

Self-Regulation of Learning in Early Childhood Education: Results of the application in an Intervention Plan¹

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ABSTRACT

This study aims to understand the contributions of self-regulation of learning to the cognitive development in pre-school children through games and plays. It is a quanti-quali study that presents the application of an Intervention Plan in children classes from Early Childhood Education, with the purpose of self-regulation of learning in young children. The intervention plan was applied to a sample of 120 children and 4 teachers, in order to verify the possibility of promoting the self-regulation of learning through plays and games and later analyze, quantitatively, the evaluations made by the teachers regarding the students' responses after the intervention. The data were organized into groups indicating what the students were able to perform without difficulty, what they were able to perform with difficulty and what they could not develop. The use of games and plays within the Intervention Project was the great importance for the research, since these resources promoted a large involvement of the children about the study proposal and also contributed to questions about group interaction and even gender issues which were raised during the activities.

KEYWORDS: Self-regulated learning. Intervention plan. Early childhood education.

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Autorregulação da Aprendizagem na Educação Infantil: Resultados da aplicação de um Plano de Intervenção

RESUMO

Este artigo tem como objetivo compreender quais as contribuições da autorregulação da aprendizagem para o desenvolvimento cognitivo de crianças em idade pré-escolar por meio de jogos e brincadeiras. Trata-se de um estudo quanti-quali que apresenta a aplicação de um Plano de Intervenção em turmas da Educação Infantil, possuindo como objeto a Autorregulação da Aprendizagem. Aplicado em uma amostra de 120 crianças e 4 professoras, verificou-se a possibilidade de promover a autorregulação da aprendizagem por meio de brincadeiras e jogos e, posteriormente, foram analisadas quantitativamente as avaliações realizadas pelos professores quanto às respostas dos alunos após a intervenção. Os dados foram organizados em grupos indicando o que os alunos conseguiram realizar sem dificuldades, com dificuldade e o que não conseguiram desenvolver. A utilização de brincadeiras e jogos no Projeto foi imprescindível para a realização da pesquisa, os recursos promoveram grande envolvimento das crianças quanto a proposta do estudo.

PALAVRAS-CHAVE: Aprendizagem autorregulada. Plano de intervenção. Educação Infantil.

Autorregulación del Aprendizaje en Educación Infantil: Resultados de la aplicación de un Plan de Intervención

RESUMEN

Este artículo tiene como objetivo comprender las contribuciones del aprendizaje autorregulado al desarrollo cognitivo de niños en edad preescolar a través de juegos y actividades. Se trata de un estudio cuantitativo-quali que presenta la aplicación de un Plan de Intervención en las clases de Educación Infantil, teniendo como objeto la Autorregulación del Aprendizaje. Aplicado a una muestra de 120 niños y 4 docentes, se comprobó la posibilidad de promover la autorregulación del aprendizaje a través de juegos y juegos y, posteriormente, se analizaron cuantitativamente las valoraciones realizadas por los docentes respecto a las respuestas de los alumnos tras la intervención. Los datos fueron organizados en grupos indicando lo que los estudiantes pudieron hacer sin

dificultad, con dificultad y lo que no pudieron hacer. El uso de juegos y juegos en el Proyecto fue fundamental para la realización de la investigación, los recursos promovieron un gran involucramiento de los niños con respecto a la propuesta de estudio.

PALABRAS CLAVE: Aprendizaje autorregulado. Plan de intervención. Educación Infantil.

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Introduction

Albert Bandura (1986) conceptualized some constructs such as Self-regulation in his study of the behavior and influences that the social environment exerts on the individual. This construct is characterized by being self-directed and helping the individual to control and regulate their emotions, thoughts and actions, intervening directly in their reality. Thus, self-regulation is a conscious and voluntary process, in which the individual himself manages his behavior, being able to contribute to the events of his life, interfering with his daily life and influencing him (Bandura, 1986, 1991).

In recent years, self-regulation has been researched more frequently and can be inserted in various contexts such as health, sports, and education (Pajares AND Olaz, 2008). In this scenario, it is called Self-Regulation of Learning - SRL, which assists the student to develop their metacognitive, behavioral and motivational abilities, appropriating strategies that facilitate the learning process. Rosário (2014) emphasizes that SRL is an active process in which students set their goals, directing them, in a way that tries to monitor, regulate and control their cognition and behaviors.

In addition to being a management process, it occurs cyclically and interconnected simultaneously, encouraging students to stay in the sequential nature of learning, SRL requires students to plan tasks, establish strategies, monitor their performance and execution of its activities, making

it a reflection of its methods, corrections and errors, and can use them to perform or improve new activities (Rosario, Núñez and González-Pianda, 2007; Boruchovitch, 2014; Piscalho and Veiga Simão, 2014).

Being a proactive process, the individual has sufficient skills to choose and plan his strategies, systematically organizing and planning his behavior and structuring his learning environment (Ramdass; Zimmerman, 2011). This theme has been widely used by researchers of Cognitive Social Theory, who in their investigations propose intervention studies, applying them to varied audiences, such as Infant Education, Basic Education, Higher Education and other modalities, thus emerging new theoretical models (Zimmerman Model, Pintrich Model and Rosary Model, for example).

