

METACOGNITION, SELF-PERCEPTION, AND SELF-AWARENESS IN CHILDREN FROM 9 TO 12 YEARS OLD

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ABSTRACT

Metacognition is a fundamental cognitive process for learning and it is related to self-reflection. The objective of this exploratory and qualitative study was to describe children's perception of their metacognitive strategies based on a metacognition scale. In this way, 106 children aged 9 to 12 years old participated, who answered a structured questionnaire. Data analysis followed the semiotic phenomenology criteria. The results revealed five themes: (1) Joy and motivation; (2) Indecision and curiosity; (3) Know more about me; (4) Anxiety; (5) Different from what I do at school. The diversity thematic of children's perception of their self-reflective process suggests the extent of monitoring their own thoughts, feelings and behaviors and the experience and judgment of internalized contents. It is suggested that self-reflective tasks may be included in school programs, as they allow children to re-signify their role as subjects of their own knowledge process.

Keywords: metacognition; self-awareness; childhood

Metacognición, autopercepción y autoconsciencia en niños de 9 a 12 años

RESUMEN

La metacognición es un proceso cognitivo fundamental hacia el aprendizaje y está relacionada a la autorreflexión. El objetivo de este estudio, exploratorio y de enfoque cualitativo, fue describir la percepción de niños sobre sus estrategias metacognitivas a partir de una escala de metacognición. Participaron 106 niños de 9 a 12 años, que respondieron a un cuestionario estructurado. El análisis de los datos siguió los criterios de la fenomenología semiótica. Los resultados apuntaron cinco temáticas: (1) Alegría y motivación; (2) Indecisión y curiosidad; (3) Saber más sobre mí; (4) Ansiedad; (5) Diferente de lo que hago en la escuela. La diversidad temática de la percepción de los niños sobre su proceso autorreflexivo sugiere la amplitud de la supervisión de los propios pensamientos, sentimientos y comportamientos y de la experiencia y juzgamiento de contenidos internalizados. Se sugiere que tareas autorreflexivas sean incluidas en los programas escolares, pues propician a los niños la resignificación del papel de sujetos de su propio proceso de conocimiento.

Palabras clave: metacognición; autoconsciencia; infancia

Metacognição, autopercepção e autoconsciência em crianças de 9 a 12 anos

RESUMO

A metacognição é um processo cognitivo fundamental para a aprendizagem e está relacionada à autorreflexão. O objetivo deste estudo, exploratório e de enfoque qualitativo, foi descrever a percepção de crianças sobre suas estratégias metacognitivas a partir de uma escala de metacognição. Participaram 106 crianças de 9 a 12 anos de idade, que responderam a um questionário estruturado. A análise dos dados seguiu os critérios da fenomenologia semiótica. Os resultados revelaram cinco temáticas: (1) Alegria e motivação; (2) Indecisão e curiosidade; (3) Saber mais sobre mim; (4) Ansiedade; (5) Diferente do que faço na escola. A diversidade temática da percepção das crianças sobre seu processo autorreflexivo sugere a amplitude do monitoramento dos próprios pensamentos, sentimentos e comportamentos e da experiência e julgamento de conteúdos internalizados. Sugere-se que tarefas autorreflexivas sejam incluídas nos programas escolares, pois propiciam às crianças a resignificação do papel de sujeitos de seu próprio processo de conhecimento.

Palavras-chave: metacognição; autoconsciência; infância

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INTRODUCTION

Self-regulation is a cognitive component used by individuals in order to manage their thoughts, behaviors, and feelings. This resource becomes more and more efficient as individuals figure out how to establish a mediating relation between motivation, and the need to learn and overcome obstacles. Metacognition is a dimension of self-regulation, as well as motivation, and it helps out in our regulation of the processing of information and of behavior (Beber, Silva, & Bonfiglio, 2014; Koriat, Ackerman, Lockl, & Schneider, 2014). It can be defined as the necessity of individuals to be aware of their own cognitive processes and of having the ability to control them, monitor them, and organize them in order to reach personal goals and objectives. Also, when it comes to individuals' understanding regarding their own cognitive state, conceiving their psychic processes as objects of awareness itself (Santos, 2017). More specifically, metacognition is "[...] The knowledge and cognition on the cognitive phenomenon" (Flavell, 1979, p. 906). The conscious skill of self-regulation and self-awareness implies psychological, emotional, and motivational aspects. Therefore, it is influenced by individuals' internal and external aspects (Santos, 2017).

