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## CONTRIBUTIONS, LIMITATIONS, AND CHALLENGES OF SELF-REGULATED LEARNING IN THE EDUCATIONAL CONTEXT

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CONTRIBUIÇÕES, LIMITES E DESAFIOS DA APRENDIZAGEM  
AUTORREGULADA NO CONTEXTO EDUCACIONAL

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CONTRIBUCIONES, LÍMITES Y RETOS DEL APRENDIZAJE  
AUTORREGULADO EN EL CONTEXTO EDUCATIVO

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### ABSTRACT

Self-regulated learning is an important multidimensional construct in contemporary Educational Psychology, since it encompasses several dimensions essential to strategic learning. It has received increased attention from researchers and educators. In this sense, this article aims at reflecting upon the contributions, limitations, and challenges of this theoretical framework in educational contexts in Brazil, Portugal, and the United States. More precisely, it aims at identifying its main authors, areas, variables, and most researched domains. It also seeks to characterize the main types of research designs, the most used instruments, the impact of the theme on publications and on the organization of events, as well as to examine its current challenges and future paths. We hope to contribute to a better understanding of self-regulated learning in different cultures, as well as to provide useful considerations that can guide pedagogical practices and formative actions in Education.

**KEYWORDS:** Learning. Formal education. Knowledge. Self-regulation.

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**Submetido em:** 25/02/2021 - **Aceito em:** 22/06/2022 - **Publicado em:** 19/07/2023

**RESUMO**

A aprendizagem autorregulada é um construto multidimensional importante na Psicologia Educacional na contemporaneidade que engloba várias dimensões imprescindíveis à aprendizagem estratégica. Tem merecido atenção de educadores e de pesquisadores. Neste sentido, o objetivo do presente artigo é refletir sobre as contribuições, os limites e os desafios dessa perspectiva teórica em contextos educativos no Brasil, em Portugal e nos Estados Unidos. Almeja-se identificar, em linhas gerais, os seus principais autores, áreas, variáveis e domínios mais investigados e caracterizar os principais tipos de delineamentos de pesquisa, os instrumentos mais utilizados, o impacto da temática nas publicações e na organização de eventos, bem como examinar os atuais desafios e os caminhos futuros. Tem-se em vista contribuir para maior compreensão da aprendizagem autorregulada em diferentes culturas, bem como tecer considerações que possam orientar práticas pedagógicas e ações formativas em Educação.

**PALAVRAS-CHAVE:** Aprendizagem. Educação formal. Conhecimento. Autorregulação.

**RESUMEN**

El aprendizaje autorregulado es un constructo multidimensional importante en la psicología educativa actual, ya que abarca varias dimensiones esenciales para el aprendizaje estratégico, que ha merecido la atención de educadores e investigadores. En esa dirección, el objetivo de este artículo es reflexionar sobre las contribuciones, los límites y los desafíos de esa perspectiva teórica en contextos educativos en Brasil, Portugal y Estados Unidos. Más precisamente, objetiva identificar, en líneas generales, sus principales autores, áreas, variables y dominios más investigados. También pretende caracterizar los principales tipos de diseños de investigación, los instrumentos más utilizados, el impacto del tema en las publicaciones y la organización de eventos, así como identificar sus desafíos actuales y caminos futuros. Se plantea contribuir a una mejor comprensión del aprendizaje autorregulado en diferentes culturas, así como hacer consideraciones que puedan guiar las prácticas pedagógicas y las acciones de formación en Educación

**PALABRAS CLAVE:** Aprendizaje. Escolarización formal. Conocimiento. Autoregulación.

**1 INTRODUCTION**

Self-regulated learning is an important multidimensional construct of Educational Psychology nowadays, since it allows us not only to understand the synergy of factors associated with school and academic success, but also guide actions which can improve students' capacity to learn (BEMBENUTTY, 2011; VEIGA SIMÃO; FRISON, 2013; ZIMMERMAN; SCHUNK, 2011). It is defined by Zimmerman (2000) as the degree to which learners metacognitively, motivationally, and behaviorally manage their own learning process.

