v. 3, n. 42, 2023

International Journal of Human Sciences Research

PEDAGOGICAL PRACTICES, DEVELOPMENT OF CRITICAL TRANSITIVE CONSCIOUSNESS AND NEUROSCIENCE

Adriana Batista de Souza Koide

Andréia Gomes da Costa

Jussara Cristina Barboza Tortella

Luciana Rodrigues Ferreira Dal'Ava

Merylyn Ellen Braglin

Tacita Ansanello Ramos

Abstract: Excerpt from a doctoral study whose locus was a municipal public elementary school, in the interior of the State of São Paulo, inserted in a context of high social vulnerability with necessary and urgent educational, social and cultural demands, this text has The main objective is to highlight pedagogical practices that can contribute to critical awareness. Understanding that critical consciousness may not result directly from transformations in socially vulnerable contexts, as living conditions cannot, by themselves, transform naive consciousness, we argue that it is through human formation, which is supported by favorable historical conditions, that critical consciousness emerges. Transformations in social contexts can modify thoughts, ways of life, consciousness, and education plays a prominent role in this process. Education that can contribute to equity, combining with the possibility of transforming socially vulnerable contexts, working against fatalistic dominant ideologies, which stimulate, sustain and accommodate unjust realities and intransitive consciences. In this sense, using contemporary neuroscientific foundations, a relationship is established between conscious and purposeful pedagogical proposals that challenge possibilities to strengthen equity in education, bringing as fertilizers criticality and learning by domains, in the cognitive, affective and psychomotor spheres, to stimulate the developing brain. The general objectives selected for the current text consist of analyzing the work carried out with 60 children, by three 3rd year teachers; observe the pedagogical practices used and direct neuroscientific notes to improve criticality and creativity in learning. The pedagogical practices used involved language proposals with readings, interpretation and creation of texts, mathematical concepts and challenges, various art activities, which instigated imagination, creativity and criticality. It is observed that the activities developed have a considerable playful range, which can be an unparalleled resource for learning by domains and for brain development, criticality and creativity. Combining Paulo Freire, neuroscience and domain learning in pedagogical practices is not common. However, it is necessary to overcome naive transitive consciousness to reach critical consciousness. Opening up to what is new, but which is based on science, can free educators from conformism and restore hope that criticality and creativity can improve human brain structures and result in better choices for life and this can favor equity.

Keywords: Pedagogical practices; Social vulnerability; Critical awareness; Equity; Neuroscience.

INTRODUCTION

> *If mine is not a neutral presence in history, I must assume its politicality as critically as possible. If, in truth, I am not in the world to simply adapt to it, but to transform it; If it is not possible to change it without a certain dream or project for the world, I must use every possibility I have to not only talk about my utopia, but to participate in practices consistent with it. [...] To the extent that we became capable of recognizing the ability to adapt to concreteness in order to operate better, it was possible for us to assume ourselves as transformative beings. And it is as transformative beings that we realize that our ability to adapt does not exhaust our being in the world. It is because we can transform the world, that we are with it and with others. We would not have surpassed the level of pure adaptation to the world if we had not reached the possibility of, thinking about adaptation itself, using it to program transformation (FREIRE, 2000, p. 14 – excerpts highlighted by the author).*

For Freire (2000), transforming the world is as easy a matter as possible. In the relationship between the difficulty and the

possibility of transformation, the question of the importance and role of consciousness in history arises. This refers to the understanding of education as a process of awareness linked to human positioning in the world.

Faced with human existence, Freire (1959) reports two positions to be assumed:

- The position of *intransitive consciousness*, which is characterized by an almost vegetative way of life and focuses on the challenges of biological survival, which deprives itself of history, and "dismisses" men from life itself, establishing a lack of commitment between the human and the its existence. According to the author, this is a predominant position in socially and culturally vulnerable contexts.

- The position of *transitive consciousness*, pre-eminent in more economically developed contexts. In a first stage, transitive consciousness is characterized by Freire (1959) as naive, due to its simplicity in interpreting life's problems and challenges; with idealization of the past, heightened emotionality, reflective uncriticality, argumentative fragility and tendency to believe in fabulous explanations, poorly supported by scientific evidence. The naive transitive consciousness prefers controversy to debate, distrusts everything that is new and, in general, carries with it tendencies towards conformism.

In a second stage, transitive consciousness would be predominantly critical, characterized by the depth to interpret problems, replacing magical explanations with causal principles; depriving oneself of prejudices and relying on argumentative security, preferably based on science, with a rational stance, receptive to new knowledge and arguments that contribute to the humanization of the self-proclaimed "human" being.

