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Review articles

Study and Research Group *Tecendo Redes Cognitivas de Aprendizagem* (G-TERCOA/CNPq/UFC): a decade of research

Grupo de Estudos e Pesquisas Tecendo Redes Cognitivas de Aprendizagem (G-TERCOA/CNPq/UFC): uma década de pesquisas

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Abstract

The Study and Research Group *Tecendo Redes Cognitivas de Aprendizagem* (its acronym in Portuguese is G-TERCOA/CNPq/UFC and the translation of its name into English is Weaving Cognitive Learning Networks), affiliated with the Faculty of Education of the Federal University of Ceará (FACED/UFC), was conceived by Professor Maria José Costa dos Santos in 2014. Since its inception, with a focus on fostering research, teaching, and extension, the group has been developing studies and discussions on themes related to Mathematics Education, curriculum, assessment, teaching methodologies, digital technologies, Public Policies, inclusion, and teacher training. This article presents the research developed by the group members, with a particular emphasis on the defended theses. To achieve this objective, an initial investigation into the routine of G-TERCOA/CNPq/UFC was conducted, examining its activities, actions, and admission procedures. Subsequently, a descriptive bibliographic study with a qualitative approach was undertaken, investigating the doctoral research work developed by five members of this group, from 2017 and defended in 2021 and 2023. The findings of this investigation indicate that the thesis research primarily focused on Public Assessment Policies, the training of mathematics teachers, the development of algebraic thinking, and error analysis as an integral part of the learning process, with significant contributions from studies conducted within the aforementioned research group.

Keywords: G-TERCOA; teacher training; teaching; research; outreach.

Resumo

O Grupo de Estudos e Pesquisas Tecendo Redes Cognitivas de Aprendizagem (G-TERCOA/CNPq/UFC), vinculado a Faculdade de Educação da Universidade Federal do Ceará (FACED/UFC), foi idealizado pela professora Maria José Costa dos Santos em 2014, e desde então, numa perspectiva de fomento à pesquisa, ensino e extensão, vem desenvolvendo estudos e discussões sobre temáticas relacionadas à Educação Matemática, ao currículo, a avaliação, as metodologias de ensino, as tecnologias digitais, as Políticas Públicas, a inclusão e a formação docente. Este artigo apresenta as pesquisas desenvolvidas pelos membros do grupo, com ênfase nas teses defendidas. Em busca do atendimento deste objetivo, investigou-se inicialmente a rotina do G-TERCOA/CNPq/UFC, conhecendo suas atividades, ações e forma de ingresso. Na sequência, procedeu-se a um estudo bibliográfico, de caráter descritivo e com abordagem qualitativa, em que se investigaram os trabalhos de pesquisa de doutorado desenvolvidos por cinco membros deste grupo, desde o ano de 2017 e defendidos nos anos de 2021 e 2023. Os resultados desta investigação apontam que as pesquisas de tese tiveram como ênfase as Políticas Públicas de avaliação, a formação de professores de matemática, o desenvolvimento do pensamento algébrico e a análise de erros como parte do processo de aprendizagem, tendo contribuições dos estudos realizados no referido grupo de pesquisa.

Palavras-chave: G-TERCOA; formação de professores; ensino; pesquisa; extensão.

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INTRODUCTION

This scholarly contribution was initially presented at the V Symposium of Research Groups on Teacher Training in Brazil (V SGPFPB), an event meticulously organized by the State University of Ceará (UECE) and convened from May 15th to 17th, 2024. It represents an empirical investigation undertaken within the ambit of the Study and Research Group Weaving Cognitive Learning Networks (G-TERCOA/CNPq/UFC).

Research collectives assume a pivotal role in the academic trajectory and intellectual maturation of an aspiring scholar. They furnish an unparalleled milieu for the reciprocal exchange of erudition, inasmuch as they constitute an environment conducive to the dissemination of conceptual frameworks, groundbreaking discoveries, and experiential insights among their constituents. This dynamic interaction affords the researcher access to an expansive spectrum of knowledge domains and diverse epistemological standpoints, thereby profoundly enriching their individual comprehension and methodological approach to the conduct of rigorous scientific inquiry.

A research group intrinsically fosters task interdependence, cultivates a shared accountability for outcomes, and promotes collaborative problem-solving in addressing intricate issues (Degn et al., 2018). Consequently, active engagement within these collectives demonstrably propels the professional development and augments the scholarly productivity of educators.