Although there are different models of self-regulated learning (PANADERO, 2017), theorists generally agree that it involves cognition, metacognition, motivation, action, affectivity, and social interaction (ZIMMERMAN, 2000; ZIMMERMAN; SCHUNK, 2011). In Brazil, the perspective of self-regulated learning has gained relevance, considering the serious educational problems the country faces in its various segments of formal schooling, characterized by learning rates often well below the desirable level for citizenship development (INEP, 2019). This theoretical framework has also been very promising in the United States, Europe, Canada, and other countries that have been conceiving it as a way to help students learn more and better.

The first studies and research on self-regulated learning emerged, according to Zimmerman and Schunk (2011), between 1960 and 1970, and focused on aspects related to cognition and metacognition. We highlight the pioneering spirit of the United States in the study of this topic and in the creation of a specific work group about it, in 1986, first called Academic Study, during the American Education Research Association (AERA) Annual Meeting, held in San Francisco. At the 1991 AERA meeting, in Chicago, this group was renamed Studying and Self-Regulated Learning, as a suggestion of Barry Zimmerman. This group still exists, with annual meetings at AERA, and has been impacting the research and knowledge production on this theme in most American universities and around the world.

In consonance, this paper aims at reflecting upon the contributions, limitations, and challenges of self-regulated learning framework, in Brazilian educational contexts, as well as in Portugal and the United States, since these two countries are Brazil's main inspirational models and research partners on this theme. More precisely, it aims at identifying authors, areas, variables and domains most investigated. It also seeks to characterize the main types of research designs, the most used instruments, the impact of the theme on publications and events organization, as well as to examine its current challenges and future paths. We hope to contribute to a better understanding of self-regulated learning in different cultures, as well as to provide useful considerations that can guide pedagogical practices and formative actions in Education.

## **2 AN OVERVIEW OF SELF-REGULATED LEARNING STUDIES IN BRAZIL, UNITED STATES, AND PORTUGAL**

In Brazil and Portugal, the first studies related to the self-regulated perspective took place in the 80's and 90's and were marked by research associated with cognitive and metacognitive aspects and learning strategies, following the steps of American studies that were conducted between 1960 and 1970 (ZIMMERMAN; SCHUNK, 2011), with Flavell (1979) being the first scholar to coin the term metacognition. Soon after, a text by Antonijevic and Chadwick (1983), emphasizing the importance of cognitive strategies and metacognition in education, was translated into Brazilian Portuguese. In 1987, Pfromm Neto published a book chapter about Learning in the Information Processing Model. A few years later, three theoretical papers were published. One of them addressed the contributions of Cognitive Psychology, based on the theory of information processing and metacognition, to face Brazilian educational problems. The other one described and discussed the nature and uses of metacognition (BORUCHOVITCH, 1993; SEMINÉRIO, 1995) and the third one brought about issues regarding psychological variables that affect self-regulated learning (BORUCHOVITCH, 1994, 1999).

In 1997, at the School of Education of Campinas State University, Brazil, the first Learning Strategies course was designed and taught to Pedagogy students as an elective course. In addition to these initiatives, many others have been identified in the country. The study of this theme and its related variables, has been growing in Brazil, resulting in publications of theoretical papers and research results, book chapters, books, theses, dissertations, and book translations from the United States (AZZI; POLYDORO, 2017; BORUCHOVITCH, 2014; FRISON; MIRANDA, 2019; MACIEL; ALLIPRANDINI, 2018; MAGALHÃES; SANTOS, 2017; POLYDORO, 2017; POLYDORO; AZZI, 2009; SILVA; MOREIRA, 2016). This scenario was also accompanied by the emergence of several research lines to investigate this theme in various national research groups. Just to illustrate, we can mention some of the groups: the Group of Studies and Research in Psychopedagogy (GEPESP/Unicamp) and the Research Group on Higher Education (PES/Unicamp); the Self-Regulated Learning Research Group (GEPAAAR/UFPel), the group of Teacher Education and Training (PPGE/PUC-Campinas).<sup>4</sup>