Metacognition, according to context, influences individuals' decision making, and organizes functions of attention, perception and memory, which are also useful in the elaboration, execution and monitoring of objectives, as well as in the assessment of results (Santos, 2017). It is fundamental for learning (Corso, Sperb, Jou, & Salles, 2013), because it leads to knowledge, and to the ability to monitor, organize and control actions for the development of strategies and the accomplishment of objectives. That is, it is a facilitating function in the process of learning which does not limit itself to academic learning. It extends along the process of acquisition of knowledge in different contexts such as the professional, the social, and the political (Beber et al., 2014). The metacognitive skill makes itself indispensable to the acquisition and development of oral language, written language, reading, attention, memory, problem solution, and self-control.

Initially, metacognition was investigated by the post-Piagetian movement (Flavell, 1979), which resulted in a cognitive monitoring model that is still a reference in the area. Such model considers that the cognitive process is formed by four classes of phenomena: (1) metacognitive knowledge, where all information regarding cognitive tasks, actions, and experiences are stored; (2) the metacognitive experiences, which comprehend the cognitive or affection knowledge that, consciously, is present in the cognitive process; (3) the goals (objectives) and (4) the strategies (actions). In other words, metacognition is related to knowledge regarding the processes and competences involved in the acts of planning and defining goals, and monitoring

and assessing performance (Koriat et al., 2014).

The metacognitive monitoring model was an inspiration for the creation of other theoretical models, such as the one presented by Dunlosky and Metcalfe (2009). To the authors, metacognition is formed by three components: (1) metacognitive knowledge, which understands how individuals become aware that they learn and what they can do to improve their own learning; (2) metacognitive monitoring, which takes place at the moment individuals assess cognitive activity and become able to monitor the execution of tasks; (3) metacognitive control, which comes up as a consequence of cognitive monitoring - individuals make decisions regarding the strategies they are going to use in order to reach their own objectives.

The construction of knowledge is propelled by metacognitive development, but it is necessary to emphasize the influence of contexts and the interference of mediators that help individuals in the process. The interaction between the subject and the social mediators leads to the overcoming our difficulties and adaptation to exterior changes (Beber, Silva, & Bonfiglio, 2014; Dantas & Rodrigues, 2013).

Metacognitive monitoring is, therefore, a metacognitive function and it helps in academic performance (Koriat et al., 2014) because it leads individuals to obtain self-perception over their own cognitive process. In addition, it provides information on the use of psychological strategies and the reached goals, while leading to a reflection on thought and an assessment on the psychological processes used in learning (Tanikawa, Akemi, & Boruchovitch, 2016). Consequently, it is possible to understand the close relation between metacognition and self-reflection since it is necessary in the monitoring phase and helps individuals make better choices and adjust their strategies and there are search for the ones that contribute most to the accomplishment of their objectives.

Based on the premise that self-reflection is a dimension of self-awareness, which is an important component in the metacognitive process, the participation of self-awareness in cognitive monitoring becomes evident (Leal, Souza, & Souza, 2018). In other words, metacognitive monitoring wins when individuals have emotional and cognitive skills to assess the thoughts, behaviors, strategies, and feelings in themselves and in others. As a result, the objective of this study was to describe the perception of children in typical development over their own metacognitive strategies based on a metacognition scale.

METHOD

Ouling

Qualitative approach study with an exploratory focus (Creswell, 2003/2010; Creswell & Clark, 2011/2013). The treatment and the analysis of data followed the criteria

of semiotic phenomenology (Batista, Saleme, Canal, & Souza, 2017; Gomes, 1997, 1998; Leal et al., 2018; Motta, Rafalski, Rangel, & Souza, 2013; Silva, Jardim, & Souza, 2019).

