Special Supplement: Qualitative Research in Psychology

Developing Psychic Self-regulation in Children through Self-assessment Portfolios in School Interaction[1]

Neyre Correia da Silva[2]
Centro Universitário Unidombosco, Curitiba-PR, Brazil

Helga Loos-Sant'Ana
Universidade Federal do Paraná, Curitiba-PR, Brazil

Abstract: The study addresses the nature of the self-regulation processes (their dynamics and development) that support the self-assessment of learning. It aims to elucidate these processes from the perspective of the Theoretical System of Expanded Affectivity (TSEA), focusing on the self-assessment of learning by children when constructing portfolios at school context. Participants were a class of twenty-nine students, seven to nine years old, and their teacher. The Broad Level of data collection, focused on the present work, covers participant observation and the application of Self-Assessment Scripts. The categories of analysis are based on the dimensions of the Psychic Cell (Self-Identity-Resilience-Alterity) postulated by TSEA. We found that children demonstrate basic and complex processes of psychic self-regulation and self-assessment of their learning, developing and strengthening their identity, recursive, resilient, and regulation references of the interactions. It is argued that self-regulation can be driven by self-assessments guided by the use of portfolios in the school context.

Keywords: self-evaluation, self-regulation, childhood development, elementary education, identity

Desenvolvendo Autorregulação Psíquica em Crianças mediante Portfólios de Autoavaliação na Interação Escolar

Resumo: O estudo aborda a natureza dos processos de autorregulação (sua dinâmica e desenvolvimento) que subsidiam a autoavaliação da aprendizagem. Objetiva elucidar tais processos envolvidos na autoavaliação da aprendizagem por crianças, especialmente quando constroem portfólios no contexto escolar. Focaliza uma turma de vinte e nove alunos, entre sete e nove anos, e sua professora. O Nível Amplo de coleta de dados, destacado no presente trabalho, abrange a observação participante e a aplicação de Roteiros de Autoavaliação. As categorias de análise baseiam-se nas dimensões da Célula Psíquica (*Self*-Identidade-Resiliência-Alteridade) postuladas pelo Sistema Teórico da Afetividade Ampliada (STAA). Encontrou-se que as crianças evidenciam processos básicos e complexos de autorregulação psíquica e autoavaliação de sua aprendizagem, (des)envolvendo e fortalecendo suas referências identitárias, recursivas, resilientes e de regulação das interações. Defende-se que a autorregulação pode ser impulsionada por autoavaliações orientadas pelo uso de portfólios no contexto escolar.

Palavras-chave: autoavaliação, autorregulação, desenvolvimento infantil, ensino fundamental, identidade

Desarrollando Autorregulación Psíquica en Niños a través de Portafolios de Autoevaluación en la Interacción Escolar

Resumen: El estudio aborda los procesos de autorregulación que subsidian la autoevaluación del aprendizaje. Con el objetivo de elucidar tales procesos desde la perspectiva del Sistema Teórico de la Afectividad Ampliada (STAA), deteniéndose en la autoevaluación del aprendizaje por niños cuando construyen portafolios en el contexto escolar. Se centra en una clase de veintinueve alumnos, entre siete y nueve años y su profesora. El Nivel Amplio de recolección de datos, enfocado en el trabajo, implica observar al participante y aplicar Instrumentos de Autoevaluación. Las categorías de análisis se basan en las dimensiones de la Célula Psíquica (*Self*-Identidad-Resiliencia-Alteridad) postuladas por el STAA. Encontramos que los niños evidencian procesos básicos y complejos de autorregulación psíquica y autoevaluación de su aprendizaje, (des)involucrando y fortaleciendo sus referencias identitarias, recursivas, resilientes y de regulación en las interacciones. Se defiende que la autorregulación puede ser impulsada por autoevaluaciones orientadas por el uso de portafolios en el contexto escolar.

Palabras clave: autoevaluación, autorregulación, desarrollo infantil, enseñanza de primer grado, identidad

Some studies have evidenced the difficulties met to put in practice students' participation in the evaluation processes of their school learning (Souza, 2006; Villas Boas & Soares, 2016). One such justification for these difficulties is the belief that, in the initial years of elementary school (generally between six and eight years), the child is in

no cognitive/intellectual/moral conditions to participate actively (analyze, plan actions and make decisions) in the evaluation of their own learning.

This belief, however, can be questioned in the light of multiple perspectives, some of which are addressed here, both with regard to the "nature" of the psychological processes that are deemed necessary for the children to evaluate their own learning in the early years and with regard to how they are likely to develop.

According to theoretical studies, we find authors for whom students, from early childhood, performs spontaneously and often without conscious command implicit self-assessments of the activities they perform. Hadji (2001) calls this kind of self-assessment (spontaneous and implicit) self-control. Villas Boas (2008) clarifies that self-control or cognitive regulation, when mediated by awareness, allows the transition to a metacognitive (conscious and reflexive) regulation capacity, that is, self-regulation.