In Rosary model, the most used in Early Childhood Education, there are three SRL processes, namely: the strategies, perceived self-efficacy and personal commitment to the desired targets. Regarding to strategies, students relate practice, intentionality and understand the means used; self-efficacy encompasses the beliefs the individual has about himself to organize and perform certain tasks; and finally, the commitment to targets vary according to the time and demands (Rosário & Polydoro, 2014).

Developing the PLEA model, Pedro Sales Luís Rosário describes self-regulation as cyclical, since he uses his feedback with the previous result of his performance, promoting adjustments and improvements to enhance his performance further, allowing for continuity. The PLEA model is very close to the Zimmerman model (2000), but it uses a simpler way (Azzi and Polydoro, 2009), and is represented by three phases: (1) planning; (2) execution; (3) evaluation, as can be observed in Figure 01. (Rosário, Núñez & González-Pianda, 2007).

The Rosario model proposes that, when performing a given task, the student plans, executes, and evaluates his results. The first phase of the PLEA model refers to Planning, which establishes the planning of what, how and when the student intends to do to achieve his goals; in the Execution phase, the individual will put into practice his planning and strategies,

always monitoring his attitudes and maintaining or raising his beliefs of effectiveness; and in the last phase, the Evaluation, the student can analyse if his strategies had positive or negative effects during the course, reaching the objectives. After this evaluation, the student has enough competence to improve his / her plans, establishing new targets to start a new cycle of self-regulation of learning (Rosário, Núñez & González-pienda, 2007).

An example that the PLEA model can be more accessible to children are the projects and programs created for this public in recent years, such as the Sarrilhos do Amarelo Project, designed by Rosário, Núñez and González-Pienda (2007) to teach children from 5 to 10 years old. It is a preventive project that aims the initiating self-regulated culture of kindergarten level, presenting them learning strategies to achieve their goals, improving their performance and academic knowledge, solidifying their learning with quality and depth (Rosario, Núñez & González-Pienda, 2007).

Rosário, Núñez and González-Pienda (2007) also point out that in the children's scenario, SLR becomes an essential requisite for learning, stating that self-regulated children analyze and plan the task, choosing the strategies they will use to execute them. So, on the other hand, they do not isolate or intimidate themselves with activities, as they seek support to achieve their goals, characterizing the search for help. This paper aims to understand the contributions of the intervention plan to the cognitive development of pre-school children through games and plays.

Methodology

This article is a quanti-quali study that presents the application of an Intervention Plan in children from Early Childhood Education, which object of the study is the self-regulation of learning in young children. The intervention plan was applied to a sample of students, in order to verify the possibility of promoting self-regulation of learning through games and plays,

and then, to analyze, quantitatively, the evaluations carried out by the teachers regarding the students' responses after the intervention.

The intervention study can be understood as a "kind of educational research in which innovative teaching practices are planned, implemented and evaluated in their purpose of maximizing the learning of the students who participate" (Damiani, 2012, p.2 – tradução: Vera Pimentel)⁵. It is believed that interventions in the field of education, especially those focused on the development and learning process, have great potential to develop new knowledge and practices to be carried out in class activities (Damiani et al, 2013). The type of intervention study has already been used for some time, but in other areas, such as psychology, medicine and administration. In the field of education, it is still less widespread because researchers are strangely aware of the difficulty in carrying out intervention studies in this area, since they believe that the educational field is the most favorable to the benefits that studies of this nature can provide (Rocha; Aguiar, 2003).

The researches about pedagogical intervention are applied because they aim to contribute to the solution of practical problems (Damiani et al., 2013, p.58). This type of study, especially those focused on the teaching-learning methodologies, can make possible new forms of pedagogical practices, or improve existing ones, producing new theoretical knowledge (Rocha, Aguiar, 2003, Damiani, 2012; Damiani et al. 2013).

The term intervention may be poorly understood in the field of education, because "this term, related to interference, can also be associated with authoritarianism, restriction" (Damian et al., 2013, p. 58 – tradução: Vera Pimentel)⁶. In order to demystify this pejorative sense that many use to the term intervention, it is perceived the importance of increasingly developing and encouraging research involving intervention studies in the

⁵ "Tipo de pesquisa educacional no qual práticas de ensino inovadoras são planejadas, implementadas e avaliadas em seu propósito de maximizar as aprendizagens dos alunos que delas participam" (DAMIANI, 2012, p.2) – tradução para Inglês: Vera Pimentel

⁶ "Esse termo, relacionado à interferência, pode fazer com que seja, também, associado a autoritarismo, cerceamento" (Damiani et al., 2013, p. 58).

field of education, especially in what concerns the pedagogical practice of teachers who work in Children's Education.

Researchers such as Ludke, Cruz and Boing (2009) support the idea that teachers of basic education, in the case of this research, Children's Education, can conduct investigations that produce knowledge in the educational environment through interventions in their school practices. This is because, through the intervention studies, the educator is face to face to the reality of his students, and he can make the necessary adjustments to be succeed in another moment, having the opportunity to always seek the improvement of their pedagogical practices, benefiting more and more the teaching process of infant students. (Rocha, Aguiar, 2003; Damiani, 2012, Damiani et al., 2013).