Participants

It consisted of a sample by convenience, which included two schools in the metropolitan region of Grande Vitória, state of Espírito Santo. All children from the 3rd to the 6th year were invited. 106 children composed the sample, while 77 children were aged between 9 and 10 years old (72,64%) and 29 (27,36%) were between the ages of 11 and 12 years. 55 participants were girls (51,89%) and 51 were boys (48,11%). Researchers chose the criterion of heterogeneity of the sample, so the participants came from a municipal public school (37; 34,9%) and from a private school (69; 65,1%). It was not an objective, however, to promote the comparison between the data from the participants out of public or private schools. The objective was to obtain a diversified sample of the population in the researched age group.

Instruments

Two instruments were used. The first one, the metacognition scale (EMETA) (Pascualon-Araujo & Schelini, 2015), is a tracking instrument, whose objective is to assess metacognitive skills in children from 9 to 12 years of age. It is composed of 16 cognitive tasks such as: "I'm good at remembering things I see", "during the reading of the book I keep asking myself how much of it I understand" and "when I finish a test, I can tell if I did well or not". The scale was not the object of analysis in this study, it served the purpose of a conscious reflectiveness trigger, that is, it collaborated as a stimulus for the process of self-reflection in children. The second instrument is a structured questionnaire that refers to the perception of the participants on the items of the EMETA. It was developed by the researchers involved in this study in order to lead children to think over their own cognitive process. It consisted of a script made-up of two topics: "how did you feel during the activity?" (Question A) and "did you find the activity interesting? Why?" (Question B). The children answered the written questionnaire.

Data Gathering

The parents that allowed their children to participate signed a Free Informed Consent Term (TCLE). The teachers authorized the children to leave the classroom at moments when the children were not doing important activities such as examinations, reviews, or the introduction of new content. The gathering of data took place in a quiet place that had been previously suggested by the school administration with groups containing 10 to 15 children. When they arrived at the gathering place, the lead researcher and the research monitors (five psychology undergraduates) welcomed the children and explained the procedures for each

instrument. First, they answered the EMETA and then the structured questionnaire. The children whose parents did not sign the TCLE, and the ones who did not wish to participate, Remained in their school activity. The duration of the gathering for each group of participants was 40 minutes, from the orientation to the provision of answers to the instruments. The gathering was realized in the months of November of 2018 and April and August of 2019. There was feedback all the results of this study for the pedagogues in the schools.

Data analysis

The assessment of questionnaire data was realized by three judges that, independently, reAd the participants answers, Adopting the *epoché* practice, that is, the attempt to minimize researchers' subjectivity. 5 themes were withdrawn from the description because they did not obtain 100% agreement among judges. The structured questionnaire received a code in order to safeguard the participants' identity, including the following information: P = participant, I = age, G = gender, Q = question A or B (P.I.G.Q). For example, P1.8.F.A refers to participant number one, 8 years of age, female, answer A.

The criteria for semiotic phenomenological assessment are fundamental for three systematic, reflexive steps, that is, description, reduction, and interpretation (Ehrenbrink & Souza, 2018; Lanigan, 1988), which were the basis of result analysis. In the first step, the descriptive activity of conscious experience of the children was organized around three sets of themes that emerged in the results. After this phase, in a second reflexive step, referring to phenomenological reduction, the description analysis was reorganized in synthesis, which revealed the content structure. In other words, at the same time that the answers were divided, content was evidenced. The third and last step, phenomenological interpretation, questioned the possible relations between the answers (written language) and the parts that composed it, producing new possibilities for reflection, that were then contrasted with the different contacts that were offered by the scientific literature in the area, in order to construct the comprehension of the investigated phenomenon.

RESULTS

The description and the phenomenological reduction present, respectively, the theme context that emerges from the children's perceptions and the problem focus that synthesizes the parts (units of meaning) expressed in writing by means of the answers to the proposed questionnaire. Thus, the theme context of the children's perception on their own experience of thinking over their own cognitive process copper handed five different themes: (1) happiness and motivation; (2) indecision and curiosity; (3) learning more about myself; (4) anxiety and (5) different from the things I do at school.