Generally, Vohs and Baumeister (2004) define self-regulation as the ability to change ourselves and exercise control over our own internal processes. It has been studied based on several different theoretical and methodological approaches and it is increasingly possible for subjects to learn to regulate their own learning autonomously, a process that has been called self-regulation of learning or self-regulated learning (Polydoro & Azzi, 2009). This conception goes against the traditional educational position in which the learner is simply led by the teacher "to learn what he has to learn."

The subject has aroused increasing interest and high production, especially from the perspectives of cognitive and behavioral psychology. Such studies are often carried out with adolescents (Effeney, Carroll, & Bahr, 2013; Preto & Moreira, 2012) and adults (Rosário, 2004) though, especially regarding self-regulation of learning in the academic field. It is also observed that, with regard to self-regulation, the cognitive and metacognitive aspects are emphasized, avoiding or minimizing the direct approach of their affective-emotional and relational dimensions (Silva, 2014).

Shores and Grace (2001) and Villas Boas (2006) advocate the use of self-assessment portfolios from the beginning of elementary school as a way to promote the development of self-assessment and self-regulation in students, as they learn to look critically at their work and choose those productions that evidence their learning in order to compose their portfolio. Thus, the students can more clearly acknowledge their potentialities and weaknesses, and gradually learn to self-regulate so that they can learn better in a feedback process.

In this paper, part of an empirical investigation is presented, carried out with students from seven to nine years old in the initial phase of elementary education, whose objective is to elucidate the self-regulation processes that support the self-assessment of learning by children, especially when working with evaluation portfolios. In this research, we advocate the need to address the psychological processes of self-regulation from an "extended" view, that is, without dichotomies and dualisms between cognitive and affective-

emotional processes, nor between the conscious and the unconscious, or the corporeal and the mental processes, as argued by Luna, Loos-Sant'Ana, Sant'Ana-Loos and Silva (2013). Therefore, we adopted the Theoretical System of Expanded Affectivity (TSEA) (Sant'Ana-Loos & Loos-Sant'Ana, 2013), to foster our reflections.

In order to understand this broader perspective, the TSEA proposes to approach self-regulation and self-regulated learning, and its developments, we will focus on how these phenomena have been conceived and what the empirical implications of these conceptions have been.

Self-regulation and self-control are terms easily found in the scientific literature on the subject. In the work by Vohs and Baumeister (2004), the term 'self-regulation' is used to refer to goal-directed behavior or feedback loops. 'Self-control', then, can be specifically associated with conscious impulse control. The term self-regulated learning (SRL) (Effeney et al., 2013; Zimmerman, 2000) has also been used and refers to a process in which the students themselves actively and systematically conduct their cognitions, affections and actions towards learning objectives.

With regard to the development of self-regulation, Diaz, Neal and Amaya-Williams (1996), from Vygotsky's perspective, offer interesting contributions, which can be summarized as follows: self-regulation is a system with a high degree of flexibility and adjustment to different circumstances; has social origins; goes through a long and irregular process of transformation, in which external (cultural/symbolic) structures of support become internal structures of psychological functioning; language (a set of signs built culturally and socially) gains a central role in the development of self-regulating capacities; the changes depend on a development process deeply rooted in the relationships between individual history and social history; there are strategies (encouragement, conceptual questions, statements of resignation and physical withdrawal by the adult) that can contribute to the development of self-regulation - which should be better investigated as they may aid in the teaching/learning process of the child.

Different approaches to self-regulated learning thus converge on some points, as observed by Souza (2006): (1) all advocate the systematic use of metacognitive (planning, goal setting, self-monitoring, organization and self-assessment during learning); motivational (self-efficacy, goal setting and affective self-motivation) and/or behavioral strategies (organization, selection and creation of environments suitable for learning, activating behaviors of cognitive involvement in learning); (2) the existence in the course of learning self-guided circular feedbacks, which allow the student to monitor the effectiveness of his/her learning methods and strategies; and (3) a certain unanimity that self-regulation requires effort, time, and persistence.

In his contributions to the understanding of self-regulated learning, Zimmerman (2000) proposed a model in which self-regulation is considered a mechanism consisting of a three-phase cyclic process: planning, volitional and performance control, and self-reflection. In the planning phase, task analysis and strategy selection on the one hand,

and automotive beliefs on the other gain importance. In the phase of volitional control and performance, self-control and self-monitoring become central. And in the self-reflection phase, self-judgment and satisfaction/adaptations are the two main processes.

Inspired by this model, Rosário (2004) described a cyclical and organized process of self-regulated learning in three phases: planning, execution and evaluation (PLEA). In planning, the student needs to think about what he wants to do and draw up a plan to know when and how he will do it; in the implementation phase, he implements and monitors the pre-established plan; and in the evaluation, he determines to what extent the objectives were fulfilled to put this plan in practice (Azevedo et al., 2012). The PLEA has encouraged the proposition of programs to promote self-regulation in the school environment, directed at different levels of education, from elementary to higher education (Polydoro & Azzi, 2009).