Sample

It was decided to work with a sample of 120 children and 4 teachers and totalize 4 classes from a kindergarten school. The choice of this school was given considering the criterion of availability. In this way and for convenience, the non-probabilistic type of sampling was used.

Some inclusion criteria were thought to define the participants. In the case of teachers, the criteria was: (a) to be a teacher of Early Childhood Education in groups with students between 4 and 5 years old; (b) be an effective teacher of the institutions; teachers who have been with the group since the beginning of the year; (c) interest and willingness to participate in the research. Regarding the inclusion criteria for the students, it was necessary: (a) to be part of the respective classes of the chosen schools; (b) and be a typical student (not deficient or with disorders).

The Intervention Plan

The construction was based on Albert Bandura's Cognitive Social Theory (TSC) (1986), taking into account also the Triadic model of PLEA (plan, execute, evaluate) of Rosário's (2004).

Sequentially, it was defined the games and plays that would be used. After the choice of activities, two tests were carried out with judges regarding the preliminary proposal of the Intervention Plan. The function of the judges was to assess the relevance and suitability to each stage of the plan. The two tests were important to refine the best proposals of the Plan adequate to the Theory, as well as to the reality of research participants.

After making the adjustments, the plan was applied to the selected sample. The teachers involved participated in a 2-hour training on self-regulation of learning and their contributions to the teaching processes were also oriented regarding the use of games and plays for the development of self-regulating profiles in Early Childhood Education, through a ludic workshop. Then, it was asked to the teachers to replicate the strategies indicated in the ludic workshop to their groups, based on the PLEA Model, evaluating the possible effects on the students' performances.

Before each play or game, a planning was done with the children, based on the PLEA model (Rosário, 2007). During the development of every proposal, the teachers, together with the children, had the opportunity to plan how they would apply each activity. Children had time to think about their strategies, both individually and in groups. At the end, moments of self-evaluation were realized.

In the first moment, the "setting up of the scenery" took place, in order to promote the children involvement and motivation, the activities were delimited in time and space, emphasizing their singularity. Children enjoy some solemnity and, above all, the routines associated with different tasks. In the second moment, we used "previous organizers" and it is important to foresee a previous organizer in order to contextualize games and plays. This

brief summary aims to focus the children on the activities that will be done, preparing them to fulfill all the proposed steps.

In the third moment, it was made the "presentation of the games and plays" and the children were oriented to the activity execution, according to its rules, possibilities and purposes. Then, in the fourth moment, there was the "exploration of games and plays", before starting, a reflection was promoted, keeping a brief moment to think and organize the ideas presented. In the first time, especially with smaller children, this task needs to be explained and exemplified by the adult. Then, in the fifth moment the "evaluation" occurred and after each games and plays application, moments of evaluation and reflection were promoted, regarding the activity performed. The Intervention Plan was applied, selecting two (2) games and two (2) plays.

The mental map below indicates the course of the Intervention Plan construction.

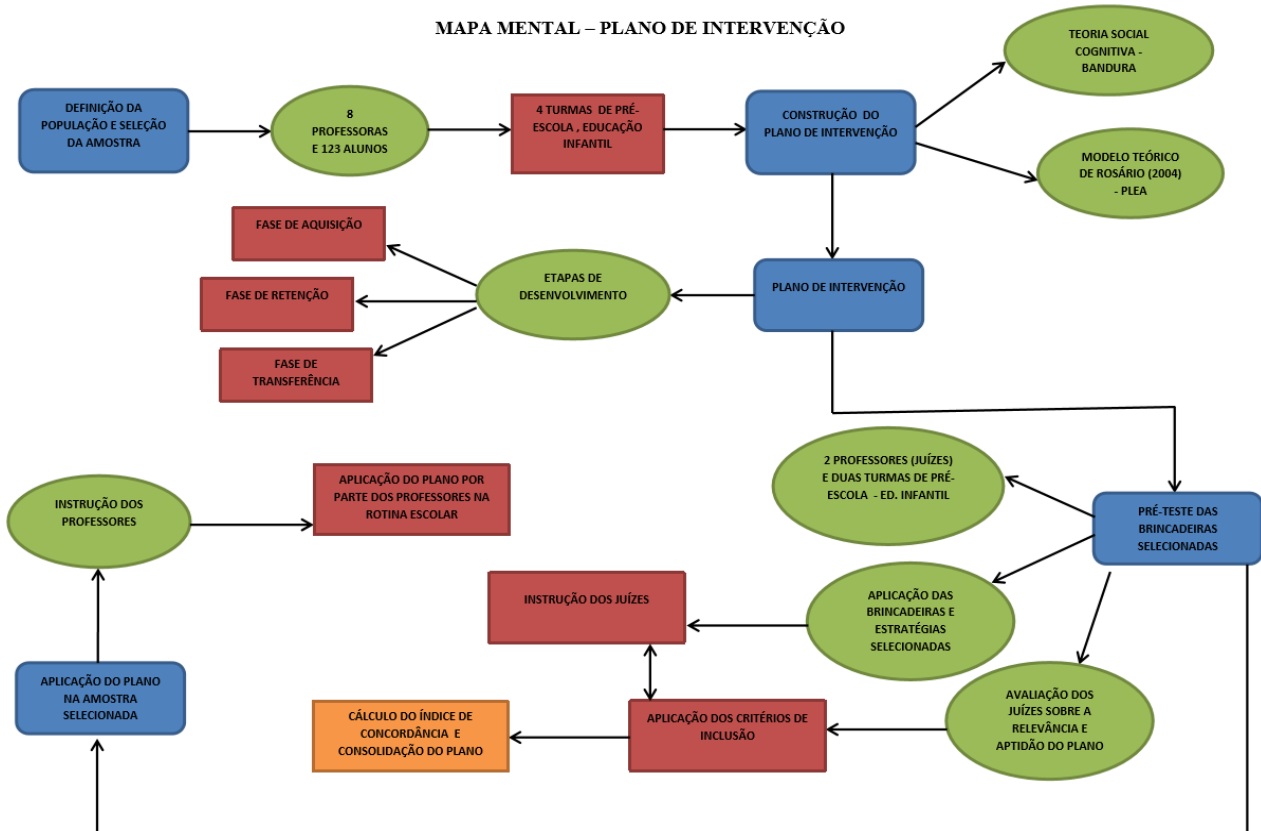
**** Mental Map – Intervention plan description:**