The Portuguese scientific community disposes of a sizable research track-record in the general field of SRL studies. Schools of Psychology and Schools of Educational Sciences, such as those belonging to the Universities of Lisbon, Minho, Évora, and Aveiro have reached a regular flow of research projects and ongoing dissertations in SRL that guarantees a critical mass of academic focus on SRL related themes for the future. We highlight the initial work of Rosário (2004), that carried out a research program in which the self-regulation of learning is the conceptual framework, called “(Des)venturas do Testas” [“Testas’s (Mis)adventures”] and the importance of Lopes da Silva, Duarte, Sá e Veiga-Simão (2004) book, that analyzed the different models and presented a theoretical model divided into phases, which has helped integrate the different theories that emerged on this theme and are intricately connected with the SRL construct.

Four phases were described, namely: forethought and setting objectives; strategic planning; monitoring/volitive control; and self-reflection and self-reaction. For each phase, the most relevant processes and metacognitive, motivational, volitional and behavioral variables (thoughts, beliefs, strategies, emotions and expectations) can be analyzed and which may influence the path of self-regulation. Furthermore, considering the complexity of SRL as an intentional, planned, dynamic and temporal action (LOPES DA SILVA; DUARTE; SÁ; VEIGA SIMÃO, 2004), the instruments and techniques created and developed to measure it, should capture these characteristics in its cyclical phases.

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<sup>4</sup>Due to the limited space, the studies mentioned throughout this paper only exemplify a few publications; authors are aware that there are several more. Only the groups that have been publishing more systematically about self-regulation of learning have been cited as examples. There may be much more researchers currently studying the topic. It would be interesting for future studies to develop a site with all the national publications on the theme.

Inspired by research carried out in the United States in the last decades we have witnessed an increase in research on Self-regulated Learning (SRL) in Portugal, which includes the following as the central themes: i) the understanding of internal and transactional psychological processes that allow individuals to direct their own behavior to achieve objectives and personal goals and to control their feelings, thoughts, behavior and means to maintain those actions until they obtain the desired results; and ii) the understanding of contexts focused on beliefs, conceptions and educational practices of parents and teachers.

An overview about the national research on SRL in Portugal led to the identification of distinct theoretical approaches and research tendencies. However, the predominant theoretical approach is the social cognitive approach and many of them were based on Zimmerman's process model (2000). Generally, we find in the national research the six assumptions referred by Hadwin, Järvelä and Miller (2017), namely that regulation is multifaceted, assumes human agency, involves cyclical adaptation, draws from personal socio-historical experiences, involves responding adaptively and is socially situated. The international authors most commonly cited include Bandura, Biggs, Boekaerts, Cooper, Corno, Deci, Entwistle, Hadwin, Järvelä, González-Pienda, Marton, Núñez, Pintrich, Ryan, Säljö, Schunk and Zimmerman. This research is essentially accomplished, although not exclusively, by psychologists and teachers in various postgraduate studies areas. Similarly, the same theoretical framework and the evidence provided by research from the United States has also inspired the emergence of studies about self-regulated learning in Brazil.

Evidence shows learning in a school setting and teacher education as one of the main fields in which to apply self-regulation because they consider that students should be taught to understand and to use their personal resources to allow them to reflect on their actions, to control their own learning processes and to reinforce their learning skills. Researchers also investigate whether and how teachers should stimulate their students to arrive at competent, efficient and motivated usage of both learning processes and technological and cultural means they have access to. These major context trends regarding SRL research seems common for all the three countries.

Although there are differences in the independent variables, which are identified by different authors in order to explain SRL, self-efficacy perceptions, conscious and deliberate use of cognitive and motivational strategies, and effort made to achieve educational objectives appear as the foremost in the multiple theoretical and empirical studies that have been carried out on this topic, not only in Portugal, but also in the United States, and Brazil.