Nevertheless, despite the advances in studies and in the implementation of self-regulated learning programs among children, adolescents and adults attending school, we still lack studies that increase the understanding of the development of self-regulation in childhood and how school can contribute to this development (Diaz et al., 1996; McCabe, Cunnington, & Brooks-Gunn, 2004; Silva, 2014).

The work with evaluation portfolios is one of the possibilities to give students the opportunity to learn how to self-assess school learning by developing self-regulating processes. Through the selection of meaningful activities, according to Villas Boas (2006), students learn "critical and careful self-evaluation, which involves judging the quality of production and the learning strategies used" (p.39).

We point out that there is a growing research production in Brazil focused on working with portfolios (Campos, Ribeiro, & Depes, 2014, Cotta & Costa, 2016, Forte et al., 2015, Miranda & Villas Boas 2008, Stelet, Romano, Carrijo, & Teixeira Junior, 2017). Most of these studies, however, are aimed at the use of portfolios in higher education, involving students in Pedagogy, Medicine and Dentistry for example.

It is also noteworthy that, in the experimental designs carried out to investigate self-regulation in both adults and children, researchers end up focusing on the concept of self-control in the planning and accomplishment of experiments, in which subjects need to control themselves to achieve a final self-reinforcing goal (Silva, 2014). We had the opportunity to analyze, through the article by Díaz et al. (1996), experimental studies that treat self-regulation as a complex system with a high degree of flexibility and adjustment to different circumstances. Nevertheless, these studies are inconclusive and caution is recommended in the analyses on the emergence of self-regulation in children.

The Theoretical System of Expanded Affectivity (TSEA) (Sant'Ana-Loos & Loos-Sant'Ana, 2013) offers an integrated and expanded understanding of the processes of psychic self-regulation and, consequently, self-regulation of learning. TSEA starts from the central idea of seeking the (harmonic) integration of the knowledge, as a unitary meta-theory. In order to analyze the different facets of human development, from a systemic view, TSEA proposed, among other notions,

the understanding of the psyche through the concept of the Psychic Cell, the triadic unit that provides a basic structure to the psyche (Sant'Ana-Loos & Loos-Sant'Ana, 2013). This conception contains the conviction of the existence of a basic psychological unity, considering the impossibility of separating the multidimensional structure from its psychic functionality.

In a very synthetic way, the psychic cell is presented here as an integrated system involving three basic dimensions, which are based on essential psychological processes, namely: The Configurational Dimension, a peripheral instance of contact with the various others that make up reality, supported by identity. This refers to the characteristics that allow the subject to be known and recognized, that is, to be referenced and reference him-/herself by others. This dimension realizes the interface between subjectivity and existential objectivity. Subjectivity, in turn, allows for the existence of the Recursive Dimension, characterized by the instance of the self. It is a subjective dimension, of internal support; functioning as a kind of "bank" of psychic resources, where the various beliefs of reference (about oneself and about the world) are maintained and constantly updated and (re)organized, serving individuals to equip interactions. The possibilities for expansion and creation, then, constitute a third dimension, responsible for the renewal or (re)creation of the beliefs of self-reference and self-organization, the Creative Dimension represented by resilience or "expanded resilience" (Sant'Ana-Loos & Loos-Sant'Ana, 2013).

Expanded resilience is the ability to expand, to open up because, when we seek solutions to face any new or challenging/adverse situation, we are faced with the unconditional requirement of this opening, to create new configurations, depending on what the situations and the interactions demand (Sant'Ana-Loos & Loos-Sant'Ana, 2013).

The dimensions of self, identity and extended resilience constitute the triadic unity that forms the individual psychic cell; each cell must remain in the interaction game though, in order to constantly (re)build itself and contribute for to the other to (re)construct him-/herself. TSEA postulates, therefore, that between one psychic unit and another, there is a dimension of intersection, of connection, which constitutes the fourth psychic dimension (Modulating Dimension), characterized by alterity. Based on that dimension, the psychic structure affects and is affected by the phenomena of reality (other people, objects, phenomena of nature, etc.). Otherness strengthens the importance of the "other" as an inseparable component in the constitution of being: "The *socius* or other is a perpetual partner of the self in psychic life" (Wallon, 1975, p. 159). Thus, each individual knows the other as human and also recognizes him-/herself as such, which is the basis of social interactions.

As learning involves a continuous reconstruction of oneself, self-regulation for TSEA would be a sort of "attractor" because its function is to gradually organize a set of resources necessary for the subjective processes of self-reference (self), as well as the objective ones (identity), including the possibilities of creation and updating (expanded resilience)

that compel the organism towards the interaction with the other (alterity), with the world, and towards the search for homeostasis (the fifth interactional dimension) (Sant'Ana-Loos & Loos-Sant'Ana, 2013).

Then, in this perspective, self-regulation processes a set of elements (knowledge, resources/tools, configurations) that constitute both the organization of the psychic cell and its functioning and development. It is present in the organismic predispositions that are sketched from birth to search for existential homeostasis, and that require dialogic interactions between individuals, which drive their development, supporting the individual to build, to (re)create cognitive, affective - emotional, interactional, and behavioral strategies to learn broadly - thus exercising "extended learning" about the world and about their own development and functioning.