First, the population is defined and Sample Selected, so it is defined 8 teachers and 123 students in 4 groups of Child Education. So, it is constructed the Intervention plan using Bandura Social Cognition Theory and PLEA of Rosário, then the Intervention plan is applied by developing steps in three phases: acquisition, retention and transfer phases.

The Intervention plan starts with pre-tested plays selected with 2 teachers as judges in two groups of Children Education, then the plays strategies selected are applied and, after, there is an assessment by the teachers judges about the relevance of plan applied. After those judgement, inclusion criterias are applied using the judges' instructions. Then, a calculation of the agreement index and the plan consolidation is done.

The plays pre tested are applied to selected sample and to the teachers and then, the intervention plan is applied by the teachers during the students' routine.

Image 02: Mental Map – Intervention Plan**



Source: Furtado, 2018

Data collect

The data collection occurred in three ways, namely: (1) survey about the self-regulatory profile of the students; (2) participant observation; (3) assessment of student performance.

Initially, we used the data obtained through the application of the CHILD scale (Whitebread et al., 2009) to build the students' profile, based on the parameters of learning self-regulation.

The participant observation occurred during the application of the self-regulatory strategies employed by the teachers in their classes as a result of the intervention plan under development. It is considered that in the participant observation the "researcher personally experiences the event of his analysis to better understand it, perceiving and acting diligently

according to his interpretations of that world" (Proença, 2007, p.9 – Tradução: Vera Pimentel)⁷. A field diary was used to register the observations during this process.

Based on the PLEA model of Rosario (2014), an instrument was also created and applied to the teachers about their perception in the children participants. The instrument called the Skills Assessment Sheet has four questions, two representing games and two representing plays according to the four activities performed. With this instrument, the teacher indicated the degree to which student presented certain typical characteristics of self-regulation of learning, in the following options: (1) demonstrated, (2) did not demonstrate and (3) partially demonstrated.

As an example of some issues, it was presented: game 1 (repeating the model) - "plans, executes and evaluates"; game 2 (race of challenges) - "ability to plan"; play 1 (think before) - "ability to talk about future plans". This instrument was completed by the teachers after applying strategies based on the self-regulation of learning from the games and plays suggested in the Intervention Plan. Thus, the collection with this instrument occurred after the Intervention Plan to evaluate the effects of applied teaching strategies.

Data analysis

Data were submitted to descriptive statistics with measures of central tendency (median, fashion, maximum, minimum, standard deviation) that provide typical representative scores of the set and percentage calculations. "A measure of the central tendency of a set of data provides an indication of the typical score in this set" (Dancey, 2011 page 58 – Tradução: Vera Pimentel) . Statistical Package for Social Sciences - SPSS, version 20 was used for this purpose. For the analysis of the data collected in the observation, the content analysis was used to categorize the information collected.

⁷ "Pesquisador vivência pessoalmente o evento de sua análise para melhor entendê-lo, percebendo e agindo diligentemente de acordo com as suas interpretações daquele mundo" (Proença, 2007, p. 9)

Results and discussions

The following tables summarize the behaviors observed in the students during the Intervention Plan. The data were organized into groups indicating what the students were able to perform without difficulty, which they were able to perform with difficulty and what they could not develop. In some moments, it was decided to highlight occurrences and absences of certain expected behaviors in the group of students participants that, somehow, were significant in this observation process.

Table 1 - Behaviors presented in the planning phase.

TO PLAN		
They developed without difficulty	They developed with difficulty	They did not develop
Set objectives	Create strategic plans	Think about the time needed to apply the activities
Indicate required resources	Indicate the responsible person for developing each task	
Think about the appropriate physical environment	Define workgroups	
Seek help to develop the plan	Consensus on the choice of strategies for accomplishing the task	

Source: Furtado (2018)

In Table 1, referring to the planning phase of the PLEA model, that is, to think before performing the task (Rosário, Núñez & González-Pianda, 2007), it is possible to perceive that the children participants in the Intervention Plan achieved some important results. As we can see in the item "they developed without difficulty", the children demonstrated an excellent performance being that they were able at the moment of the planning of the task to set objectives, targets and means, that would be used for the development the games and plays. The children were able to set targets, pointed out the necessary resources for playing games and plays, but also

managed to think about the appropriate physical environment, in which tasks would be performed, always seeking help to the mediator for developing the plan.

