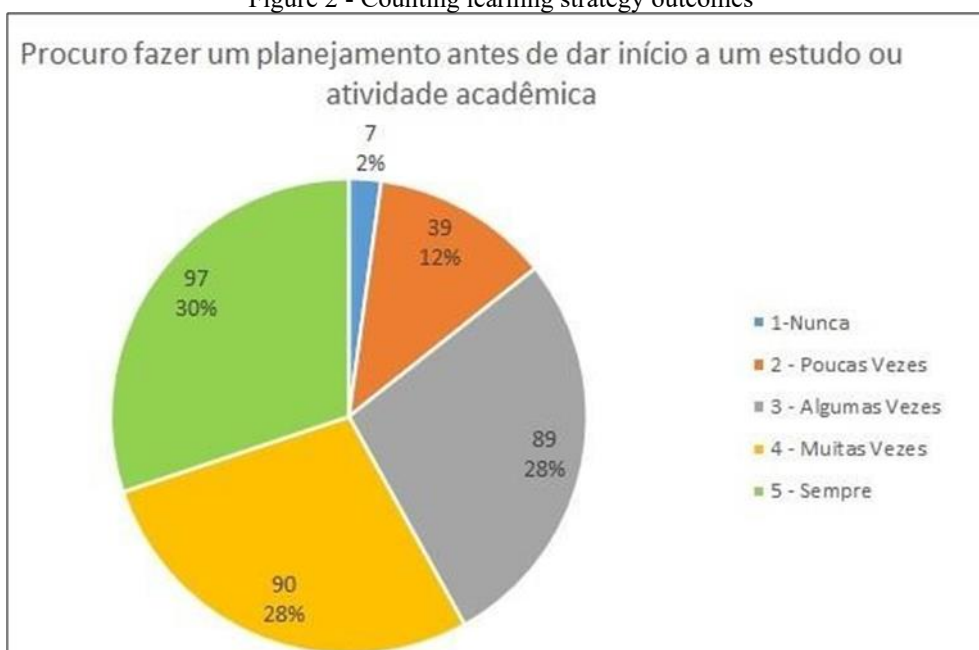
Figure 1 - Counting learning strategy outcomes

Avalio o meu desempenho, vejo o que devo melhorar e procuro superar as dificuldades detectadas.

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

3 — 1%
10 — 3%
80 — 25%
111 — 34%
118 — 37%

Prepared by the Author

About adopting Figure 2 planning in their study routine, most students reported that they always and often plan before studying. We emphasize that the act of planning is a national difficulty. Whether due to lack of culture or gaps in student training since early childhood education. The lack of planning and non-use as a learning strategy can prevent the individual's student success.

Figure 2 - Counting learning strategy outcomes

Procuro fazer um planejamento antes de dar início a um estudo ou atividade acadêmica

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

7 — 2%
39 — 12%
89 — 28%
90 — 28%
97 — 30%

Prepared by the Author

Asked about the study routine before the tests, the students mostly reported that "Always" and "Often" study in advance. In order to prepare calmly. This data is consistent with the previous one, see Figure 3.

Figure 3 - Counting learning strategy results

Prepared by the Author

Regarding the fact that they research content in study sources to expand their competences, the students mostly reported that they "Always" or "Often" do this, see Figure 4. The habit of researching the subjects to be studied denotes the critical awareness of most students. It is indispensable for students of the distance learning modality to internalize this autonomous and active behavior in their teaching process.

Figure 4 - Counting learning strategy outcomes

Antes de dar início a um estudo acadêmico, recorro à biblioteca e a outros recursos de pesquisa (físicos ou digitais), para obter o máximo de informações sobre o tema

- 18 6%
- 53 16%
- 87 27%
- 83 26%
- 81 25%

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

Prepared by the Author

When analyzing the fact that students write down the knowledge acquired, Figure 5, we note that most are in the habit of writing down the information from the classes. Being an important point in your learning process.