(1) *Happiness and motivation*: this set of themes comprehended answers that refer putting this assessment of one's own affection when accomplishing a task, with a highlight on the positive emotions expressed in terms such as happiness, joy, excitement, quiet, tranquility, absence of anger, and self-confidence. Such affections seem predominant in the children's perceptions even when they are followed by surprise, doubt, or discomfort. "I felt peaceful and was able to really pay attention" (P36.12.M.A); "Very cool. Very joyful! Happiness!" (P37.11.F.A); "I felt good. I did not get nervous. It was nice" (P44.9.F.A); "Calm and patient" (P39.12.M.A); "I felt confident" (P42.9.M.A); "I felt happy, excited, a little bit anxious, but then I got very excited again because I was going to take part in the research, but I was surprised nevertheless" (P45.9.F.A); "I felt quite excited" (P50.10.F.A); "I got so happy" (P52.9.F.A); "I felt happy" (P81.11.F.A).

(2) *Indecision and curiosity*: of things that expresses an assessment with a focus on the cognitive aspect of the task, which comprehends the perception of a degree of difficulty related to indecision and, possibly, associated to the complexity of the metacognition process required provide answers to the instrument items. "I felt kind of confused, but the activity is nice" (P38.12.M.A); "I got a little undecided, because it was difficult sometimes. It's not very easy for me to make decisions" (P47.9.M.A); "I got more interested in doing stuff and felt more motivated to do the things they asked me to do at home. But I felt a little undecided about the questions (P49.9.F.A); "I thought it was easy, I only got confused in a few questions because I had no way of knowing if I was getting it right" (P82.11.F.A); "I felt quite puzzled but I liked it a lot" (P88.10.F.A).

(3) *Learning more about myself*: this set of themes includes self-perception regarding ones own cognitive processes that are involved in learning. Thus, it comprehends self-reflection questions and an assessment of the performances obtained in the activity. It also involves an analysis of thoughts, behaviors, strategies, and feelings that occur during the learning process. "Because it makes you learn about how you feel" (P20.10.M.B); "because it helps me learn a thing or two about myself" (P29.11.F.B); "because I got more interested in myself" (P30.11.M.B); "because this activity helped me understand myself better" (P32.10.F.B); "because it made me think about [:] how[?] Is that so[?] Sometimes[?] Always[?] That's why I thought it was very cool" (P38.12.M.B); "because you learn about yourself" (P42.9.M.B); "because it helps you handle your problems" (P58.9.M.B); "it felt good to think about myself and discover things about myself" (P66.10.M.A); "I felt free to see what I am really like" (P71.11.M.A); "relaxed, because I paused to reflect over my own life and my problems" (P73.10.M.A); "because I got to know myself better" (P74.10.F.B); "I liked it because I could go deeper and reflect over my own feelings" (P77.11.F.A);

"I liked it because it helped me learn things that I didn't even know about myself" (P101.11.M.A).

(4) *Anxiety*: set of themes that comprehends emotional self-assessments that precede and succeed the execution of an activity. Anxiety is understood as a consequence of a stressful event, such as the execution of an activity, so that the discrepancies between the external and internal environments, and the interactions of personal characteristics and environmental demands generate individuals' perception regarding their answering capacity (Margis, Picon, Cosner, & Silveira, 2003). "I felt sort of nervous and anxious" (P40.10.F.A); "I felt kind of anxious" (P41.9.M.A); "I felt a little nervous, even though I knew that there is no right or wrong answer" (P43.10.F.A); "In the beginning, I felt a little nervous, but then I relaxed as I got used to it" (P61.9.F.A); "I felt kind of nervous but then I managed to calm down (P62.9.F.A); "I felt nervous" (P63.9.F.A); "A little nervous because I had never done anything like that" (P70.10.M.A); "I felt nervous" (P85.10.F.A).

(5) *Different from the things I do at school*: this set of themes expresses new experiences, regarding the close relation between the motivation to learn and the self-awareness acquired during the activity. "Yes. They asked me questions about my own life that nobody had ever asked me" (P1.10.F.B); "Yes because it helps me understand my own life and how I live. This activity is going to help think about what I should do in the place where I live" (P37.11.F.B); "It has been a while since I last saw some activity like this at school. A quiet classroom is something rare around here. I really enjoyed it" (P39.12.M.A); "Yes because I found it different and super interesting, and it is definitely a new experience" (P40.10.F.B); "Yes because I had a chance to be honest about myself, I loved it and I want to do it again" (P52.9.F.B); "Yes because I thought it was different and lots of fun" (P83.10.F.B).