As articulated by Rossit et al. (2018), a research group is conceptualized as a dedicated arena for meticulous study, systematic investigation, and the generation of novel knowledge, fundamentally predicated upon thematic foci. This conceptualization is frequently examined through the lens of Interprofessional Education, which, in turn, is predicated upon a framework wherein two or more professional disciplines engage in mutual learning, both about their respective fields and about each other, with the overarching objective of enhancing collaborative practice and elevating the caliber of care rendered to others.

Azevedo et al. (2018) underscore the notion that a research group is configured as an auspicious environment for the cultivation, refinement, and advancement of intellectual faculties. Within this intellectual crucible, knowledge acquisition and pedagogical insights are assimilated by members through the adoption of emergent values, deeply held convictions, and adaptive dispositions, all meticulously guided by the coordinated and cooperative paradigm exemplified by researcher-educators.

The pedagogical formation of researcher-educators constitutes an intricate and multifaceted endeavor, fundamentally oriented towards fostering a critically informed and reflectively engaged teaching praxis, seamlessly integrating pedagogical instruction with rigorous scientific investigation. As posited by Silva and Soares (2021), democratic research is firmly anchored in a profound commitment to contribute substantively to the actualization of a more equitable and just societal reality.

Within this overarching framework, research groups serve as potent catalysts for synergistic collaborations among their diverse members, encompassing undergraduate students, postgraduate candidates, and other seasoned educators. Such collaborative undertakings frequently culminate in joint research initiatives, scholarly publications, active participation in academic symposia, and a plethora of other invaluable opportunities that are unequivocally instrumental for the professional advancement of their participants.

In consonance with this overarching perspective, the Study and Research Group Weaving Cognitive Learning Networks (G-TERCOA/CNPq/UFC) was conceptualized in 2014 by the esteemed Professor Dr. Maria José Costa dos Santos, and has maintained its official registration with the National Council for Scientific and Technological Development (CNPq) since 2015. The group is formally affiliated with the Faculty of Education of the Federal University of Ceará (FACED/UFC), with its operational headquarters situated at the Center for Regional Studies and Research (NUPER/UFC), specifically within research room 1 (Santos, 2024).

Drawing upon the seminal investigations conducted by Mainardes (2022), it is evident that the earliest iterations of research groups formally declared their establishment during the latter half of the 1980s. Presently, a substantial majority of research groups are seamlessly integrated into postgraduate academic programs, undertaking a diverse array of scholarly activities within the broader university ecosystem.

Throughout its distinguished historical trajectory, G-TERCOA/CNPq/UFC commemorated a decennial milestone in 2024, having assiduously cultivated research endeavors and actively

contributed to the discourse surrounding, and the advancement of, Education in Brazil. In this auspicious context, the present article endeavors to delineate the research undertakings meticulously pursued by the members of G-TERCOA/CNPq/UFC, with a particular emphasis on the doctoral theses successfully defended under its aegis.

To attain this overarching objective, our initial investigative thrust was directed towards scrutinizing the operational modus operandi of G-TERCOA/CNPq/UFC, thereby elucidating its multifaceted activities, strategic initiatives, and established admission protocols. Subsequently, we embarked upon a comprehensive bibliographic examination of the doctoral dissertations successfully defended by the esteemed members of this distinguished collective.

G-TERCOA: ITS ACTIVITIES, ACTIONS, AND ADMISSION PROCEDURES

The Study and Research Group Weaving Cognitive Learning Networks (G-TERCOA/CNPq/UFC) distinguishes itself through its inherently interdisciplinary approach to the professional development of educators, meticulously orienting its scholarly pursuits towards the pedagogy of Mathematics, with a pronounced emphasis on the three foundational pillars of university engagement: research, instruction, and community outreach.

In this regard, Santos (2024, p. 4) elucidates that:

> The fundamental objective of the group is to problematize discussions on themes within the educational domain, particularly those encompassing: curriculum design, evaluative methodologies, pedagogical theories of teaching and learning, diverse instructional approaches, epistemological trajectories, the integration of digital technologies, educational informatics, public policy implications, and inclusive practices from the vantage point of preparing mathematics educators for basic education, all illuminated by practices that intricately weave together research, teaching, and extension.