Thus, it is argued here that self-regulation is much more than learning cognitive (meta) strategies of planning, execution and evaluation. It means, moreover, to connect with the other, with his/her reality (experiential and universal), producing and (re)signifying the meanings of/by/to itself (Silva, 2014). In order to explore how this extended perspective of self-regulation can work in an empirical situation, an excerpt from a study is presented here that aimed to elucidate the self-regulation processes that support the self-assessment of learning by children, especially when working with assessment portfolios, and which is described below.

Method

Participants

A third-grade elementary school class from a municipal public school in the city of Curitiba participated in the study, composed of 29 children aged 7 to 9 years, 16 female and 13 male, and their respective teacher. This class was chosen based on the teacher's background experience in working with portfolios.

Instruments

The empirical study was put in practice at two levels of research: broad level and level of individualized studies. At the broad level of research, focused on in this article, participant observation was carried out, accompanied by records of the school activities, as well as the interactions among the research participants in the classroom and other school spaces. We used the field diary as a way to record and collect indicators of how self-regulation processes emerged spontaneously in daily school life and in work with self-assessment through portfolios, carried out by the teacher with this class.

At this level of research, four Self-Assessment Roadmaps were proposed to the participant group, at different times and with specific objectives, in order to promote self-assessment of learning through the use of portfolios.

The Self-Assessment Roadmap I "Diagnosis" requested, through the choice of the activity that was considered most significant, that children copy and respond in writing questions about the activity chosen, such as: 'Why did you choose this activity?' 'What did you like about this activity?' 'Did this activity help you learn?' 'How did it help you learn?' 'Why is this activity in the portfolio?' 'What do you think the portfolio is?'.

In the Self-Assessment Roadmap II, questions were presented verbally ('Did you like this activity?' 'Did this activity help you learn?' 'What was it like to deal with the difficulty/problem/challenge?' 'How do you think this new learning will help you in life?' 'In what aspect did your colleague help?' 'Did you like the help?' 'Do you like this conversation we're having?' 'Do you think we're learning now too? Why?'), after an activity in pairs, attached to the individual portfolio, which should illustrate each student's learning evidences in mathematics.

The children answered the Self-Assessment Roadmap III in writing and some of them read it aloud (video-recorded). This script, quite similar to the Self-Assessment Roadmap II, was presented after the children (in pairs) had completed an activity that showed their learning in Science. This script was later re-presented, answered in writing and some children also read it aloud to the researcher, based on an activity inserted in the individual portfolio as a way to illustrate evidence of learning in Portuguese language.

Finally, the objective of Self-Assessment Roadmap IV was to help the students to make a final evaluation of the portfolio's construction during the school year. Some of the questions presented on a specific form were: 'How were you performing at the beginning of the year in Portuguese/Mathematics?' 'And how are you doing now?' 'Is there a difference?' 'Why is it different?' ' (How) Has it changed?' 'Did you like the changes?

Procedure

Data collection. At the broad level of research, the observations were recorded through notes in a field diary and video recording of participants during their activities and interactions. All records, written or videotaped, were scanned. We also obtained some photographs for the purpose of recording images that we thought were relevant to the school environment. The data collection and recording totaled seven months, with a short interruption in the school vacation period.

Data analysis. In the coding and categorization of information, we distinguished units and identified significant elements, that is, cores of meaning. We work, more specifically, with what can be called an adapted content analysis, guided towards:

> The production of indicators on the analyzed material that go beyond the coding and convert it into a constructive-interpretative process. This form of content analysis is open, procedural and constructive and does not intend to reduce the content to restricted concrete categories (González Rey, 2002, p.146).

Thus, emergent categories were created in information

processing at the broad level of data collection, supported by the dimensions of the psychic cell (Self-Identity-Resilience-Alterity), postulated by TSEA.

Ethical Considerations

The teacher and the children's responsible caregivers were informed about the study objectives and authorized their and / or their children's participation, as well as the dissemination of the research results, by signing the Informed Consent Term. The participating children were consulted and agreed to participate by signing a simplified Term of Assent. Approval for the research project was obtained from the Research Ethics Committee (CEP) of the Social Sciences Sector (SCS) at the Federal University of Paraná (UFPR), registered as follows: CAAE - 03539112.4.0000.0102.

Results and Discussion

Next, we will highlight emerging categories and the respective exemplary cut-offs for the broad level of data collection, which contribute to the understanding of self-regulation and self-regulated learning, according to the analysis of data from the daily reality of the target group in the research described here. At the broad level, we have identified five categories: knowledge about the world, self-referenced beliefs, identity references, self-assessment and tacit self-regulation, and portfolio-mediated self-regulation.

It is important to clarify that, in order to preserve anonymity, the children randomly received fictitious names of characters from Greek and Roman mythology.