The setting-up of a Self-Regulated Learning Studies Program (PEAAR) in the Faculty of Psychology of the University of Lisbon represents a significant leap forward in recognizing this important field of studies. This program for the Study of Self-regulated Learning was created in 2005 based on Boekarts and Corno assumptions (2005) and on the work of Zimmerman (2000) and is now integrated in the Research Center for Psychological Science. Its main

objectives include: a) to clarify the phases and processes of self-regulated learning, co-regulation and shared regulation in contemporary educational contexts both theoretically and empirically; b) to examine individual and / or cultural differences in the exercise of self-regulation of learning in educational settings; c) to understand the relationship between educational practices and the development of self-regulatory skills; d) to develop and validate assessment tools necessary to analyze the variables of the empirical studies; e) to develop research methodology; f) to develop intervention programs to improve the strategies of self-regulation learning, co-regulation and shared regulation in various socio-educational contexts, particularly during moments of learning. These objectives and commitments, based mainly on the American assumptions for the development of interventions programs, can be found in Brazilian intervention research as well, although in a less integrated way and with a less significant emphasis in the social dimension of SRL.

Unlike in the United States and Portugal, countries where all dimensions of self-regulated learning have been increasingly investigated in a more integrated and interrelated way (BEMBENUTTY; CLEARY; KITSANTAS, 2013; ROSÁRIO, 2004; VEIGA SIMÃO; FRISON, 2013; ZIMMERMAN; SCHUNK, 2011), we found, among Brazilian publications, many studies focused predominantly on the cognitive and metacognitive dimensions, followed by an increase of studies aimed at investigating the relationship between different dimensions of self-regulated learning, although with less emphasis on its social dimension when compared to the United States and Portugal (BORTOLETTO; BORUCHOVITCH, 2013; FRISON, 2016; FRISON; MIRANDA, 2019; SERAFIM; BORUCHOVITCH, 2010).

Initially, studies adopted a descriptive-correlational design, in which variables such as learning strategies, motivation to learn, emotion regulation, among others, have been first associated with demographic variables and then with one another (BZUNECK, 2018; CUNHA; BORUCHOVITCH, 2012). There has also been a growing increase in quasi-experimental studies, in which interventions with specific focus on domains such as reading (GOMES; BORUCHOVITCH, 2011), writing (COSTA; BORUCHOVITCH, 2009; FRISON; BENITZ, 2017; MALPIQUE; VEIGA SIMÃO, 2019; PEDERSEN; POLYDORO, 2017; VEIGA SIMÃO et al., 2017), motivation (PRANKE; FRISON, 2017), among others, have been designed based on the understanding that successful interventions, in any schooling segment, need to address concurrently both specific domain and metacognitive, affective and motivational variables, as well.

### 3 RESEARCH LINES AND METHODOLOGICAL APPROACHES

Consistently, one of the main research lines that have been and are being followed in Portugal in the Self-Regulated Learning Studies Program (PEAAR) deal with the individual differences in an evolutionary model of self-regulation learning, co-regulation and shared regulation, as an affective, motivational, cognitive and behavioral process, which is characterized at different academic levels. Evidence suggests that perceived support emerged as an important factor for shared regulation of tasks, and technology can play an important role on that. Integrating technology in education is a beneficial resource for students to make intentional, responsible, and appropriate choices as they monitor their work and receive feedback from the Learning Management System, which in turn, opens new opportunities for student guided autonomy and is important to provide teachers with initial teacher training and in-service training about promoting self-regulated learning and enhancing students' performance and engagement in class.

Moreover, the ultimate goal of these studies is essentially to understand the relation between educational practices and the development of SRL competencies while analyzing the type of influences different educational and family environments have on SRL processes of learners. While research in Portugal seems to be more similar to the one carried out in the United States regarding the role of family in SRL, less emphasis was given to the study of family as related to the development of SRL in Brazil. Although research in the United States and Portugal has focused on all school segments of schooling, in a more balanced way, this trend is less evinced in Brazil in which there have been less attempts to investigate SRL processes among high school students when compared to elementary and university students. Overall, these results from research on these topics have reinforced the theoretical assumptions that self-regulatory skills for learning can be taught by teachers and developed by parents. Data also point out the need to prepare teachers so they can foster these skills in students in the natural environment of their classrooms. Moreover, evidence suggests that self-reflection and self-awareness are essential to strengthen self-regulatory skills.