According to the National Council for Scientific and Technological Development (CNPq) (Brasil, 2024), a research group is characterized by the synergistic confluence of researchers, students, and technical support personnel, meticulously organized around the systematic execution of defined research trajectories, adhering to a hierarchical framework predicated upon the cumulative experience and demonstrable technical-scientific acumen of its principal investigators.

Rossit et al. (2018) further assert that research groups are typically spearheaded by seasoned academics who are adept at providing invaluable guidance and mentorship to their less experienced counterparts. This dynamic is particularly salient for educators undergoing professional formation, as it affords them an unparalleled opportunity to assimilate knowledge from individuals possessing extensive expertise within the field.

Adhering to this foundational premise, G-TERCOA/CNPq/UFC is proficiently led by Professor Dr. Maria José Costa dos Santos, whose leadership is robustly complemented by Professor Dr. Wendel Melo Andrade, serving as the group's distinguished vice-leader. Furthermore, the collective benefits substantially from the collaborative contributions of other highly experienced members who actively participate in the group's diverse undertakings.

Consequently, the research group furnishes an intellectual environment wherein its members can solicit and receive constructive feedback pertaining to their ongoing research endeavors and academic output. This facilitative dynamic is unequivocally instrumental in elevating the intrinsic quality of their scholarly work and in meticulously preparing the researcher-educator for the rigorous demands inherent in the development of their own research.

The group convenes a diverse cohort of scholars, encompassing seasoned researchers, doctoral candidates, master's students, undergraduate students, and educators from both Basic and Higher Education institutions. In this capacity, it has meticulously orchestrated a panoply of academic events, including seminars, workshops, and colloquia, at both statewide and interstate levels, all of which are of paramount significance for both initial and continuing professional development.

Presently, the group comprises 102 officially registered members within the CNPq directory, all actively engaged in the research trajectory designated as: Curriculum, training, teaching, and technologies. Within this membership, 83 individuals are identified as students, while 19 are recognized as established researchers.

Chart 1 provides a comprehensive overview of the distribution of researcher and student members, categorized by their respective academic backgrounds.

Chart 1. Distribution of G-TERCOA/CNPq/UFC members.

Academic Background	Researchers	Students	Technicians	International Collaborators	Total
Doctorate	12	19	0	1	32
Master's Degree	2	9	0	0	11
Professional Master's Degree	2	3	0	0	5
Postgraduate Certificate	2	1	0	0	3
Graduated	1	5	0	0	6
Others	0	46	0	0	46

Source: CNPq Directory (Brasil, 2024).

From the data presented in Chart 1, it is discernible that among the student cohort, 46 members possess an academic background classified under the rubric of "others." This particular subset of members predominantly comprises educators from Basic Education who have judiciously opted to affiliate with G-TERCOA/CNPq/UFC, seeking a conducive environment for the profound augmentation of their pedagogical knowledge. Participation in a research group unequivocally empowers the researcher-educator to cultivate a diverse repertoire of indispensable proficiencies for rigorous academic inquiry, such as incisive critical analysis, sophisticated academic prose, the successful dissemination of scholarly articles, and the meticulous examination of academic works through mediated intellectual discourse.

In their established routine, the members of the group convene on a weekly basis for dedicated study sessions, meticulously engaging with scholarly literature pertinent to the research themes under active investigation within the collective.

The group additionally orchestrates a diverse array of academic events throughout the calendar year, including, but not limited to: a summer school program, a series of virtual colloquia (cycle of lives), and specialized workshops. Among the distinguished events meticulously curated by G-TERCOA/CNPq/UFC, the Dialogues of Mathematics with Pedagogy (DIMA) stands out prominently. This annual symposium is strategically scheduled for May 6th and 20th, commemorating, respectively, Mathematics Day and Pedagogue's Day. The successful realization of this event facilitates a synergistic convergence between the disciplines of Pedagogy and Mathematics, thereby establishing profound interrelationships and fostering the cross-pollination of knowledge between these two distinct yet interconnected domains. This initiative effectively mitigates epistemological and conceptual lacunae that regrettably persist as a paradigmatic challenge for both fields. DIMA is unequivocally configured as an opportune juncture to engage in substantive discourse concerning pivotal topics such as curriculum development, evaluative paradigms, the intrinsic significance of research, the judicious integration of technological advancements, and the ongoing professional development of educators. In 2024, the thirteenth iteration of this esteemed event was successfully convened, centered around the overarching theme: Inclusion, diversity, mental health, and socio-emotional competencies for the promotion of transformative learning, comprehensively encompassing both Pedagogy and Mathematics.