In the item "they developed with difficulty", it is noticed a certain children difficulty according the work done in group, like formulating strategic plans, as well as they had limitations to choose a representative of the group to carry out the activity, requiring the intervention of an adult. Group work is an important dynamic activity in Early Childhood Education, since through it, children acquire social and emotional skills which help them to maintain good interpersonal relationships with their classmates, thus helping them to solve problems and to provide their personal growth and development (Piscalho & Veiga Simão, 2014, p. 186). They also presented difficulties in establishing the groups, because they always organize them between boys and boys. So, at this moment, the gender of child prevailed.

We can see in this sample the difficulty between boys and girls in blending groups with both genders. They still have the idea that boys play with boys and girls play with girls, then, at this time again, it was necessary the mediator intervention to compose the groups by both genders. The games and plays, when used in the routine of Early Childhood Education, can become important allies to demystify the gender issues that are still presented in the school environment, "one of the possibilities about using plays in the education of children is to give visibility to the gender relations that are constructed historically and culturally in the most varied social spaces "(Pereira; Oliveira, pp. 273, 2016)⁸.

The children also asked help from the mediator to choose strategies and to play games and jokes, because sometimes they could not reach a consensus. As a major limitation, it is possible to perceive in the item "did not develop", that children do not yet have the mastery of time control, and thus do not take the same into account when planning the activity.

⁸ "Uma das possibilidades das brincadeiras na educação infantil é dar visibilidade às relações de gênero que são construídas histórica e culturalmente nos mais variados espaços sociais" (Pereira; Oliveira, 2016, p. 273).

Table 2 - Behaviors presented in the execution phase.

TO EXECUTE			
They developed without difficulty	They developed with difficulty	It did not occur	It occurred
Initiative in task development	Organization for the accomplishment of the tasks	Insist on error	Distract with the environment
Use of selected resources	Demonstrate security in execution	Stop the task	Demonstrate satisfaction
Use of time	Agree to start or continue activity	Demonstrate tiredness	Demonstrate shyness
Seek help to perform the task	Put the plan in practice	Start an impertinent topic	
Recognize difficulty			
Demonstrate cooperativity			
Demonstrate willingness			
Knowing how to listen to instructions			
Obey the mediator			

Source: Furtado (2018)

Table 2 shows the execution phase of the PLEA model, which refers to the fact of thinking during the accomplishment of the task, that is, to organize a set of strategies to put into practice the established plan (Rosário, Núñez & González-pienda, 2007). At this stage the children "they developed without difficulty" some aspects, for example, they did not have problems on the matter of appealing to the mediator when they needed help or had some doubt, listening to the proper instructions regarding a certain task, thus demonstrating ease in obeying to the mediator. At this stage the children were able to demonstrate cooperativity, disposition, and attention according to the rules arranged for each accomplished activity.

In the item "they developed with difficulty", some children showed a certain difficulty, regarding the organization and accomplishment of the tasks as the individual actions, thus showing a level of dependence on the mediator orientations. Mediators have an importante role in the Early Childhood setting, and "in the first years, there are the people who help children build the bridges of understanding between their individual

experiences and the most formal knowledge about the world" (Bezzera, 2011, p.5 – Tradução: Vera Pimentel)⁹.

Some children showed a certain difficulty regarding the organization to perform the task, nor did they demonstrate complete safety at the time of execution. In some moments of the games and plays, they had difficulty in agreeing on each other when they should start or continue the activity, and also on when to apply the plan in practice.

In the item "it did not occur", it was noticed that the children did not present fatigue, frequent errors, surveys of subjects which was not pertinent to the activity, nor they insisted in errors during the accomplishment of the activity. This can be justified by the fact that they are plays and games, that is, the children were so interested in the activities, then, when the child is involved in ludic activities, he feels much more comfortable and satisfied (Friedmann, 2012).

Some children had moments of distraction in relation to the environment in which the task was being performed, there were shyness behaviors on the part of some children, as well as moments in which they showed satisfaction in performing the task, as can be seen in the item "occurred" in the table above.

Table 3 - Behaviors presented in the evaluation phase.

TO EVALUATE			
They developed without difficulty	They developed with difficulty	It did not occur	It occurred
Evaluate their own performance on the task	Evaluate the plan application Review activities performed Correct themselves spontaneously	Recognize difficulties Request feedback about their performance Demonstrate dissatisfaction	Improperly evaluate performance Show emotional fragility

Source: Furtado (2018)

⁹ “Nos primeiros anos são as pessoas que ajudam as crianças a construírem as pontes de entendimento entre suas experiências individuais e os conhecimentos mais formais sobre o mundo” (Bezzera, 2011, p. 5).

Table 3 shows the *evaluation* phase of the PLEA model, which consists in judging, at the end of a task, if the means used during the execution of the task were satisfactory for the achievement of the established goals, that is, *thinking after* (Rosário, Núñez & González-Pienda, 2007). The children demonstrated the ability to evaluate their actions during the activities, as we can see in the item "they developed without difficulty".