Overall, the research lines are related to self-regulation of learning in technology-supported learning environments, self-regulation of motivation, self-regulation in writing and self-regulated learning and professional development. Although research lines in Portugal and Brazil are very similar to those of the United States, we observed in Brazil and Portugal less emphasis in the studies regarding SRL in the context of professional development. The development and adaptation of new skills and behavior by teachers and pupils to new technological means are increasingly regulated actions in the teaching / learning processes that are conceptualized as being predominantly focused on student learning. In this sense, it is necessary to try to work throughout their school years so that students can effectively participate in their own learning process. Thus, this line of research presents studies that



focus on SRL in computer-supported learning environments (FERREIRA; VEIGA SIMÃO; LOPES DA SILVA, 2017; RODRIGUES; FERREIRA; PRADA; PAULINO; VEIGA SIMÃO, 2019). These studies focus mainly on the evaluation of self-regulatory processes in this type of learning environment, as well as on the impact of this approach to learning. These advances in research are significant, not only because they influence educational paradigms, but also because they help teach and educate citizens who will be the next generation of professionals in Portugal. While the research in the USA is heavily based on computer supported learning environments and has strongly influenced this type of research in Portugal, there is not much research based on computer supported learning environments in Brazil yet.

Self-regulation of motivation (SRM) refers to students' efforts to maintain their motivation and persist in school tasks. It is a key concept in the field of SRL, being vastly studied in United States (WOLTERS, 2003). This form of regulation is attained from a deliberate intervention in management and control of the processes that affect motivation. It involves thoughts (beliefs) and behavior (strategies) through which students act to influence their effort and persistence in a school task. The pioneer work of Wolters has inspired research about this topic in Portugal and Brazil (BZUNECK; BORUCHOVITCH, 2016; PAULINO; SÁ; LOPES DA SILVA, 2016).

In the field of language and literacy studies, writing research has received far less funding and attention than reading, both in volume and in scope, which limited its impact on pedagogical practice (MYHILL; FISHER, 2010). Understanding self-regulation in writing from a social cognitive perspective, the PEAAR vision is to substantiate the multidimensional quality of writing by studying writing and text composition under different scopes. Aiming at extending knowledge on writing as both a complex cognitive process, and as a social and cultural act of communication, like in United States, Portuguese research includes studies on the implementation of intervention programs in naturally constituted classes (MALPIQUE; VEIGA SIMÃO, 2019; VEIGA SIMÃO et al., 2017); on students writing knowledge and beliefs (MALPIQUE; VEIGA SIMÃO, 2016); and on teachers' role, including in-service training programs; and cross-cultural empirical studies (VEIGA SIMÃO; MALPIQUE; FRISON; MARQUES, 2016). In Brazil, there have also been several attempts to study self-regulation in the context of writing (COSTA; BORUCHOVITCH, 2009; FRISON; BENITZ, 2017; PEDERSEN; POLYDORO, 2017), as well in the context of reading (GOMES; BORUCHOVITCH, 2011). In general, intervention-based research on reading and writing has shown positive effects in helping students to become more strategic and self-regulated readers and writers. Research should focus on investigating writing in context to provide clearer and more coherent research-based standards to inform context-specific teaching practices and teacher training programs that foster students' effective writing development. Furthermore, research also suggests the relevance of conducting domain-specific interventions on self-regulatory processes.



It is interesting to note that many Brazilian researches were conducted in partnership with Portugal and more precisely with the School of Psychology of the University of Lisbon. We highlight the research inserted in the line of narratives, and action-research on teacher professional learning (ÁVILA; PRANKE; FRISON, 2018; FRISON; ÁVILA; VEIGA SIMÃO, 2018; CADÓRIO; VEIGA SIMÃO, 2013). Evidence suggests that they were an important support for the investigation, reflection and (self)training of the participants, as it contributed to creating of effective and intentional opportunities that promote self-regulatory processes.

