

Knowledge of Edgar Morin and Paulo Freire for a transformative pedagogical practice

Saberes de Edgar Morin e Paulo Freire para uma prática pedagógica transformadora

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Abstract

This article investigates the necessary transformation of pedagogical practices, understood as a process that requires teacher education capable of addressing new forms of knowledge. In this context, it is relevant to embrace an epistemological dialogue between the propositions of Morin (2011) and Freire (2019), grounding teacher education in the seven knowledges necessary for the education of the future and in the knowledges essential for educational practice. Accordingly, the study sought to answer the guiding question: *How can teacher education be articulated with Edgar Morin's complex thinking and Paulo Freire's sociopolitical pedagogy?* The investigative process aimed to analyze the participating teachers' perspectives regarding the relevance of incorporating the constructs of these authors into teacher training. The results indicate the teachers' identification with the views of Freire and Morin, as well as the need to resignify pedagogical practices through training processes grounded in complexity and transformative education.

Keywords: pedagogical practices; teaching knowledge; transformative education.

Resumo

Esse artigo procurou investigar a necessária transformação das práticas pedagógicas, compreendida como um processo que demanda uma formação docente capaz de atender a novos saberes. Considera-se pertinente, neste contexto, o acolhimento de uma aliança epistemológica entre as proposições de Morin (2011) e Freire (2019), fundamentando processos formativos nos *sete saberes necessários à educação do futuro* e nos *saberes necessários à prática educativa*. Buscou-se, assim, responder à questão norteadora da pesquisa: como propor uma formação de professores que articule o pensamento complexo de Edgar Morin e a pedagogia sociopolítica de Paulo Freire? O processo investigativo teve como objetivo analisar as contribuições dos docentes participantes quanto à pertinência da incorporação dos saberes desses autores na formação docente. Os resultados evidenciaram a identificação dos professores com as perspectivas de Freire e Morin, bem como a necessidade de ressignificação das práticas pedagógicas, sustentadas em processos formativos pautados na complexidade e na educação transformadora

Palavras-chave: práticas pedagógicas; saberes docentes; educação transformadora.

INTRODUCTION

The United Nations Educational, Scientific and Cultural Organization (UNESCO) recommends four pillars for the development of knowledge for 21st-century education: learning to know, learning to do, learning to be, and learning to live together. These pillars are complementary and aligned with contemporary global and societal needs (Delors, 2001). However, to achieve an education of the future, it is necessary to develop pedagogical practices grounded in new forms of knowledge based on complexity and transformative education, opening new pathways for the continuous weaving of knowledge.

Teachers' knowledge is reaffirmed and justified through principles experienced and internalized along their personal, professional, and formative trajectories. It reflects actions guided by values and ideologies constructed throughout their journey. During this process, essential

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elements emerge: problematization, intentional engagement in the search for solutions, methodological experimentation, the interdependence between theory and practice, and the mobilization of pedagogical knowledge aimed at constructing new practices (Tardif, 2004).

To develop pedagogical practices grounded in new perspectives for transforming education, we highlight the seven knowledges necessary for the education of the future, formulated in 1999 at UNESCO's request by Edgar Morin (2011). The author systematized a set of reflections as a starting point for rethinking education and mobilizing responses to the challenges faced by an educational system in a fragile situation due to the global demands of society. These knowledges are fundamental for new educational practices based on complexity and the reform of thought, designed to address the multiple social, political, and economic crises that threaten the planet.

They represent essential principles for a new education of the future, anchored in new pedagogical practices committed to ethical values, social justice, and peace. Morin presents the seven knowledges as follows: *knowledge blindness: error and illusion; the principles of pertinent knowledge; teaching the human condition; teaching Earth identity; confronting uncertainties; teaching understanding; and the ethics of humankind*.

These are the knowledges for the new education of the future, pointed with the commitment of new pedagogical practices attached with values and based on ethics, social justice and peace. Edgar Morin presents the knowledges as follows: Knowledge blindness: the error and the illusion; the principles of relevant knowledge: Teaching the human condition; Teaching the identity on Earth; Facing uncertainties; Teaching understanding and the ethics of humankind.

The seven knowledges necessary for the education of the future promote a mobilization of movements and concrete forms of action. It is a transdisciplinary effort capable of connecting scientific culture with the culture of the humanities, in order to rethink the paths that educational systems must take to overcome the fragmentation of knowledge and the dominance of disciplinary divisions.