Among the manifold initiatives undertaken by the group, active participation in academic congresses and scholarly events is a notable feature. This is complemented by the consistent practice of submitting meticulously crafted scientific articles to peer-reviewed journals and the prolific publication of books, e-books, and curated collections featuring academic works meticulously developed by the esteemed members of the group.

The scientific output of the group is primarily concentrated on the domains of Mathematics licensure and Pedagogy, predicated on the understanding that both graduating students and those undergoing professional formation are inherently socio-historical beings. To this end, the group has assiduously analyzed prevailing trends in Education, conceptualizing them as theoretical-methodological and didactic-pedagogical underpinnings that are profoundly instrumental in the intricate construction of teacher identity. The scholarly investigations also meticulously align with contemporary discourse concerning curriculum reforms and the pervasive ramifications of external assessments on the intricate processes of teaching and learning.

Regarding practices that intricately interweave research, instruction, and community outreach, the group assiduously develops a diverse portfolio of courses throughout the academic year.

These initiatives are meticulously channeled through extension projects formally affiliated with the Pro-Rectory of Extension of the Federal University of Ceará (PREX/UFC), facilitated by the periodic issuance of calls for proposals that actively encourage the participation of educators from public school systems.

New members are formally inducted into G-TERCOA/CNPq/UFC on a semi-annual basis, a process meticulously managed through calls for applications that cater to both the re-accreditation of seasoned members and the formal accreditation of new affiliates.

G-TERCOA/CNPq/UFC has unequivocally distinguished itself within the academic and scientific community by meticulously directing both initial and continuing professional development towards a pedagogical framework rooted in the acquisition of fundamental competencies and indispensable skills inherent in the quotidian school environment, all of which contribute substantively to the cultivation of informed citizenship. Concomitantly, it has assiduously fostered critical reflections concerning the profound relevance of integrating digital technologies and collaborative methodologies in the advancement of teaching and learning processes, thereby actively promoting initiatives geared towards the progressive evolution, systematic renewal, and innovative transformation of the educational paradigm.

METHODOLOGICAL APPROACH

Methodologically, this investigation is characterized as descriptive research, inasmuch as, in accordance with the tenets articulated by Prodanov and Freitas (2013), this genre of study is fundamentally oriented towards the meticulous documentation and comprehensive portrayal of phenomena, thereby manifesting as a systematic survey of the research endeavors meticulously undertaken by the members of the collective under scrutiny.

Concerning the overarching methodological paradigm, we have judiciously employed qualitative research, given that this particular investigative modality meticulously considers the dynamic and inherently subjective interplay among the research subjects, their contextual environment, and their volitional actions. Qualitative research inherently leverages the naturalistic setting as a primary conduit for data acquisition, as the researcher maintains an intimate and direct engagement with both the environment and the specific object of inquiry, thereby necessitating a more intensive and nuanced investigative commitment. The empirical data meticulously garnered in such research endeavors aspire to comprehensively delineate the myriad extant elements within the scrutinized reality. Consequently, this genre of research is demonstrably more preoccupied with the intricate processes underpinning phenomena than with their ultimate products (Prodanov; Freitas, 2013).

The research locus for this study is the operational environment of the investigated study group, with a purposive sample of five G-TERCOA/CNPq/UFC members meticulously selected as research subjects. This selection was predicated upon the stringent criterion of being a member who had successfully defended a doctoral thesis, wherein the research itself was demonstrably developed through collaborative scholarly contributions undertaken within the auspices of the research group.

Regarding the meticulously adopted research procedure, this investigation incorporates salient elements of bibliographic research, systematically proceeding through the rigorous analysis of doctoral theses successfully defended by the designated subjects of this inquiry. These doctoral dissertations were systematically retrieved from the institutional repository of the University Library of the Federal University of Ceará (UFC).

For the systematic analysis of the collected data, the content analysis methodology was rigorously employed. To this end, our methodological framework was firmly anchored in the principles espoused by Bardin (2016), inasmuch as the information meticulously garnered throughout the investigative process was meticulously organized and systematically structured in accordance with the following distinct phases: pre-analysis, material exploration, and treatment of results.