Knowledge about the world

'Knowledge about the world' refers to all the knowledge, contents or concepts that are produced and conveyed in social relations, which permeate the interactions between the research participants and the knowledge that is part of the school curriculum (Portuguese, Mathematics, Science, etc.):

> Lino explains to the researcher: "oh teacher, it's no good, the moon is a satellite!" The researcher asks: "Why is it no good?". He repeats: "The moon is a satellite." The researcher again asks: "Do you make little of that? Oh, did you think the moon was a planet?! No, the moon is not a planet, it's a satellite, our satellite. It's a natural satellite, there are artificial satellites as well".

Knowledge about the classes, relationships and functions of the world's phenomena gradually constitute the "database" of the self, which is central to and for the recursion of each psychic cell and its movement in the interactional dynamics. They can refer to the values, beliefs about the social behaviors/abilities that one must have (or not) to act in the world, especially in the relationship with other people, that is, the behavioral and moral rules. For example:

> Perseus tells Lino: "I'm glad you're not blond, because they say blondes are stupid." Diana complains to the teacher, who was nearby. Perseus explains: "that's what they say . . . ". The teacher asks, "and you believe that?" He says no.

It is known that language has its syntactic (literal) aspect and its semantic (figurative) aspect. At school, there is a strong trend for the language used to be too "loaded" with syntax, with literality, with little or no semantics, losing the opportunity to develop more "critical" individuals in relation to these social representations and stereotypes (Sant'Ana-Loos & Loos-Sant'Ana, 2013). This is an alternative explanation for Perseus' statement (transcribed earlier). Self-regulation also implies the ability to discern between what is likely to be true (literal) and what is mere "laughing stock", joke, in the semantic scope of the language.

Self-referenced beliefs

Multiple indicators of individuals' concepts/knowledge/beliefs about themselves emerged, the self-referenced beliefs (Loos & Cassemiro, 2010). They may be linked to school work and/or other aspects of an individual's self-image:

> The teacher explains that gender is the same as type. Dionysus says "I do not know what that is. I do not understand anything, I do not know how to do it."
> Lino says "the subject I like most is math." "I'm good!".
> When the teacher says the word "fearful", Icarus says: "I am fearful".

The self-concepts/knowledge/beliefs/preferences base, ground, compose and organize the "I", the subjectivity, the self (Sant'Ana-Loos & Loos-Sant'Ana, 2013). Even considering children who are still young (such as the participants in this research), indicators of the notion of "I", "who I am", "how I am", "who I am with", "why I am" , "What my story is" and "how I change/transform" - that is, "how I self-regulate" - already appear quite frequently and spontaneously. This dimension includes the self-assessments produced by the individuals that derive from their own references, structured on the basis of social interactions and parameters.

Identity references

In this category, some scenes could be distinguished in which the individuals from the group manifested themselves to the others, stressing phenomena that occurred with them and which they would like to show to the other, experiencing their identity. At other times, indicators were evidenced of how individuals were known or recognized in the group (by colleagues and the teacher), either by the identification of personal characteristics or qualities; by the recognition of how the individual was doing with regard to the performance of certain academic

tasks; by one individual's knowledge/recognition of the other's difficulties/limitations; or by the discrimination of "positions" the individual occupies in the group (leader, individual who isolates himself, etc.).

Another important fact was that, at some moments, the research participants identified the evolution of personal characteristics, cognitive, affective and academic skills of the individuals in the group, identifying changes and differences between earlier (past) and present configurations, sometimes trying to predict future modifications/configurations that could occur in view of the current configuration states. Examples follow in the records below:

> The teacher asks how Hercules was at the beginning of the year. Romulo says "bad." The teacher says: "he could not read and write. Look how he is doing now! "
> The teacher says to Jupiter, "I am very concerned with when you grow old." Jupiter says "Apollo?". The teacher says "no, you . . . " And explains: "you complain about everything". Lino says to the researcher: "he'll get grumpy!".

These considerations about the evolution of individual characteristics and/or skills are only feasible insofar as a continuous, interpersonal and shared existential trajectory is pursued among the subjects composing dyads in the social fabric (Sant'Ana-Loos & Loos-Sant'Ana, 2013), and how this affects them mutually.

From the search for the other and the dialogue with the other: At many moments we record movements and statements of research participants addressed to the other, manifestations of the self-regulating-modulating dimension of the psychic cell, alterity, through the establishment of physical, verbal and emotional contacts:

> Daphne comes to the researcher and says: "I did not understand, you cannot collect happiness because you cannot hold it." The researcher indicates her agreement and asks: "what can you do with happiness?" She said: "feel . . . " The researcher adds: "feel and think". So, the researcher suggests she should think and feel if she is happy . . . then she would be "collecting happiness".

We emphasize the dialogue between Daphne and the researcher here. In this interaction, we can note the relevance of language, not only as a means of communication between individuals, but as a means to support the ascent to higher levels of abstraction. It is in the interaction with the world that one can effectively reach the meta-abstraction by building a path that aims for extended resilience (Sant'Ana-Loos & Loos-Sant'Ana, 2013). We believe that, due to the questions and the search for help undertaken to answer her questions, Daphne shows significant potential for expanded resilience, which could be enhanced through the mediation of the other (researcher).