Figure 5 - Counting learning strategy results

Procuro anotar o máximo de um texto lido ou da aula expositiva de um professor

- 11 3%
- 26 8%
- 121 38%
- 68 21%
- 96 30%

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

Prepared by the Author

The organization of the study place is fundamental for the activity to be carried out according to a favorable context for learning. Most students reported that they have a favorable environment that does not distract them, as shown in Figure 6. It is also important to note that this item was the one with the lowest number of "Never" responses, which facilitates the teaching and learning process for students.

Figure 6 - Counting learning strategy results
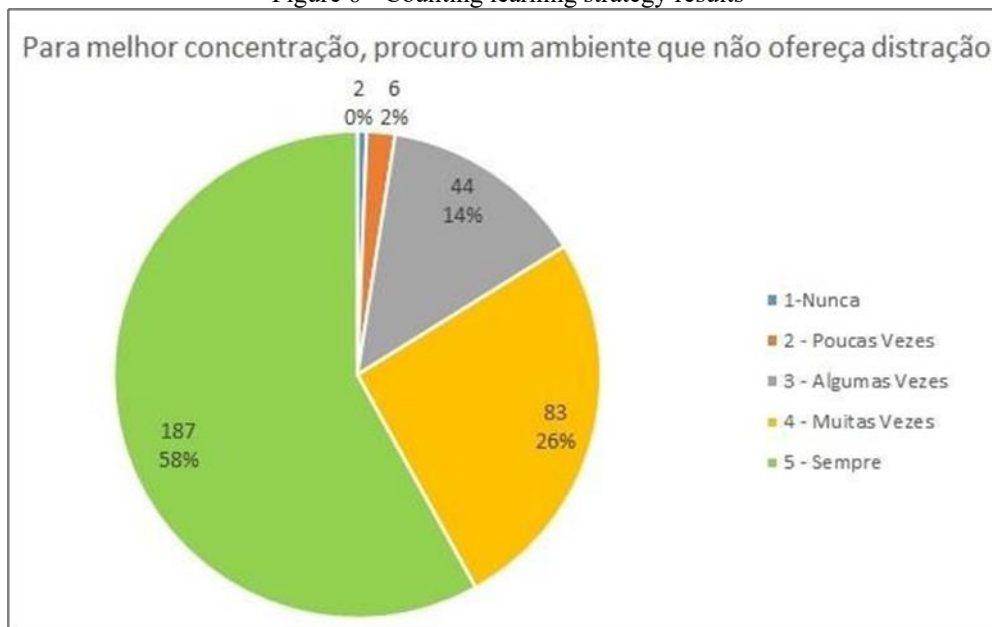
Prepared by the Author

Asked about the use of strategies that help them memorize subjects, 61% of students reported that they always use or often use strategies for memorization, Figure 7. By using this strategy, students will be able to enhance learning from memory retrieval and what has been taught.

Figure 7 - Counting learning strategy results

Utilizo estratégias para memorizar o assunto estudado

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

17 5%
33 10%
78 24%
99 31%
95 30%

Prepared by the Author

Figure 8 shows that 61% of students always or often seek help in their studies from teachers, peers and others. This result is important as it shows that they interact with each other and confirms the importance of online tutoring and discussion forums. Interaction is one of the fundamental principles for self-regulation of learning.

Figure 8 - Counting learning strategy results

Quando surgem dificuldades que não consigo superar sozinho, busco ajuda externa (professores, colegas, outros)

- 1-Nunca
- 2 - Poucas Vezes
- 3 - Algumas Vezes
- 4 - Muitas Vezes
- 5 - Sempre

18 5%
42 13%
67 21%
80 25%
115 36%

Prepared by the Author

One of the highlights of the survey is related to the result obtained when asked about the moment after the assessments, as can be seen in Figure 9. Most students, 61%, reported that when performing them, they never or rarely apply compensation to themselves for the performance spent. Self-rewards are often used as a motivational strategy for the student to value learning, or to lead themselves to the desired goal.