Critical consciousness may not result directly from transformations in socially vulnerable contexts, as living conditions cannot, by themselves, transform naive consciousness into critical consciousness (FREIRE, 1959; 1979). It is through human formation, which is supported by favorable historical conditions, that critical consciousness emerges.

Transformations in social contexts can modify thoughts, ways of life, consciousness, and education plays a prominent role in this process. Education that is based on truly democratic processes, guided by and through dialogue. Education that is linked to life, full of reality and that can represent learning relevant to human existence, giving criticality to consciousness. Education oriented towards collective participation and deliberation, in an inclusive and self-governed school, which favors the creation and permeability of critical mental dispositions, which can impact the quality of life of those involved. In short, education that can contribute to equity, combining with the possibility of transforming socially vulnerable contexts, working against fatalistic dominant ideologies, which stimulate, sustain and accommodate unjust realities and intransitive consciences.

Based on these assumptions, the main objective of this text is to highlight pedagogical practices that can contribute to critical awareness. Using contemporary neuroscientific foundations, a relationship is established between conscious and purposeful pedagogical proposals that challenge possibilities to strengthen equity in education, bringing criticality and learning by domains as fertilizers, in the cognitive, affective and psychomotor spheres (Anderson et al, 2001; Krathhwohl, 2002) and stimulate the developing brain.

Such thoughts culminate with what is proposed by Freire (1972, 1992, 2000), when he portrays that pedagogical practices need

to value the exercise of will, the power of choice and decision, and resistance; always considering the role of emotions, feelings and the importance of consciousness in history, so that it can provoke hope.

Hope in what? In more ethical and dignified human lives, positioned for equity, despite making social contexts in situations of poverty less vulnerable.

METHODOLOGY, CONTEXT AND PARTICIPANTS

Excerpt from a doctoral study, the general objectives selected for the current text consist of: analyzing the work carried out with 60 children, by three 3rd year teachers; observe the pedagogical practices used and direct neuroscientific notes to improve criticality and creativity in learning.

The locus of the research was a municipal public elementary school, in the interior of the State of São Paulo, inserted in a context of high social vulnerability, with necessary and urgent educational, social and cultural demands, with exceptional demand for education that "it makes sense", as Freire (2000, p. 40 and 41) explains:

> [...] because the world is not necessarily this or that, because human beings are as much projects as they can have projects for the world. Education makes sense because women and men learn that it is through learning that they make and remake themselves, because women and men have been able to accept themselves as beings capable of knowing, of knowing that they know, of knowing that they do not know. To know better what they already know, to know what they still don't know. Education makes sense because, to be, women and men need to be. If women and men simply were there would be no reason to talk about education.

Women and men who have children who also need "meaningful" education, to be able to free themselves from the oppression and repression caused by inequalities, in which they find themselves submerged.

In this context, the thesis was started at the beginning of 2017 and completed at the beginning of 2021. Along the way, to meet the planned objectives, records of collective meetings with the team, videos, images, records of dialogues, recordings were used as instruments. of virtual meetings, chat dialogues, video calls, virtual forms, digital and printed pedagogical activities.

The period in which the research was completed coincided with the social isolation caused by SARS-COV-2, requiring combined efforts to resume education in the context of the COVID-19 pandemic. This sum intertwined the hands that sign the current text here, including the researcher, the thesis advisor, two multipurpose teachers, an art teacher and the school's pedagogical advisor.

The analysis of the work carried out by the teachers was done through participation in virtual classrooms, which had rare access due to the inaccessibility of many children to the internet; participation in virtual meetings proposed by teachers and observation of printed activities that were intended for all children, aiming to reach mainly those without access to digital media.

RESULTS AND DISCUSSIONS

The pedagogical practices used involved language proposals with readings, interpretation and creation of texts, mathematical concepts and challenges, various art activities, which stimulated imagination, creativity and criticality beyond measure. Some examples of activities included the selection of poetry to read and reflect on with colleagues, virtual bingo, crosswords, mazes, numerical sequences, mathematical challenges, writing notes and texts, hangman, sudoku, charades, songs, videos about masks and African dances, book videos, virtual

comic books, visits to digital museums, comic strips, image reading, optical illusion and other cultural resources. Such practices match the possibilities that children need to:

> [...] to grow in the exercise of this ability to think, to inquire and inquire, to doubt, to experiment with hypotheses of action, to program and not just follow the programs, rather than proposed, imposed. Children need to be assured of the right to learn to decide, which is done by deciding (FREIRE, 2000, p. 29).