The phenomenological reduction synthesized, by means of description, a problem focus (content) for the context demonstrated in the description: cognition and affection as components of self-reflexive thought. The self-perception expressed by the children, as a self-reflexive process demonstrated in the proposed task, implies aspects that are cognitive as well as emotional and that establish a logical connection.

DISCUSSION

The phenomenological interpretation of the problem focus demonstrated in the reduction requires a comprehension of the metacognitive process that implies the affection, cognitive dimension and the possibility for the exercise of an internal speech. Such comprehension is in agreement with studies on self-awareness, that is, self-reflexiveness (Leal et al., 2018), especially in the school context (Batista et al., 2017; Motta et al., 2013; Pereira & Abib, 2016; Silva, Jardim, & Souza, 2019). It is possible to affirm that self-reflection structures self-awareness

and composes the metacognitive process (Leal et al., 2018). The construction of metacognitive capacity, in turn, depends on the structure of the self-reflection skill. Thus, it is possible to create an interdependence: cognitive development is based on self-reflection, which is constructed by individuals' experiences in monitoring cognition and thought in order to adapt to environmental demands.

The theme context expressed two dimensions that structured the children's perceptions: affective and cognitive. The affective dimension can be observed in the themes (1) happiness and motivation and (4) anxiety, while the cognitive dimension, in the themes (3) getting to know more about myself and (5) Different from the things I do at school or, even, in an indissoluble manner, in the theme (2) indecision and curiosity. These results strengthen hypothesis that metacognitive monitoring benefits when individuals have the cognitive skill to assess their own thoughts, behaviors, strategies and feelings (Leal et al., 2018). Likewise, they emphasize the attention that educators should pay to both dimensions of the learning process. Individuals' autonomy requires the existence of a conscious, established self-reflection; it is a construction that develops along individuals' growth process, when individuals learn to develop a dialogue with themselves. As self-reflection keeps improving, there is the proximity of cognitive and emotional aspects and individuals become more attentive and participative in the construction of learning.

Cognitive and affective aspects constitute individuals and influence themselves mutually, that's the reason why they should not be seen separately. The children's experience comes from a movement that is a relation between the internal (the children themselves) and the external (environment, context) and between themselves and others (their peers and other players in the social relation), in an effective dialogical exchange that is conditioned and mediated by the context. This emotional experience is a formidable driving force for individuals and helps them in their life projects. The environment does not reduce itself to a means, but it especially refers to the exchanges made between what is internal and what is external, since it leads children to reflection over their own actions and thoughts. The way we experience something changes in accordance with the internal/external relation. That way, learning demands other motivational factors: "[...] Commitment, time and self-esteem [...]" (Beber et al., 2014, p. 146). Motivation is closely related to the knowledge individuals construct about themselves and it was evidenced, for example, in the answer: "I felt confident" (P42.9.M.A) or even: "I felt happy, excited, joyful, a little anxious, and then I got excited all over again about taking part in the research. At the same time I was surprised" (P45.9.F.A). When individuals perceive that they are getting attention, acceptance, gratification, and affection

there is the development of a learning culture: "because I have more interest in myself" (P30.11.M.B) or even: "yes because I was asked questions about like my life that nobody had ever asked me before" (P1.10.F.B). Based on this conjecture, the process of knowledge development ceases to be mechanic and becomes pleasurable and meaningful: "I thought more interested in doing things and I thought more motivated to do the things they asked me to do at home" (P49.9.F.A). In this perspective, overcoming difficulties leads to growth in the cognitive and emotional dimensions (Beber et al., 2014).

The theme diversity of the children's perceptions on their self-reflection process hints at the amplitude of the monitoring of their own thoughts, feelings and behaviors and of the experience and judgement of internalized contents. Thinking of themselves led to the development of self-awareness, especially in the theme (3) Learning more about myself. Self-criticism became a regulating function of mental action. There was the organization, assessment and control of their own cognitive actions by means of the Metacognition Scale. The evidence of self-reflection activity was demonstrated, for example, in the answer: "... because I paused and reflected on my own life and took notice of my own problems" (P73.10.M.A).

Researchers perceived a re-signification movement that leads to the change produced by looking into oneself. The looking-inside movement can be noticed in answers such as: "Because this activity helped understand myself" (P32.10.F.B) and "... because I could go deeper into my own feelings" (P77.11.F.A). By thinking about themselves, the children also had the opportunity to reflect on life and the need to talk about their feelings: "Because it makes you think about how you feel" (P20.10.M.B).