Tacit self-assessment and self-regulation

By looking at the countless records from the observation, we see evidence that children undertake self-assessment spontaneously and clearly self-regulate their learning. They can be considered as such because: (1) they use self-reinforcing stimuli (Zimmerman, 2000); (2) annul by themselves the efficacy of irrelevant variables, through the use of egocentric language/talking to themselves; (3) use external linguistic narrative resources as a means to "register" their misconceptions (Vigotski, 2001); (4) correct the course of their actions as they act; and (5) they can scale what has led them to success (Hadji, 2001). This is perceptible in each of the notes reproduced below, respectively:

> (1) The teacher instructs them to place 1 in front of the apple and then say: "a dozen and nine units," and so on. Apollo writes what is dictated and he himself "corrects" by writing the "C" sign at the side.

> (2) Ulysses and Aaron talk a lot about what seems to be a movie. Aaron suddenly says: "to do homework"; he turns to the notebook and starts to write.

> (3) Jupiter comes to the researcher and asks: "you write there that I had made a mistake and was writing the paragraphs all over again . . .".

> (4) Ariadne shows her letter to the teacher. She tells her to copy it out. Ariadne and Aphrodite ask the researcher to correct the letter they made together. Ariadne corrects herself alone, realizing that she repeated a sentence.

> (5) Ariadne comes to show her task to the researcher, who asks, "Is it right or wrong?" She thinks it's right. The researcher asks, "Why?" She explains that she went to look at the map to respond. Read the questions and their answers; the researcher congratulates her because they are correct.

We can note in practically all records the importance of oral language (and also of writing, especially in the school context). In these examples, language emerges as a system with a high degree of flexibility and adjustment to different circumstances (Díaz et al., 1996). It also serves to evidence the presence of complex mental processes under development, which originated in interpersonal activities, through dialogues with significant others (family members, teachers, colleagues, etc.) and gradually transform into complex intrapsychic functions, such as self-regulation (Vigotski, 2001). In these records of scenes extracted from the child school routine, the impossibility to distinguish between the development of self-regulation and the evolution of language is noteworthy, but without reducing one to the other.

Portfolio-mediated self-regulation

In the analysis of the data obtained through the application of the Self-Assessment Roadmaps, some children assumed the portfolio as something that outlines them, that identifies them. This is the case of Dione, who said, when asked about what she thought of the portfolio: "The portfolio is almost a life for me because my activities are inside it"; or Iris, who records: "I wanted to put [in the portfolio] my memories of when I was a baby and all, all, all, all . . . " These indicators coincide with what the teacher said about the bond students tend to to develop with the portfolio, taking it as a biographical, memory "space", a record of life. In this sense, the portfolio can play an important role in the structuring and configuration of the self and identity (Sant'Ana-Loos & Loos-Sant'Ana, 2013) of children in this age group.

Regarding how the chosen activities would have helped students to learn, responses with varying levels of complexity were observed. Some children referred to more "generic" acknowledgments about the learning in question: "I read a lot and learned." For others, indicators of recognition of the processes involved were well evidenced, mainly regarding the difference between "how they were at the beginning" and "how they were at the end of the school year": some reported that, at the beginning of the year, they were able to do small texts and to count with one-digit figures only, "like 2 + 2". At the end of the school year, they were already able to produce larger texts and do more complex arithmetic, like division and multiplication. Therefore, the children perceived and compared a certain state of knowledge, their initial and basic learning, with another, more advanced and complex state. Ariadne recorded his perception: "It's just that I did not know anything until I changed, changed . . . until I got a pass grade." The idea of a process, that their learning is progressively changing, is correlated with self-regulation, in that the children perceive/feel that there is an individual and collective process of transformation that culminates in a certain state, which permits their more conscious and integrated action in the environment.

Frequent dialogues between the teacher and the children permitted exhibiting the relevance of the teacher's role in the development of the students' self, especially when it comes to developing positive beliefs about oneself, the beliefs that should collaborate towards the construction of a "sense" of confidence in oneself. Polydoro and Azzi (2009) emphasize the reciprocal relationship between self-efficacy and self-regulation: to the extent that self-efficacy interferes with self-regulation, it also plays an important role in building self-efficacy beliefs, providing information about performance, time, and effort spent in the activity, building it.

This study stood out by highlighting, through vivid examples briefly shared here, that individuals contain, express, negotiate, modify and regulate knowledge and concepts about the world. The same was true for cognitive/affective behaviors and skills considered desirable to act in the environment, as well as self-beliefs/preferences and aspects that they observe in the reality. These are the elements that support individuals' recursiveness, which equip the self for the sake of self-regulation, giving support, validating and affirming their identity contours that refer us to the other and ourselves. And these processes are of vital importance when one considers the attainment of formal or informally planned school content.