Figure 9 - Counting learning strategy results

Prepared by the Author

The act of reviewing the records, analyzing and reflecting on the objectives is carried out by most students, see Figure 10. Evaluating the plan and the choices made during the learning process is very important, as it allows each student to self-assess in relation to each objective set and to always keep this self-assessment in mind, so as to be able to regulate their learning, working according to their difficulties during the time of self-study.

Figure 10 - Counting learning strategy results

Prepared by the Author

We will now present a comparative analysis of the periods (1st and 8th of the Pedagogy Course), and thus describe some indications of results. We emphasize that we would need to broaden the discussions to deepen some specific points.

In the analysis of the responses of the students of the 1st period of the EAD Pedagogy course, presented in Figure 11, we identified that 7% of the students' responses were related to the frequency "Never" for the application of some learning strategy. Characterized by the red color in the graph. This result may represent ignorance of the strategies or lack of adaptation to the context, which makes a pedagogical and permanent approach of the institution special, being attentive to the processes, paths and needs of the students.

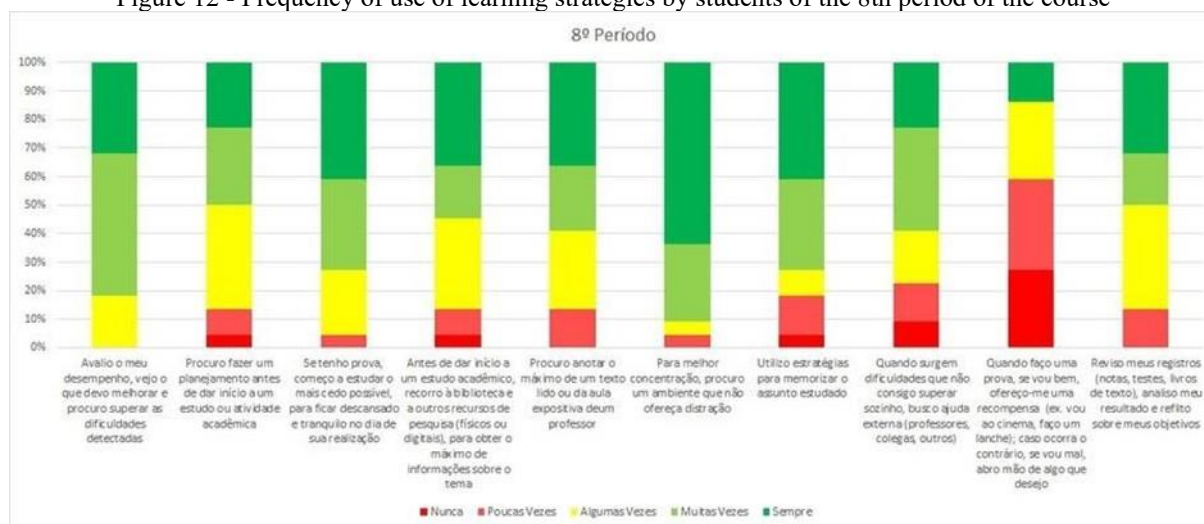Figure 11 - Frequency of use of learning strategies by students of the 1st period of the course
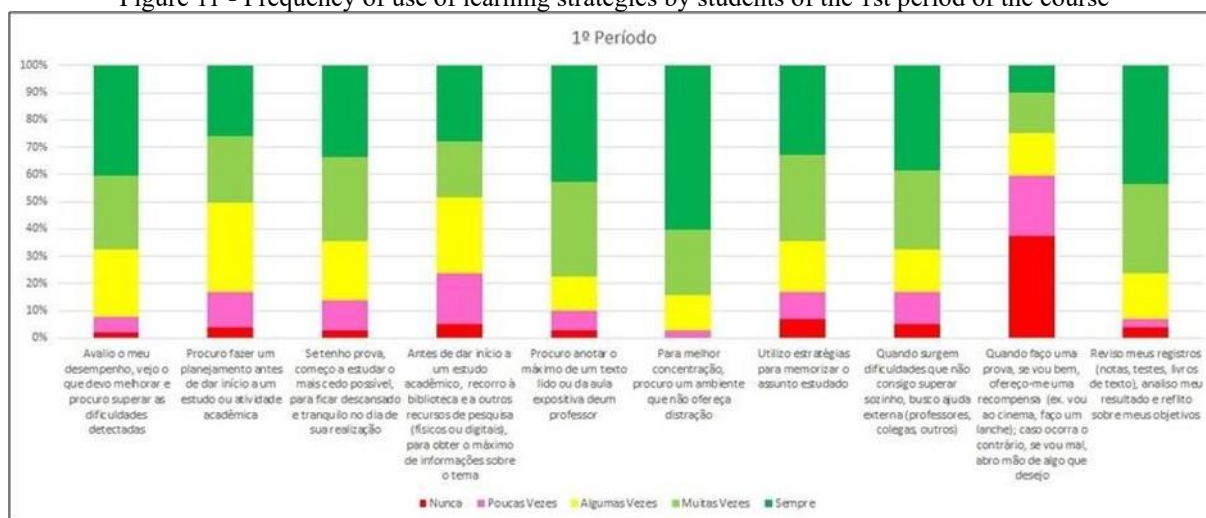
Prepared by the Author