For the analysis, the three modalities proposed by the teachers (virtual classroom, virtual meetings and printed activities) were listed and then classified into categories that made it possible to observe the learning domains (Anderson et al., 2001) and also the stimulation for the developing brain.

It is clear that the activities developed have a considerable playful range, which is due to the teachers' knowledge of practices that help challenge the brain. It is suggested that if there is more targeted planning to reconcile playfulness with the stimulus for creativity, the effectiveness in building critical awareness may be greater.

It is inferred that playful activities can be an unparalleled resource for learning by domains and for brain development, criticality and creativity. According to Gilkey and Kilts (2007), neuroscience scholars, playfulness is linked to pleasure and the brain's reward system, which helps to develop and expand synaptic networks, improving reasoning capacity and understanding the world; making this pedagogical resource an important physiological precursor to promote social and emotional maturity in adulthood.

In relation to the analysis of data from the learning domains, the cognitive one stood out, with 78% of the results, the affective 16% and the psychomotor 6%. The dimensions of the cognitive process were classified according to Bloom's Taxonomy into basic (with 87% of results) and superior (with 13%). The first involved greater emphasis on the verbs remember, understand and apply, the second involved the verbs analyze, evaluate and create (BLOOM et al., 1973).

It is observed that most of the activities developed were classified at basic levels. It is a fact that the school needs to strengthen the memory, understanding and application of different curricular contents and this cannot be discarded from pedagogical practices, however, it is equally important for critical formation that analysis, evaluation and creativity are part of the curriculum and planned proposals.

To form critical people who are more capable of making good choices, higher-level verbs need to be used more in the classroom. Some activities found in the analysis fall into the upper level: creating a mini poster about black consciousness, creating a graph, choosing and painting the place you like to play most, creating art with play dough and ice cream sticks, painting and creating sculpture, creating art with clay and natural objects, riddles, rewriting different text, creating quirky drawings, weird party, among others.

Although such proposals cover the higher levels of the cognitive domain, the vast majority of the activities analyzed invest with greater emphasis on the verbs remember, understand and apply. As a suggestion so that the basic levels can transcend to the higher ones, in a hierarchical way, as proposed by Bloom's Taxonomy (Krathhwohl, 2002), it is recommended to continue planning in sequenced activities, with initial awareness, intermediate proposals and closure, such as it was done in most of the teachers' proposals, for the acquisition of knowledge, however, in the end, higher levels can always be stimulated with a creation that requires inspiration, intuition and imagination.

It is clear that affection, in the activities

analyzed, although present, needs to be better directed so that it can make a difference in children's choices. It is recommended, for future practices, that proposals on prejudice, racism, femicide, respect, feelings, among others, be continued and that at the end, it is possible to hear what children have to say on the subject. Proposing simulations of actions for such situations, in conversation circles, in person or virtually, is also a resource.

There are few proposals in the psychomotor domain and considering its importance for cognitive abilities, greater and incisive investment is necessary. We suggest physical resistance games, skilled movements, non-verbal activities, among others that can enhance this domain, always highlighting creativity and imagination.

FINAL CONSIDERATIONS

Combining Paulo Freire, neuroscience and domain learning in pedagogical practices is not common. However, it is necessary to overcome naive transitive consciousness to reach critical consciousness. Opening up to what is new, but based on science, can free educators from conformism and restore hope that criticality and creativity can improve human brain structures and result in better options for life choices, such as certifies neuroscience (PAKULAK, STEVENS, 2019). This can favor equity.

According to Rueda and Conejero (2019), from a very early age, children who live in socially vulnerable contexts show lower levels of functioning in brain regions that play a crucial role in learning. This raises the possibility that this initial disadvantage, if not modified, will have an increasing impact as society and school place greater demands on children's abilities to overcome their challenges.

It is understood that there is the possibility of reversing the many negative impacts of social vulnerability and poverty on children's development and learning. However, "it is more efficient and economical to remedy these problems as soon as possible, instead of letting time transform them into something irremediable" (ENGEL DE ABREU et al., 2015, p. 28). Preventing such impacts is preferable to attempts to reverse them and, for this, anti-poverty measures are still the best path.

For Freire (2000), education is a way to help overcome unfair realities, favoring the transformation of vulnerable contexts. Critical people can be more attentive and less prone to dominant and fatalistic ideologies, which support, encourage and strengthen poverty and misery, material or immaterial.