The expansion of the concept of self-regulation, proposed by TSEA, occurs to the extent that we consider that it is not "reduced" to the self (self-regulation), as it is commonly known in the psychological literature, but participates in dimensions that encompass other "tangible elements of the self": the dimensions of identity, resilience and alterity. Processes that require self-tuning, self-assessments, and therefore self-regulation - considered in an integrated set of processes, permeate all of them.

By emphasizing the processes-interactions (alterity) observed during the research, we note the emergence of self-regulation as an uninterrupted cycle of feedback (Vohs & Baumeister, 2004) and, in the broader conception of TSEA, a triadic psychic system (self-identity-extended resilience), which produces an immense volume of feedbacks based on the interaction with the other (alterity), being continuously modulated. Self-regulation leads to the modulation of the interaction with the other, generating new feedbacks and configuring movements of continuous search for homeostasis, in order to overcome the systemic entropy (Sant'Ana-Loos & Loos-Sant'Ana, 2013).

Programs that teach preconceived strategies for planning, implementing, and evaluating learning are insufficient - but they are also relevant: it is argued that they need to authentically generate (self) transformations in the person and in his/her development. It is suggested that, in order to collectively overcome the limitations of this study (focused on one sample), further research should be undertaken with an "expanded" look at self-regulation processes in children.

Thus, this research is part of the promising dialogue between Psychology and Education, insofar as it can contribute to the understanding and expansion of the actions of school institutions on and towards the consolidation of the psychological functions that grant the individual autonomy, the creative and responsible exercise of self-regulation, which is necessary for the high-quality development and learning of our children.

References

Azevedo, A. S., Dias, P. C., Salgado, A., Guimarães, T., Lima, I., & Barbosa, A. (2012). Relacionamento professor-aluno e auto-regulação da aprendizagem no 3º ciclo do ensino médio português [Teacher-student relationship and self-regulated learning in Portuguese compulsory education]. *Paidéia (Ribeirão Preto), 22*(52), 197-206. doi:10.1590/S0103-863X2012000200006

Campos, L. R. G., Ribeiro, M. R. R., & Depes, V. B. S. (2014). Autonomia do graduando em enfermagem na (re)construção do conhecimento mediado pela aprendizagem baseada em problemas [Autonomy of nursing undergraduate student in the (re)construction of knowledge mediated by problem-based learning]. *Revista Brasileira de Enfermagem, 67*(5), 818-824. doi:10.1590/0034-7167.2014670521

Cotta, R. M. M., & Costa, G. D. (2016). Instrumento de avaliação e autoavaliação do portfólio reflexivo: Uma construção teórico-conceitual [Assessment instruments and self-evaluation of reflective portfolios: A theoretical-conceptual construction]. *Interface - Comunicação, Saúde, Educação, 20*(56), 171-183. doi:10.1590/1807-57622014.1303

Díaz, R. M., Neal, C. J., & Amaya-Williams, M. (1996). As origens sociais da auto-regulação [The social origins of self-regulation]. In L. C. Moll (Orgs.), *Vygotsky e a educação: Implicações pedagógicas da psicologia sócio-histórica* [Vygotsky and education: Pedagogical implications of socio-historical psychology] (F. A. Tesseler, Trans., pp. 123-149). Porto Alegre, RS: Artes Médicas.

Effeney, G., Carroll, A., & Bahr, N. (2013). Self-regulated learning: Key strategies and their sources in a sample of adolescent males. *Australian Journal of Educational & Developmental Psychology, 13*, 58-74. Retrieved from http://www98.griffith.edu.au/dspace/bitstream/handle/10072/70168/103131_1.pdf?sequence=1

Forte, F. D. S., Costa, C. H. M., Pessoa, T. R. R. F., Gomes, A. M. A., Freitas, C. H. S. M., Coimbra, L. C., & Aquino, D. M. C. (2015). Portfólio como estratégia de avaliação de estudantes de odontologia [Portfolio as a strategy to evaluate dentistry students]. *Trabalho, Educação e Saúde, 13*(Supl. 2), 25-38. doi:10.1590/1981-7746-sip00084

González Rey, F. L. (2002). *Pesquisa qualitativa em psicologia: Caminhos e desafios* [Qualitative research in psychology: Paths and challenges] (M. A. F. Silva, Trans.). São Paulo, SP: Pioneira Thomson Learning.

Hadji, C. (2001). *A avaliação desmistificada* [The demystified assessment] (P. C. Ramos, Trans.). Porto Alegre, RS: Artmed.