The reflexive process conducts the "internal dialogue" by providing guidelines for the skills and competencies to learn and by organizing and integrating thought and behavior (Vygotsky, 1934/1989). Before this reasoning occurs internally, there is a need to legitimate the point of view among peers. Thus, within a group discussion, each child starts perceiving and wondering at the bases of their thoughts. This characteristic of reasoning that verifies information plays a central role in the processing of adult thought, in which communication generates the need to confirm thoughts (Bertau, 1999; Silveira, 2007; Souza, 2005; Souza & Gomes, 2003). So, understanding these phenomena by means of listening to the children's self-reflexive thoughts produces evidence regarding the mode of internalization of external knowledge and its capacities (Batista et al., 2017; Dolitsky, 2000; Fogel, Koeyer, Bellagamba, & Bell, 2002; Girbau, 2002; Motta et al., 2013; Silva et al., 2019) in order to identify pedagogical blanks and think of singular pedagogical strategies. Education does not limit itself to an insistence on the need for experiences, but rather in the quality of such experiences. When the activity of speaking

of oneself produces identifications, motivational connections are created, which is something that productively and creatively influences subsequent experiences: “Yes because I had a chance to be honest. I loved it and I want to do it again” (P52.9.F.B).

The reflexive activity proposed by the EMETA affirmations was considered as something that had never been experienced at school, predisposing the children to describe it as something good, positive, fun, and interesting. Likewise, they reported that reflecting on themselves is also an experience that was different from the ones they had among family and society, by saying that nobody had ever asked them questions about the way they learned: “Yes because I was asked questions that nobody had ever asked me before” (P1.10.F.B). In addition, the children manifested their own discoveries by reporting that they had the opportunity to go deeper into self-awareness: “I felt good about thinking about myself and discovering things about myself” (P66.10.M.A).

The process of thinking about oneself propelled the discovery of feelings and excited the participants’ curiosity for knowledge on their own potentials and the courage that were needed to bring about change in the way the children regarded difficulties and learning: “Because it helps handle problems” (P58.9.M.B). In addition, the self-reflection realized during the reading and the answering of the nominal variables of the EMETA might have triggered the following internal dialogue: “Because it made me reflect and think [and] think [:] how [?] really? [?] sometimes [?] always [?] That is why I thought it was so nice” (P38.12.M.B). The movement of thinking about oneself structures self-awareness and composes the metacognitive process (Santos, 2017). In this study, self-reflection might have benefitted the re-signification of the participants as subjects of their own knowledge process: “Yes because it made me understand my own life and how I live. This activity is going to help me think a little about what I should do in the place where I live” (P37.11.F.B). The movement, in this sense, leads to the formation of individuals that are capable of playing their role in the world outside in an affectionate, constructive way, as agents for society transformation (Freire, 1987; Oliveira & Freire, 2017).

CONCLUSION

This study provided the children from 9 to 12 years of age with a standpoint. In general, they contributed with information regarding their emotions and self-awareness. The answers highlighted the relevance of speaking of oneself. Comprehension regarding the self is linked to individuals’ full development. In this sense, the learning culture requires efforts by social players: family, school, society.

The facilitating strategies of learning might include activities that stimulate memory and cognition. School activities, for example, can get more meaningful when

they get contextualized, remembered, connected with learned content and with pertinent examples from everyday life. The interest demonstration by the mediator – whether he is present in the figure of the teacher, parents, or other social players – on how children feel comprehends affective and social strategies. Knowing the child’s opinion on a certain topic or how they feel in certain situations opens up a process of listening and embracing because it allows children to talk about themselves.

School is a place that is conducive to collective experiences, in which individuals learn how to live with others, while also learning a culture. Self-awareness becomes essential so that this learning structures itself in a critical and significant way. Thus, including in the pedagogical projects activities that develop self-perception, discussions of metacognitive nature, and the promotion of opportunities for reflection and of the acquisition of awareness might make students finally realize the importance of the role they play and their responsibilities regarding their own learning. The presence of affective phenomena in pedagogical mediation helps in the formation of citizens who are more aware of the rights and duties.

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