In the pre-analysis phase, the raw material was meticulously organized, and the analytical framework was meticulously planned. This encompassed the judicious selection of relevant theses, an initial comprehensive reading, a thorough familiarization with the substantive content of the scholarly works, the precise identification of overarching themes, explicit objectives, and underlying theoretical and methodological conceptions, in addition to the precise delineation of the procedures for systematically organizing the amassed data. During the material exploration phase, the textual content of the corpus was systematically coded, and the data were meticulously decomposed to facilitate their subsequent rigorous analysis.

Finally, in the treatment of results phase, an interpretive analysis of the data was meticulously performed, insightful inferences were meticulously drawn regarding the group's efficacy in conducting thesis-driven research, and the resultant findings were comprehensively presented.

RESULTS AND DISCUSSION

In the course of our investigations, we successfully identified five doctoral thesis works, meticulously defended by members of G-TERCOA/CNPq/UFC, which collectively encapsulate research endeavors undertaken since 2017 and successfully defended in both 2021 and 2023.

The esteemed researcher Wendel Melo Andrade successfully defended his doctoral thesis in 2021, a scholarly work entitled "The Permanent System of Basic Education Assessment of Ceará (SPAECE) and the school curriculum: implications in the 9th year of Elementary School." This comprehensive study was meticulously designed to critically analyze the intricate nexus between the assessment protocols implemented by SPAECE, functioning as a pivotal public educational policy, and the extant school curriculum, meticulously examining its pervasive impacts and consequential ramifications on the pedagogical processes of teaching and learning mathematics within the 9th year of Elementary School. This rigorous investigation unequivocally revealed that SPAECE exerts a profound influence on the mathematics curriculum as experienced by the subjects under scrutiny, and this pervasive influence invariably precipitates a cascade of strategic actions and pedagogical practices meticulously devised within educational institutions, all ostensibly aimed at elevating students' academic performance benchmarks. Consequently, a pervasive culture of performance was inadvertently fostered, wherein the intricate processes of teaching and learning were increasingly imbued with a utilitarian sense of productivity, regrettably culminating in a discernible curricular constriction and an epistemological reductionism of knowledge. The investigation engenders a series of profoundly contributory discussions that serve to substantially broaden our comprehension of SPAECE's multifaceted implications for the mathematics curriculum, thereby fostering incisive critical reflections on this pervasive phenomenon, and ultimately facilitating a more judicious recontextualization of assessment and curriculum policies within the dynamic school environment (Andrade, 2021).

In 2023, four distinguished researchers, all integral members of G-TERCOA/CNPq/UFC, successfully defended their respective doctoral thesis works.

The esteemed researcher Glessiane Coeli Freitas Batista Prata defended her thesis, "Mathematics Teacher Training: Awareness-Building as an Intersection between Mathematical Literacy, the Fedathi Sequence, and Objectification Theory." The dissertation aimed to present a proposal for continuing education based on the triad of mathematical literacy, Objectification Theory, and the Fedathi Sequence, seeking contributions to the continuing education of elementary school mathematics teachers. This research found that the extension course, offered during the research, established itself as a formative space, thus providing students with the opportunity to learn about the concepts and objectives of continuing education, Mathematical Literacy, the Fedathi Sequence, and Objectification Theory. With this, the research concludes that the continuing education of teachers who teach mathematics in the initial years of elementary school must be outlined by a triad, consisting of a conception, a methodology and a theory, because without the link between these elements the formative process does not happen in a factual way (Prata, 2023).

Member Carlos Alves de Almeida Neto defended his thesis, titled "The Collaborative Online Classroom from the Perspective of Objectification Theory: An Experience of Continuing Education." The objective was to conceptualize the collaborative online classroom from the perspective of Objectification Theory, highlighting the principles of community ethics, of being, knowing, and becoming, within the processes of objectification and subjectification, presenting their main characteristics and potential for teaching mathematics. The results of this research indicate that community ethics, collaborative work, and collaborative learning contribute to researchers' understanding of the importance of adapting these principles to digital educational technologies, enabling, even remotely, shoulder-to-shoulder engagement between students and teachers. Thus, the investigation concludes that the development of the processes of understanding, construction and experimentation of this online teaching-learning environment, called a collaborative online classroom, from the perspective of the Theory of Objectification, enhanced the updating of mathematical knowledge, as the principles of commitment, responsibility and care for others were evidenced in the midst of remote joint work (Almeida Neto, 2023).