Despite the specificity of each project included in this line of research, **they** all start from the same conceptualization, had the intent of enhancing participants' choices and had effects on the personal or professional development and their participants. There are three structural axes that link these projects: learning and professional development in collaborative contexts, practice inquiry according to theoretical issues and self-regulated learners and their strategic role (e.g., FRISON; ÁVILA; VEIGA SIMÃO, 2018; PISCALHO; VEIGA SIMÃO, 2014; VEIGA SIMÃO, 2016). The challenge for all of those involved in this line of research involves looking at practice with new eyes and discovering ways to create meaningful opportunities for learning about teaching. Participants no longer portray the role of mere executors of others' proposals to their context of action. Rather, they acquire knowledge through a dynamic process, in collaboration with the group in which they operate.

In general, results obtained in Brazil have gathered evidence about the relationship between the variables and have shown the positive effects of interventions carried out. Brazilian findings have also been in line with international literature, especially when compared to research data from Portugal and the United States. However, attempts to integrate research findings into explanatory and comprehensive models are more consistent in the United States than in Portugal and Brazil. Moreover, evidence suggests research efforts in all three countries both to identify variables that impact self-regulation and to design investigations to promote it in all stages of formal education, as well as for in-service teachers. The important role that teachers play to foster self-regulation in their classes is also well acknowledged by researchers in these three countries (BEMBENUTTY, 2011; BORUCHOVITCH, 2014; DEMBO, 2001; FRISON, 2016; TORTELLA; ALMEIDA, 2017).

## 4 ASSESSING SRL: MAJOR INSTRUMENTS

Assessing SRL is no doubt a challenge for any researcher due to its dynamic and complex nature. Nonetheless, different types of instruments may be used as complementary in order to grasp all aspects of the SRL process.

In Brazil, there are also studies oriented to the development of qualitative and quantitative instruments, as well as to translation, adaptation, and validation of measures to assess self-regulated learning. The initial emphasis on isolated variables has been replaced by incipient efforts to seek more multidimensional and integrated instruments (BARTALO; GUIMARÃES, 2008; BORUCHOVITCH, 2006). In general, research has employed quantitative and qualitative instruments, as well as a combination of them. The use of self-report instruments and hypothetical situations has been predominant (BORUCHOVITCH, 2006). Research measuring the different dimensions of self-regulation, at the moment it occurs, based on virtual environments (in which there is a possibility of greater control and accuracy of self-regulatory processes), in natural learning situations, and observational studies have been carried out more often in the United States, followed by Portugal and are rare in Brazil (BEMBENUTTY; CLEARY; KITSANTAS, 2013; FERREIRA; VEIGA SIMÃO; LOPES DA SILVA, 2017; RODRIGUES; FERREIRA; PRADA; PAULINO; VEIGA SIMÃO, 2019; ZIMMERMAN; SCHUNK, 2011).

The objectives of many research projects developed at PEAAR focus on creating and validating assessment methods that capture the complexity of SRL in learning contexts. These instruments have been developed and validated, with the purpose of making SRL visible for students, teachers and researchers in specific contexts. In line with this approach, we have conducted studies with methods that are process-oriented and domain-specific because they have the potential to overtly demonstrate the key processes that students go through to regulate learning effectively in different learning contexts. For instance, we have used daily diary tasks (FERREIRA; VEIGA SIMÃO; LOPES DA SILVA, 2015), semi-structured interviews that enabled us to capture the students' perceptions and self-reflections regarding learning experiences in context (MARQUES; OLIVEIRA; COSTA FERREIRA; VEIGA SIMÃO, 2019; SILVA MOREIRA; VEIGA SIMÃO, 2016) and observation (SILVA MOREIRA; VEIGA SIMÃO, 2019). The instruments and resources resulting from the investigation are theoretically grounded on a solid self-regulation basis and contributing to consistent approaches and supporting teachers' daily practices.