However, in the item "they developed with difficulty", some children presented in their behavior difficulties in evaluating the execution of the plan, to review activities done, as well as they were not able to correct their errors spontaneously. In the item "it did not occur," there was no type of difficulty or need for feedback from the children when evaluating their actions in the developed activity, nor there was any demonstration of dissatisfaction from the children. In the item "it occurred", some children, at certain moments, presented difficulty in evaluating, demonstrating an incorrect assessment of their performances. Another point presented in this item was the existence of behaviors that indicated a certain emotional fragility of some children, when evaluating the means for the accomplishment in certain activity.

In the face of this information, it is perceived that in seeking knowledge, there arises the understanding of how to achieve motivations for meaningful learning, perceived through metacognition, "Metacognition is a process of interaction, in which the main elements are its learning processes that suffice the contact with the information without the need to interact with it "(Fonseca, 2008, p.145 – Tradução: Vera Pimentel)¹⁰.

It is about becoming aware of oneself, where the individual starts having the knowledge of his own process of learning (Beber *et al*, 2014). In order to build a valid and effective knowledge, it is important to have new techniques or instruments, which can bring numerous benefits to the learning and development process. In the case of self-regulation of learning, but specifically

¹⁰ "A metacognição é um processo de interação, em que os elementos principais são seus próprios processos de aprendizagem que basta o contato com a informação sem a necessidade de interagir com ela." (Fonseca, 2008, p. 145).

in Early Childhood Education, an important ally in this regard may be the CHILD list, since it is hoped "that this instrument will support the pedagogical practice to stimulate a reflexive, active, joint and constructive attitude of education "(Piscalho & Veiga Simão, 2014, p. 186 – Tradução: Vera Pimentel)¹¹.

As they will be the educators, they are the responsible people for opportunizing and organizing environments favorable to learning, and can provide children with experiences that allow the construction of "knowledge and mobilize resources to learn to autonomize and self-regulate their learning in order to transfer them and apply in their future activity" (Piscalho; Veiga Simão, 2014, p. 186 – Tradução: Vera Pimentel)¹².

Performance Evaluation after the Intervention Plan

After the application of the Intervention Plan, performance assessment sheets were distributed so that the teachers could indicate the evolution or not of the students from the stimuli received with the strategies adopted. The performance of children in games and plays was evaluated based on self-regulation of learning through the PLEA model, where the following items were considered: (1) plans, executes and evaluates - to assess the set of attitudes of the PLEA model; (2) - ability to plan and talk about future plans - to evaluate the self-regulating aspects that in the initial survey were the weakest in this group of students and to verify if through games and plays it was possible to enhance these aspects.

Plan, execute and evaluate

¹¹ "que este instrumento dê apoio à prática pedagógica estimule uma atitude reflexiva, ativa, conjunta e construtiva dos profissionais de educação" (Piscalho & Veiga Simão, 2014, p. 186).

¹² "conhecimentos e mobilizar recursos para aprenderem a autonomizar e autorregular as suas aprendizagens a fim de as transferirem e aplicarem na sua futura atividade" (Piscalho; Veiga Simão, 2014, p. 186).

Table 4 presents the percentage about the incidence in ability to plan, execute and evaluate games and plays, following the cyclical process presented in the PLEA model, by Rosario (2007).

Table 4 - Percentages about incidence of Plan, Execute and Evaluate attitudes.

	Game 1	Game 2	Play 1	Play 2
	%	%	%	%
Demonstrated	79,2	75,0	64,2	70,8
Did not demonstrated	5,0	2,5	5,8	4,2
Partially demonstrated	15,8	22,5	30,0	25,0
TOTAL*	100,0	100,0	100,0	100,0

* frequency 120 children

Source: Furtado (2018)

Table 4 presents the percentage about the incidence in ability to plan, execute and evaluate games and plays, following the cyclical process presented in the PLEA model, by Rosario (2007).

The data presented in the table above indicate the teachers' perception taking into consideration the items presented in the assessment sheet, which was completed by them at the end of the games and plays. It was noticed that in all the games and plays, the percentage of occurrence was superior to 64% in the item "demonstrated". This indicates that both in the games and in the plays, the teachers expressed that the students demonstrated the three self-regulating aspects of the PLEA model, planning, execution and evaluation.

Games and plays are important tools for the children development in relation to the self-regulatory profile (Rosário, 2007). This is due to the fact that games and plays are understood as free behavior, which benefits the construction of intelligence, facilitating in studies, as well as self-regulation of learning in Early Childhood Education. This suggests that ludic strategies may be efficient for the development about self-regulation at this level of education, which may favor the student performance according to Rosário:

"the self-regulating students of their learning process present proficient school results" (Rosario, 2007, p. 282 – Tradução: Vera Pimentel)¹³.

"In fulfilling children's needs, the game becomes an adequate form for the learning of school contents" (Kishimoto, 2011, p. 32 – Tradução: Vera Pimentel)¹⁴, as well as the self-regulating aspects, presented to children from the beginning of their school life, will make important contributions in their learning and development process. The self-regulation of the child's learning still in Early Childhood Education tends to contribute in a meaningful way so that it reaches its educational autonomy, thus guaranteeing its academic success throughout the academic life (Rosário, 2007, Rosário, Núñez & González-Pienda, 2007, Boruchovitch, 2014).