Loos, H., & Cassemiro, L. F. K. (2010). Percepções sobre a qualidade da interação familiar e crenças autorreferenciadas em crianças [Perceptions about the quality of family interactions and self-beliefs in children]. *Estudos de Psicologia (Campinas), 27*(3), 293-303. doi:10.1590/S0103-166X2010000300002

Luna, M. D., Loos-Sant'Ana, H., Sant'Ana-Loos, R., & Silva, N. C. (2013). Das dicotomias teóricas às práticas desarmônicas: A agregação e a integralidade dos fenômenos humanos são irrelevantes na psicologia? [From theoretical dichotomies to disharmonic practices: Are aggregation and integrality of human phenomena irrelevant to Psychology?]. *PsicoDom, 11*. Retrieved from http://www.dombosco.sebsa.com.br/faculdade/revista_11ed/artigos.php

McCabe, L. A., Cunnington, M., & Brooks-Gunn, J. (2004). The development of self-regulation in young children: Individual characteristics and environmental contexts. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 340-356). New York, NY: Guilford.

Miranda, C. Q., & Villas Boas, B. M. F. (2008). A releitura de portfólios para a construção do trabalho de conclusão de curso de pedagogia [A new look at portfolios in constructing the pedagogy course final paper]. *Educação & Sociedade, 29*(102), 215-229. doi:10.1590/S0101-73302008000100011

Polydoro, S. A. J., & Azzi, R. G. (2009). Autorregulação da aprendizagem na perspectiva da teoria sociocognitiva: Introduzindo modelos de investigação e intervenção [Self-regulation learning from the perspective of social-cognitive theory: Introducing investigation and intervention models]. *Psicologia da Educação,* (29), 75-94. Retrieved from http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1414-69752009000200005&lng=pt&tlng=pt

Preto, M., & Moreira, P. A. S. (2012). Auto-regulação da aprendizagem em crianças e adolescentes filhos de vítimas de violência doméstica contra mulheres [Self-regulation of learning in children and adolescents whose mothers were victims of domestic violence]. *Psicologia: Reflexão e Crítica, 25*(4), 730-737. doi:10.1590/S0102-79722012000400012

Rosário, P. S. L. (2004). *Estudar o estudar: (Des)venturas do Testas* [Studying the study: (Des) venturas do Testas]. Porto, Portugal: Porto Editora.

Sant'Ana-Loos, R. S., & Loos-Sant'Ana, H. (2013). A afetividade ampliada enquanto meta-teoria: Breve ensaio acerca do que nos faz humanos e repercussões para a Psicologia [Expanded Affectivity as a meta-theory: A brief essay about what make us humans and its repercussions to Psychology]. *PsicoDom, 12*. Retrieved from http://www.dombosco.sebsa.com.br/faculdade/revista_12ed/arquivos/pdf/PSICODOM_artigo_01.pdf

Shores, E., & Grace, C. (2001). *Manual de portfólio: Um guia passo a passo para professores* [Handbook of portfolio: A step-by-step guide for teachers] (R. C. Costa, Trans.). Porto Alegre, RS: Artmed.

Stelet, B. P., Romano, V. F., Carrijo, A. P. B., & Teixeira Junior, J. E. (2017). Portfólio reflexivo: Subsídios filosóficos para uma práxis narrativa no ensino médico [Reflective Portfolio: Philosophical contributions to a narrative praxis in medical education]. *Interface - Comunicação, Saúde, Educação, 21*(60), 165-176. doi:10.1590/1807-57622015.0959

Silva, N. C. (2014). *Autorregulação psicológica e autoavaliação por meio de portfólios com crianças dos anos iniciais do ensino fundamental à luz da Afetividade Ampliada* [Psychological self-regulation and self-assessment through portfolios with children from the earliest years of elementary school in the light of Expanded Affectivity] (Doctoral dissertation). Retrieved from http://

acervodigital.ufpr.br/handle/1884/40605

Souza, P. M. L. (2006). *Aprendizagem auto-reguladora no contexto escolar: Uma abordagem motivacional* [Self-regulatory learning in the school context: A motivational approach]. Retrieved from http://www.psicologia.com.pt/artigos/textos/A0295.pdf

Villas Boas, B. M. F. (2006). *Portfólio, avaliação e trabalho pedagógico* [Portfolio, evaluation and pedagogical work] (3rd ed.). Campinas, SP: Papirus.

Villas Boas, B. M. F. (2008). *Virando a escola do avesso por meio da avaliação* [Turning school inside out through assessment]. Campinas, SP: Papirus.

Villas Boas, B. M. F., & Soares, S. L. (2016). O lugar da avaliação nos espaços de formação de professores [The place of assessment in teacher education]. *Cadernos CEDES, 36*(99), 239-254. doi:10.1590/CC0101-32622016160250

Vigotski, L. S. (2001). *A construção do pensamento e linguagem* [The construction of thought and language] (P. Bezerra, Trans.). São Paulo, SP: Martins Fontes.

Vohs, K. D., & Baumeister, R. F. (2004). Understanding self-regulation: An introduction. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 1-9). New York, NY: Guilford.

Wallon, H. (1975). *Psicologia e educação da infância* [Psychology and early childhood education] (A. Rabaça, Trans.). Lisboa, Portugal: Estampa.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego, CA: Academic Press.

Neyre Correia da Silva is a Professor of the Centro Universitário Unidombosco, Brazil.

Helga Loos-Sant'Ana is a Professor of the Universidade Federal do Paraná, Brasil.