In the categories presented to the students of the 8th period we found that they mostly stated that they apply learning strategies with some frequency.

Figure 12 - Frequency of use of learning strategies by students of the 8th period of the course

Prepared by the Author

Regarding the frequency of "Never" for any of the strategies presented, we can see a slight reduction in the 8th period class, accounting for 5% of the records. With this, we visualize that this period reaches more satisfactory levels of application of the strategies.

We cannot say that the improvement highlighted would be associated with the time already elapsed during academic training. However, for this analysis, it is necessary to expand the discussion and research with these actors. We believe that these factors can foster their internalization of strategies. Considering that the study in distance education even involuntarily predisposes and induces the individual to adopt a dynamic and habit that he was not used to. From the beginning of his insertion in the distance education, the individual, if he does not adopt an active and autonomous posture related to the organization of studies, planning of activities and compliance with dates, will not be able to be approved.

5 CONCLUSION

The research on self-regulation of learning and its interface was an opportunity for us to reflect on guiding questions of our pedagogical practice. By looking at themselves we can uncover encouraging results for the continuity of our work. As already described in the results, the students of the 8th period present better development regarding the use of learning strategies. When we compare the students of the 1st and 8th period we emphasize that there is a gap in the use of strategies. The possible cause of this gap can be attributed to the training time of these students during graduation.

However, we understand that we need to expand on these questions in a future survey. There are variants that need to be reflected. From social, cultural issues, use of technology and other topics.

When analyzing the Pedagogical Project of the Pedagogy Course, we verified in its structure elements that enhance the development of pedagogical strategies. From the conceptual basis to the curriculum matrix, we identified that its content is directly related to the development of student learning strategies.

Our third specific objective was to establish the relationship between self-regulation strategies and the use of the VLE (Virtual Learning Environment). We found that the environment offers development conditions for the internalization of strategies. Even with this indication, we understand that a closer alignment of the tools offered with the strategies is necessary. In the VLE we can identify that there is investment in student interaction through the collaborative challenge, talk to the tutor, communities and talk to the coordination. This favors the search for external help, whether as teachers, colleagues or others to overcome the difficulties encountered. For a better alignment, it would be interesting if the other pedagogical elements were aligned to offer the principles of self-regulation, from the learning path to the evaluation process. These indications move us to continue our research seeking answers that can point to the effectiveness of the environment as a space that enhances self-regulation of learning. We can conclude that the proposal of distance learning offered by this HEI can offer students subsidies that promote their development through a a perspective for self-regulation of learning.