It was still analyzed the teachers' perception about students' ability in planning and talking upon future plans after the Intervention Plan was also analyzed. These results can be seen in Table 5.

Table 5 - Percentage of incidences in planning and talking upon future plans.

	Game 1		Game 2		Play 1		Play 2	
	AP*	ATFP**	AP*	ATFP**	AP*	ATFP**	AP*	ATFP* *
Demonstrated	84,2	81,7	78,3	75,0	67,5	74,2	80,0	77,5
Did not demonstrated	5,0	4,2	2,5	3,3	5,8	5,8	5,0	3,3
Partially demonstrated	10,8	14,2	19,2	21,7	26,7	20,0	15,0	19,2
TOTAL***	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

* - Ability to plan

** - Ability to talk about future plans

*** 120 children

Source: Furtado(2018)

¹³ "Os alunos auto-reguladores do seu processo de aprender apresentam resultados escolares proficientes" (Rosário, 2007, p. 282).

¹⁴ "Ao atender necessidades infantis, o jogo infantil torna-se forma adequada para a aprendizagem dos conteúdos escolares." (Kishimoto, 2011, p. 32).

After the application of the CHILD scale, two aspects were identified as the two weaker aspects in the students, which are: "ability to plan" and "ability to talk about future plans". Starting from this reality, an Intervention Plan was created with games and plays that had as main objective to potentiate these aspects in them. Table 5 shows the results after the application of the intervention plan, in which we can see that there was a great advance in relation to the aspects considered weak in the children, according to the evaluation made by the teachers involved in the research.

After applying the Intervention Plan, the children demonstrated "ability to plan" 84.2% in the first game and 78.3% in the second game. In the first game 67.5% of children also demonstrated such capacity and in the second play 80%.

Regarding the "ability to talk about future plans", 81.7% of the students presented this ability in the first game while in the second game it was 75%. In the first game, 74.2% of this capacity was achieved and 77.5% in the second game. It can be seen from these data that in all games and plays, the teachers were able to identify that the students demonstrated a significant improvement of the abilities that were previously perceived by the teachers as weak.

This suggests that games and plays, if worked out correctly, can also be effective in the recovery and strengthening in fragile aspects about self-regulation of learning, providing learning experiences "involving agency, autonomous work, intrinsic motivation, and strategy of action" (Rosario, 2007, p. 282 – Tradução: Vera Pimentel)¹⁵. It is also noticeable that with these techniques it is possible to develop a self-regulation of learning in the students of Early Childhood Education, which corroborates with Rosário

¹⁵ “que envolvam agência, trabalho autônomo, motivação intrínseca, e estratégia de ação” (Rosário, 2007, p. 282).

(2007) which shows that "recent research has provided evidence that younger children can regulate their involvement in learning tasks"(p. 283)¹⁶.

Final considerations

The study developed here presented great value for the educational field, since it met the proposed objectives, demonstrating the relevance in applying an Intervention Project in Early Childhood Education. By using this type of research, it was noticed that the researcher could experience his own proposals, giving him more security in pointing the facts, besides giving security to the participants through their practices. The use of games and plays within the Intervention Project was also of great importance for the research, since these resources promoted involvement of the children about the study proposal and also contributed to questions of group interaction and even gender issues which were raised during the follow activities.

In addition, from the results, the development of the participants was evident when it comes to self-regulation, children who previously presented difficulties in the ability to plan tasks or courses of action and talk about future plans, demonstrated great advances after the implementation of the intervention Plan according to what was pointed out by the teachers. It was also possible to see that most of the children involved, presented an admirable performance regarding the ability to set targets and to think about the adequacy of the plan for the execution according to the proposed tasks. This shows that the children can develop autonomy for the planning of tasks.

Regarding the execution of the tasks, the children showed great involvement through the disposition, attention and interest that can be related to the type of activity with playful character, in which it aroused interest and feeling of satisfaction in a large part of the participants. Although the children showed great autonomy, in this stage, particularly, the

¹⁶ "investigações recentes aportaram evidências de que as crianças mais pequenas conseguem regular o seu envolvimento nas tarefas de aprendizagem" (p. 283 - Tradução: Vera Pimentel).

presence of the teacher as mediator was so important to direct the tasks, showing that the role of the teacher is fundamental in the learning process of an individual.

Through the evaluation stage, it was possible to identify that the children presented some difficulty in doing the evaluation of the executed plan, besides not being able to correct the errors committed during the development of the tasks. This shows that these aspects must be more worked in this sample to reach success in a possible reassessment. With this, we realize the real importance of addressing self-regulatory aspects in children from the beginning of their trajectory in the school environment, aiming at greater effectiveness in their process of learning and development as being proactive.

In order to contribute in this field, it is suggested that other researches approach of self-regulation in the other stages of Basic Education, besides executing Intervention Plans so that they can promote the change in a certain context. It is also suggested that other studies on the subject explore the use of games and plays since these resources may arouse greater interest and willingness to participate, especially when it comes to children. Finally, it is important to emphasize that it is important to expand studies and publications that are based on the Cognitive Social Theory so that it is known by several areas.