Poverty puts people at risk of social, cultural and labor marginalization, inserting them into a circle that nourishes itself, expanding what is known as the 'Matheus effect', that is, adversities make children with a low socioeconomic level increasingly poor, in relation to the bases on which their skills are developed, whether academic, social or health (ROMERO-LOPEZ et al., 2020).

It is necessary to break the components of the circle of poverty, however, this is still a topic of debate and discussion that requires a lot of investment to come to fruition, both in studies and in public policies and effective actions.

Critical consciousness can be a proponent for breaking the cycle. Learning by domains and understanding how the brain works, in turn, are useful resources for promoting criticality.

And as long as resources are sought to achieve critical consciousness, there will be a position of refusal towards conformism and inactivism, in a fatalistic way. And the verb refuse in this sense is the duty of education.

> [...] duty to refuse, for this very reason, statements such as: "it is a shame that

> there are so many hungry people among us, but the reality is like that". [...] "A branch that grows crooked, is preserved crooked." Our testimony, on the contrary, if we are progressive, if we dream of a less aggressive, less unfair, less violent, more humane society, must be that of someone who, saying no to any possibility in the face of facts, defends the capacity of the human being to evaluate, compare, choose, decide and, finally, intervene in the world (FREIRE, 2000, p. 28).

REFERENCES

ANDERSON, Lorin W.; KRATHHWOHL, David R.; AIRASIAN, Peter W.; CRUIKSHANK, Kathleen A.; MAYER, Richard E.; Pintrich, PAUL R.; RATHS, James; WITTROCK, Merlin C. **A taxonomy for learning, teaching and assessing**: a revision of Bloom's taxonomy of educational objectives. Londres: Longman, 2001.

BLOOM, Benjamin Samuel; ENGELHART, Max D.; FURST, Edward J.; HILL, Walker H.; KRATHWOHL, David R. **Taxonomy of educational objectives**: The classification of educational goals. Handbook I: Cognitive domain. New York: David McKay Company, 1956.

ENGEL DE ABREU, Pascale; TOURINHO, Carlos; PUGLISI, Marina; NIKAEDO, Carolina; ABREU, Neander; MIRANDA, Mônica; BEFI-LOPES, Débora; BUENO, Orlando; MARTIN, Romain. **A pobreza e a mente**: perspectiva da Ciência Cognitiva. Walferdange, Luxembourg: The University of Luxembourg, 2015.

FREIRE, Paulo Regulus Neves. **Educação e atualidade brasileira**. Tese de concurso para a cadeira de história e filosofia da educação na Escola de Belas Artes de Pernambuco. Recife, 1959.

_____. **Pedagogia do oprimido**. São Paulo: Paz e Terra, 1975.

_____. **Educação e mudança**. São Paulo: Paz e Terra, 1979.

_____. **Pedagogia da esperança**. São Paulo: Paz e Terra, 1992.

_____. **Pedagogia da autonomia**. São Paulo: Paz e Terra, 1996.

_____. **Pedagogia da indignação**: cartas pedagógicas e outros escritos. São Paulo: Editora UNESP, 2000.

GILKEY, Roderick; KILTS, Clint. **Preparo cognitivo**. Harward Business Review Brasil, 23/11/2007. Disponível em: https://hbrbr.com.br/preparo-cognitivo/ - Acesso em 20/12/2020.

KRATHHWOHL, David R. A revision of Bloom's taxonomy: An overview. **Theory in to Practice** (Routledge), v. 41, n. 4, p. 212–218, 2002.

PAKULAK, Eric; STEVENS, Courtney. Aplicación de la investigación en neurociencia a las intervenciones dirigidas a la pobreza. In: In: LIPINA, Sebástian J.; SEGRETIN, María Soledad (ORGANIZADORES). **Exploraciones neurocientíficas de la pobreza**. Itália: International School on Mind, Brain and Education (Etore Majorana Foundation and Center for Scientific Culture), p. 117-166, 2019.

ROMERO-LÓPEZ, Miriam; PICHARDO, Carmen; BEMBIBRE-SERRANO, Judi; GARCÍA-BERBÉN, Trinidad. Promoting social competence in preschool with an executive functions program conducted by teachers. **Sustainability** (Basel, Switzerland), v. 12, p. 4408, May, 2020.

RUEDA, M. D. R.; CONEJERO, Á. Efectos de la pobreza em el desarollo neurocognitivo temprano. In: LIPINA, S. J.; SEGRETIN, M. S. (ORGANIZADORES). **Exploraciones neurocientíficas de la pobreza**. Itália: International School on Mind, Brain and Education (Etore Majorana Foundation and Center for Scientific Culture), p. 53-75, 2019.