The instruments we have developed, such as the stimulated recall technique with a question guide, semi-structured interviews, a study program with computer traces, self-evaluation grids, self-efficacy scales and satisfaction scales, have allowed us to capture the

complexity of learners' efforts to learn, as well as to integrate learners' self-evaluation. These instruments have provided us opportunities to inform learners of their position with regards to the objectives that are to be reached and self-evaluation, as well as to inform the professional about learners' progress (SILVA MOREIRA; FERREIRA; VEIGA SIMÃO, 2022). It is important to continue to study the potentialities of instruments that have ecological, dynamic and multidimensional approach, assess overt and covert self-regulated learning processes and strategies.

There are no doubts that the research from the United States has inspired the development of SRL assessment measures in Portugal and in Brazil. We can also identify efforts to translate, adapt, and validate American measures in Brazil and Portugal. Portuguese scales have been used in Brazilian SRL research, as well (e.g., MALPIQUE; VEIGA SIMÃO; FRISON, 2017; VEIGA SIMÃO; MALPIQUE; FRISON; MARQUES, 2016). Overall, instruments employed in the three countries are similar. Research carried out in the United States on assessment of SRL inspired assessment measures development not only in Brazil, but also in Portugal. Evidence also suggests that there is a growing body of research targeted at investigating the psychometric properties of assessment measures. In general, research in the three countries has been based on reliable and valid instruments. However, more efforts should be devoted to these issues especially in Brazil.

## **5 THE IMPACT OF SELF-REGULATED LEARNING STUDIES ON THE ORGANIZATION AND CONDUCTION OF SCIENTIFIC EVENTS**

In the United States, the Studying and Self-Regulated Learning work group has met annually since its creation in 1986 and brings together researchers from all around the world. In Brazil, it was only in recent years that Bandura's theory (1997, 2001) inspired and encouraged the effective organization of the International Seminars on Cognitive Social Theory, held at Unicamp/Campinas in 2015, at the São Paulo State University/Rio Claro in 2017, at the University of São Francisco/Campinas in 2019, and on an online format, more recently in 2021. Its fifth edition will take place in July, 2023. Parallel to these events, the 1st International Seminar on Self-Regulated Learning and Motivation: Challenges and Applications in the Educational Context was held in 2016 at Unicamp/Campinas, and its second edition in November, 2020, in an online format.

The 1st International Seminar on Self-Regulated Learning and Motivation was the first event held in Brazil with a specific focus on self-regulated learning and one of its key components – motivation -, which is a milestone. The invited speakers were experts from the United States, Portugal and Brazil. The audience was composed of approximately 260 researchers representing thirteen Brazilian states, which allowed us to map several research

initiatives on this theme as well as to differentiate their theoretical frameworks and methodological approaches. The Proceedings of the event, published on the website of School of Education of Unicamp/2016, showed a great investment in research, consolidated not only by quantitative studies, but also by qualitative ones. Among the most recurrent themes found in the abstracts, we highlight learning strategies, study habits, reading comprehension, textual production, motivation, metacognition, reflection on teaching, self-efficacy, self-care, emotional regulation and self-handicapping strategies. Interventions designs were oriented towards the development of skills and strategies for study, study habits, time management, self-assessment, search for information and help, environment structuring, and review of notes. Data collection was based on Likert scales, questionnaires, observations, semi-structured and self-reflective interviews, portfolios, narratives, and field diaries. Some studies invested in pre- and post-test intervention programs and used Statistical Package for Social Sciences (SPSS) and Nvivo for data analysis. The 2<sup>nd</sup> International Seminar on Self-Regulated Learning and Motivation was very similar to the first event regarding audience attended, paper themes, research designs and methodologies. Its Proceedings is available. Overall, the results of the studies were in line with the literature and highlighted the relevance of self-regulated learning to achieve higher levels of performance in academic activities (BEMBENUTTY, 2011; ZIMMERMAN, 2000).