Referências

BANDURA, A. *Social foundations of thought and action: a social cognitive theory*. Englewood Cliffs, New Jersey: Prentice-Hall, 1986.

BANDURA, A. Self-regulation of motivation through anticipatory and self-reactive mechanisms. In: Dienstbier, R.A. (Ed.) *Perspectives on motivation: Nebraska symposium on motivation*. Lincoln, University of Nebraska Press, vol. 38, p. 69-164, 1991.

BEBER et al., Metacognição como Processo de Aprendizagem. *Rev. Psicopedagogia*. vol. 31 n. 95, São Paulo, 2014.

- BEZERRA, J. *A importância da Intervenção do Professor nas Brincadeiras das Crianças da Creche*. TCC (Trabalho de Conclusão de Curso). Guarariba: UEPB, 2011.
- BORUCHOVITCH, E. Autorregulação da aprendizagem: contribuições da psicologia educacional para a formação de professores. *Revista Quadrimestral da Associação Brasileira de Psicologia Escolar e Educacional*, SP. v. 18, Número 3, set/dez, 2014.
- DAMIANI, M. F. et al. Sobre pesquisas do tipo intervenção. *Encontro Nacional De Didática E Práticas De Ensino*, v. 16, p. 2882-2890, 2012.
- DAMIANI, M. F. et al. Discutindo pesquisas do tipo intervenção pedagógica. *Cadernos de educação*, n. 45, p. 57-67, 2013.
- DANCEY, C. P. *Statistics without Maths for Psychology*. 5. ed. Harlow: Pearson, 2011.
- FONSECA, V. *Cognição, neuropsicologia e aprendizagem: abordagem neuropsicológica e psicopedagógica*. Petrópolis: Vozes, 2008.
- FRIEDMANN, A. *O brincar na educação Infantil: observação, adequação e inclusão*/Adriana Friedmann. – 1. ed. São Paulo: Moderna, 2012.
- KISHIMOTO, T. M. *Jogo, brinquedo, brincadeira e a educação*. São Paulo: Cortez, 2011.
- LUDKE, M.; CRUZ, G. B.; BOING, L. A. A pesquisa do professor da educação básica em questão. *Revista Brasileira de Educação*, v. 14, p. 456-468, 2009.
- PAJARES, F., OLAZ; F. Teoria social cognitiva e auto-eficácia: uma visão geral. Em: Bandura, A.; Azzi, R.; Polydoro, S. A. J. (Orgs) *Teoria social cognitiva: conceitos básicos*. Porto Alegre: Editora Artmed, p. 97-114, 2008.
- POLYDORO, S. A. J., AZZI, R. G. Autorregulação da aprendizagem na perspectiva da teoria sociocognitiva: introduzindo modelos de investigação e intervenção. *Psic. da Ed.*, São Paulo, 29, p. 75-94, 2009.
- PEREIRA, A. S.; OLIVEIRA, E. M. B. *Revista Reflexão e Ação*, Santa Cruz do Sul, v. 24, n. 1, p. 273-288, jan./abr, 2016.
- PISCALHO, I., VEIGA SIMÃO, A. M. Promover competências autorregulatórias da Aprendizagem nas crianças dos 5 aos 7 anos –Perspectivas de investigadores e docentes. *Interacções*. n. 30, p. 72-109, 2014.
- PROENÇA, W. L. O Método da Observação Participante: Contribuições e aplicabilidade para pesquisas no campo religioso brasileiro. *Revista Aulas*, Organização: Karina K. Bellotti e Mairon Escorsi Valério. Dossiê Religião n.4, abr-jul, 2007.

RAMDASS, D., & ZIMMERMAN, B. J. Developing self-regulation skills: The important role of homework. *Journal of Advanced Academics*, 22, p. 194–218, 2011.

ROCHA, M. L.; AGUIAR, K. F. Pesquisa-intervenção e a produção de novas análises. *Psicologia: ciência e profissão*, v. 23, p. 64-73, 2003.

ROSÁRIO, P. S. *PLEA*: um modelo auto-regulatório para aprender. PS Rosário, p. 81-84, 2004.

ROSÁRIO, P. et al. De pequenino é que se auto-regula o destino. *Educação: Temas e Problemas*, n.2, v.4, p.281-293, 2007.

ROSÁRIO, P. *Capitanear o aprender*: promoção da autorregulação da aprendizagem no contexto educativo. Pedro Rosário, Soely A. J. Polydoro. São Paulo: Casa do Psicólogo, v.3, Teoria Social Cognitiva em contexto educativo, 64p, 2014.

ROSÁRIO, P.; PÉREZ, J.; GONZÁLEZ-PIENDA, J. *Auto-regulação em crianças sub-10*. Projecto Sarilhos do Amarelo. Porto: Porto Editora, 2007.

WHITEBREAD, D. et al. The development of two observational tools for assessing metacognition and self-regulated learning in young children. *Metacognition and learning*, v. 4, p. 63-85, 2009.

ZIMMERMAN, B. J. Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, vol. 25, pp. 82-91, 2000.

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