Researcher Rodolfo Sena da Penha defended his thesis, "Error Analysis in Mathematics from the Perspective of Teachers Teaching Mathematics in the Final Years of Elementary School," which investigated the evidence from error analysis that most influences mathematics teaching practices in the final years of elementary school. The objective was to analyze the different types of errors made by students in mathematics, using them as a didactic and pedagogical tool in the teaching and learning processes of this subject. The research was conducted with a group of teachers from the municipal school system of Guaramiranga, Ceará, who teach mathematics in the final years of elementary school, through an extension course taught by members of G-TERCOA/CNPq/UFC. The results of this research indicate that, based on the teachers' speeches and discussions throughout their experiences in the extension course, the identification and understanding of students' errors are part of the learning process and allow the teacher to rethink more effective and meaningful teaching practices, contributing to a richer and more adaptable educational environment for learning (Penha, 2023).

In turn, member Antônio Marcelo Araújo Bezerra defended his thesis entitled "Weaving cognitive networks between the mathematical training of pedagogues and algebraic thinking: reflections from focus groups." This work aimed to analyze the mathematical training of pedagogues in terms of the development of algebraic thinking, focusing on the objects of knowledge that comprise the algebra thematic unit of the National Common Curricular Base (BNCC) (Brasil, 2017) through focus groups. The results identified that pedagogues associated the teaching of algebraic thinking with the use of letters as unknowns, that their mediation practices were carried out in the way they understood it as students, and that the continuing education offered did not allow them to rework the specific knowledge acquired in Basic Education. Thus, given the actions developed in the extension courses taught by this researcher, it was possible to mitigate these difficulties in teacher training. According to this researcher, it is necessary to rethink the process of continuing teacher training, so that it is constant in teaching practice, aims to train mathematical researchers, both in pedagogical and specific knowledge, and is supported by an institutional structure that offers conditions to promote this change concomitantly with the teacher's performance in the classroom (Bezerra, 2023).

In the theoretical-methodological approach of the thesis papers investigated, we highlighted the influence of the studies conducted within the research group. This represents an important contributory element, as the weekly study sessions provide a time for reading, reflection, and debate essential for consolidating the epistemological foundations of research.

We also noted the presence of initiatives promoted by G-TERCOA/CNPq/UFC in the development of the thesis research studies investigated, especially those involving extension courses, which also rely on the collaboration of other group members in their implementation, strengthening the continuing education of participating teachers and assisting in the conduct of the research.

Regarding this, Mainardes (2022) explains that one of the objectives of research groups is to strengthen research and the educator training process through systematic activities, especially for future researchers. The author reinforces this by highlighting that "research groups play an important role in the researcher training process" (Mainardes, 2022, p. 8). Therefore, training provided by research groups not only promotes the continuous development of professionals and the implementation of new approaches, but also encourages critical reflection on current practices and the challenges faced in their fields.

CONSIDERATIONS

In this study, we learned about the activities and initiatives developed by G-TERCOA/CNPq/UFC, primarily discussing the doctoral research defended by its members.

We found alignment between the thesis research investigated and the themes studied within the group, as they emphasized large-scale assessment systems, mathematics teacher training, the development of algebraic thinking, and error analysis as part of the learning process. Thus, addressing curriculum, public policies, assessment, and teacher training for mathematics teaching and learning.

It is clear that the group has been an important catalyst for the articulation of theory and practice, offering its members a formative space where critical reflection, collective debate, and academic production intertwine. The activities promoted, such as events, extension courses, and training sessions, reinforce the commitment to transformative, inclusive, and collaborative education. With this, we reinforce our belief that research groups are a fundamental part of a professor-researcher's academic training, providing a collaborative and supportive environment for conducting scientific

research, fostering professional growth, and developing the skills necessary for a successful career in academia as a researcher and in teaching as an educator.

Therefore, as it celebrates its decade of existence, the Study and Research Group on Weaving Cognitive Learning Networks (G-TERCOA/CNPq/UFC) reaffirms its relevance in the Brazilian academic and educational landscape, pointing the way for ongoing and initial teacher training and for the consolidation of investigative practices committed to building a democratic, critical, and reflective education.

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Authors contribution

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