The 1<sup>st</sup> and the 2<sup>nd</sup> International Seminar on Self-Regulated Learning and Motivation not only brought the three countries closer together, but also enabled greater integration of the self-regulated learning research groups in Brazil. It became evident that an event of this type allows the advancement of research and integrates the national and international scientific community.

## **6 CONTRIBUTIONS OF SRL PERSPECTIVE TO EDUCATIONAL CONTEXT, CHALLENGES AND PROSPECTS FOR THE FUTURE**

Research evidence gathered so far revealed the importance of SRL framework to the educational context. By conceiving learning as a complex, multidimensional and interdependent process involving cognitive, metacognitive, motivational, emotional and social interaction factors, this framework has shed light onto what happens before, during and after learning. SRL framework has also helped to diagnose learning difficulties and students' fragilities so that interventions can be proposed to remediate very specific problems at different times of the learning process. Moreover, the theoretical knowledge acquired from research and practice has also identified major variables impacting positively and negatively in learning so that preventive actions can be taken.

Considering the well- acknowledged importance of SRL framework in the literature, we highlight the need for further interventions to confirm the importance that self-regulation can bring to the demands of teaching and learning at any level. There are strong arguments that interventions contribute to the development of skills and the promotion of study habits required to succeed in contemporary educational contexts. We expect that universities are able to implement methodologies in their curricula that can provide more autonomous and self-regulated actions and attitudes among students, especially those who wish to become teachers. It is of paramount importance to invest in teacher education so that higher education teachers are able to promote activities that enhance self-regulatory skills in students.

The research undertaken in the three countries provide a better understanding of the SRL construct. Nevertheless, it is still necessary to develop more research in this area to advance in the field and achieve more integrated and explanatory models of self-regulated learning. It is clear that to promote opportunities to foster SRL competencies, to make these visible for learners and simultaneously give teachers information regarding their students' learning process, the following checklist should be followed: i) make learning a conversation topic; ii) promote a reflective and strategic emphasis on the execution of learning tasks (forethought, strategic planning, execution, monitoring, volitional control, evaluation and reflection); iii) identify conceptions about learning; iv) include the social and affective aspects, giving emphasis to collaborative learning; v) promote reading and writing as support tools; vi) increase individuals' confidence through external assessment of self-evaluation; vii) articulate self and hetero-evaluation because both help students elaborate and improve their planning skills to reach objectives.

Although results of the different studies show that SRL processes have an important role in changing individuals' behavior, it is still necessary to study in greater depth which processes, as well as when, how and why they produce positive effects. Lastly, we believe further research is needed to explain the effects of the diverse components, as well as the functions they have in the SRL process, which influence (moderators) and which intervene (mediators) in the process of goal pursuit. Calibration of educational resources to promote self-regulation according to learners' specific needs will also be a relevant topic of investigation in the field. It is also important to understand how self-regulation helps adjust self-confidence in task execution, as well as the levels of perseverance when facing difficulties in self-regulated learning.

As challenges for the future, it is fundamental to study the neuropsychological processes involved in the different phases of self-regulation of learning. Moreover, self-regulation may also be measured as a longitudinal process and applied to different thematic

areas and be promoted as an integral part of the curriculum. It is also essential to study self-regulation and its possible applications in specific areas of knowledge and different subjects.

Given the relevance and benefits of the events already held, it is equally important to increase the number of international events on self-regulated learning to disseminate and develop new and cross-cultural knowledge about this theme. This in turn will contribute not only to the advancement of this theoretical framework, but also to its better translation into pedagogical practices. With this in mind, we believe that prospects for the future include creating synergies between universities, research groups and schools.

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## ACKNOWLEDGEMENTS

The first author and the last author thank the Brazilian National Council of Research - CNPq for the financial support, respectively. The first author also thanks Espaço da Escrita - Coordenadoria Geral da Universidade - UNICAMP - for the language services initially provided and to Ana Alice da Silva Pereira of the AP English Services for the second English language revision.

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