REFERENCES

AUSUBEL, D. The Psychology of Meaningful Verbal Learning. [S.l.]: Grune & Stratton, 1963.
BABBIE, E. Métodos de Pesquisas de Survey. 1999.

BACICH, L.; JOSÉ, M. Metodologias Ativas para uma Educação Inovadora. [S.l.]: Penso, 2017.

BELLONI, M. L. Educação a distância. 7º. ed. [S.l.]: Autores Associados, 2015.

BORUCHOVITCH, E. Aprender a aprender: Propostas de intervenção em estratégias de aprendizagem. Educação Temática Digital, v. 81, n. 2, p. 156 – 167, 6 2007.

BZUNECK, J. A. Como motivar os alunos: sugestões práticas. In: BORUCHOVITCH, E.; BZUNECK, J. A.; GUIMARÃES, S. E. R. (org.). Motivação para aprender. Aplicações no contexto educativo. [S.l.]: Vozes, 2010.

GANDA, D. R. A autorregulação da aprendizagem de alunos em curso de formação de professores : um programa de intervenção. 2016. 144 p. Tese (Faculdade de Educação) — Unicamp.

GODOY, A. S. Introdução à pesquisa qualitativa e suas possibilidades. 1995.

HAGENAUER, G.; VOLET, S. E. Teacher-Student Relationship at University: An Important Yet Under-Researched Field. Oxford Review of Education, v. 40, n. 1, p. 370 – 388, 5 2014.

MOREIRA, M. A. O que é afinal aprendizagem significativa? 2012. Disponível em: http://moreira.if.ufrgs.br/oqueeafinal.pdf.

PANADERO, E.; BROWN, G. T. L.; STRIJBOS, J. The Future of Student Self- Assessment: a Review of Known Unknowns and Potential Directions. Educational Psychology Review, v. 28, n. 4, p. 803 – 830, 12 2016.

PIAGET, J. Psicologia da inteligência. [S.l.]: Lisboa, 1973.

PRETI, O. Autonomia do Aprendiz na Educação a Distância: significados e dimensões. 2005.

ROSÁRIO, P. S. L. (Des)venturas do Testas: estudar o estudar. [S.l.]: Porto Editora, 2004.

SCHUNK, D. H.; ZIMMERMAN, B. J. (ed.). Motivation and Self-Regulated Learning: Theory, Research, and Applications. 1º. ed. [S.l.]: Routledge, 2012.

SIMÃO, A. M. V. Integrar os princípios da aprendizagem estratégica no processo formativo dos professores. In: SIMÃO, A. M. V. (Ed.). Aprendizagem autorregulada pelo estudante: perspectivas psicológicas e educacionais. [S.l.]: PORTO EDITORA, 2004. cap. 2.

TAFNER, M. A Construção do Conhecimento Segundo Piaget. Disponível em: http://www.cerebromente.org.br/n08/mente/construtivismo/construtivismo.htm. Acesso em: 20/01/2020.

TRIFONE, J. Fostering Meaningful Learning in the 21st Century Classroom. 2017.

ZIMMERMAN, B. J. A social cognitive view of self-regulated academic learning. Journal of Educational Psychologist, v. 81, n. 3, p. 329 – 339, 3 1989.

ZIMMERMAN, B. J. Self-Regulated Learning and Academic Achievement: An Overview. Educational Psychologist, v. 25, n. 1, p. 3 – 17, 1 1990.

ZIMMERMAN, B. J. Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In: SCHUNK, B. J. Z. D. H. (ed.). Self- regulated learning: From teaching to self-reflective practice. 1º. ed. [S.l.]: Guilford Publications, 1998. cap. 1, p. 1 – 19.

ZIMMERMAN, B. J. Attaining self-regulation: A social cognitive perspective. In: PINTRICH, P. R.; BOEKAERTS, M. Z. M. (ed.). Handbook of self-regulation. [S.l.]: Academic Press, 2000. cap. 2, p. 13 – 39.

ZIMMERMAN, B. J. Becoming a Self-Regulated Learner: An Overview. Theory Into Practice, v. 41, n. 2, p. 64 – 70, 6 2002.

ZIMMERMAN, B. J. Investigating Self-Regulation and Motivation: Historical Background, Methodological Developments, and Future Prospects. American Educational Research Journal, v. 45, n. 1, p. 166 – 183, 3 2008.

ZIMMERMAN, B. J.; PONS, M. M. Development of a structured interview for assessing student use of self-regulated learning strategies. American Educational Research Journal, v. 23, n. 4, p. 614 – 628, 1 1986.

ZIMMERMAN, B. J.; SCHUNK, D. H. Motivation: An essential dimension of self- regulated learning. In: ZIMMERMAN, B. J.; SCHUNK, D. H. (ed.). Motivation and self-regulated learning: Theory, research, and applications. [S.l.]: Lawrence Erlbaum Associates Publishers, 2008. cap. 1.

ZIMMERMAN, B. J.; SCHUNK, D. H. (ed.). Handbook of self-regulation of learning and performance. 1º. ed. [S.l.]: Routledge, 2011.

SIMÃO, A. M. V. Integrating the principles of strategic learning into the teacher training process. In: SIMÃO, A. M. V. (Ed.). Student self-regulated learning: psychological and educational perspectives. [S.l.]: PORTO EDITORA, 2004. chap. 2.

TAFNER, M. The Construction of Knowledge According to Piaget. Available at: http://www.cerebromente.org.br/n08/mente/construtivismo/construtivismo.htm.
Accessed on: 20/01/2020.

TRIFONE, J. Fostering Meaningful Learning in the 21st Century Classroom. 2017.

ZIMMERMAN, B. J. A social cognitive view of self-regulated academic learning. Journal of Educational Psychologist, v. 81, n. 3, p. 329-339, 3 1989.

ZIMMERMAN, B. J. Self-Regulated Learning and Academic Achievement: An Overview. Educational Psychologist, v. 25, n. 1, p. 3 - 17, 1 1990.

ZIMMERMAN, B. J. Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In: SCHUNK, B. J. Z. D. H. (ed.). Self- regulated learning: From teaching to self-reflective practice. 1st ed: Guilford Publications, 1998. ch. 1, p. 1 - 19.

ZIMMERMAN, B. J. Attaining self-regulation: A social cognitive perspective. In: PINTRICH, P. R.; BOEKAERTS, M. Z. M. (ed.). Handbook of self-regulation. [S.l.]: Academic Press, 2000. chap. 2, p. 13 - 39.

ZIMMERMAN, B. J. Becoming a Self-Regulated Learner: An Overview. Theory Into Practice, v. 41, n. 2, p. 64 - 70, 6 2002.

ZIMMERMAN, B. J. Investigating Self-Regulation and Motivation: Historical Background, Methodological Developments, and Future Prospects. American Educational Research Journal, v. 45, n. 1, p. 166 - 183, 3 2008.

ZIMMERMAN, B. J.; PONS, M. M. Development of a structured interview for assessing student use of self-regulated learning strategies. American Educational Research Journal, v. 23, n. 4, p. 614 - 628, 1 1986.

ZIMMERMAN, B. J.; SCHUNK, D. H. Motivation: An essential dimension of self-regulated learning. In: ZIMMERMAN, B. J.; SCHUNK, D. H. (ed.). Motivation and self-regulated learning: Theory, research, and applications. [S.l.]: Lawrence Erlbaum Associates Publishers, 2008. ch. 1.

ZIMMERMAN, B. J.; SCHUNK, D. H. (ed.). Handbook of self-regulation of learning and performance. 1st ed. [S.l.]: Routledge, 2011.