The understanding and perception of knowledge are susceptible to error, illusion, and uncertainty about the future of humankind. This is especially due to the unbalanced course of processes involving technology and science, which contribute to the fragmentation of knowledge and to the new forms of blindness that such fragmentation produces. In *The Knowledge of Knowledge: The Errors and Illusions*, Morin (2011) points out that education for the future must confront the twofold nature of error and illusion, which have been present in the human mind since the emergence of humankind, leading to the formation of false conceptions of the self. In *The Knowledge: The Principles of Pertinent Knowledge*, he emphasizes the need to promote knowledge capable of identifying fundamental and global problems, into which partial and local forms of knowledge can be integrated.

The planetary era requires placing knowledge of the world in a global, complex, and multidimensional context, as well as articulating and organizing knowledge in order to recognize contemporary problems. Regarding the knowledge of teaching the human condition, Morin (2011) acknowledges the cultural diversity present in all that is human, recognizing our shared humanity.

In this sense, education for the future must extend its educational reach to the human condition, because "[...] to know the human being is, above all, to situate it within the universe and not apart from it" (Morin, 2011, p. 43). According to the author, the human being exists in the world, sharing knowledge that must be contextualized with its object in order to be relevant. It should question our human condition and our position in the world, highlighting the indissoluble link between unity and diversity in everything that is human. Pertinent and contextualized knowledge is also well defined in other works by Morin, such as *Teaching and Living* (Morin, 2015a) and *Science with Conscience* (Morin, 2005).

Regarding the knowledge of teaching earthly identity, Morin (2011) states that the development of the planetary era and the planetary destiny of humankind require the recognition of our earthly identity — a reality that must be contemplated and made an object of study within education. In this context, it is necessary to make students aware of the importance of the complex planetary crises that we all face and that we share a common destiny.

Regarding the knowledge of facing uncertainty, Morin (2011, p. 17) affirms: "It is necessary to learn to navigate through oceans of uncertainty among archipelagos of certainty". This refers to understanding the inevitable uncertainty of human history, which remains an unknown adventure because the future is open and unpredictable. The knowledge of teaching understanding, according to Morin (2011), involves the legacy for the education of the future, which requires the development of comprehension and the reform of thought.

Concerning the knowledge of the ethics of the human genus, Morin (2011) clarifies that the basis for teaching ethics for the future is to situate the origins of human consciousness and spirit within a chain of meaning that links the individual, society, and species, unfolding into a truly human ethics — the anthropo-ethics. In this process, the individual, society, and species are elements that cannot be understood separately, since consciousness emerges from this complex trio, while culture is nourished, supported, and interconnected with it.

It is essential to cultivate complex thought, as proposed by Morin (2015b). Such thought is capable of contextualizing, relating, and reconnecting different knowledges. More importantly, it must embrace the dimensions of life, which are found within a complex network of multidimensional and multireferential elements. It has become increasingly necessary to develop pedagogical practices centered on human formation, valuing a more responsible human condition and fostering the development of an ethical understanding that also considers cultural diversity and the plurality of individuals. For this reason, teaching practice must create spaces that promote dialogue, creativity, democracy, and reflection in order to build knowledge in a transdisciplinary manner, through pedagogical practices grounded in solidarity, social justice, ethics, and peace.

Within this context of dialogue and democracy, it is possible to consider the knowledge necessary for Freire's (2019a) educational practice, derived from his *Pedagogy of Autonomy*, first defined in 1992. It presents a set of new knowledges grounded in a renewed critical ethics. It relates to pedagogical themes present in the teacher's daily life — knowing how to do, knowing how to be — without ever abandoning dream, rigor, simplicity, and seriousness, all of which characterize the educational act.

With a pedagogy based on ethics and on respect for the dignity and autonomy of both educator and learner, Paulo Freire highlights in works such as *Education as the Practice of Freedom* (Freire, 1994), *Education in the City* (Freire, 2001), and *Pedagogy of the Oppressed* (Freire, 2019b) the importance of understanding the teacher's practice as a social dimension of human formation. In these works, he emphasizes solidarity as a historical and social commitment — a form of struggle capable of establishing and promoting a universal ethics of human dignity.

One of the most important foundations of the sociopolitical vision present in Freire's *Pedagogy of Autonomy* is the defense of social transformation. His educational proposal goes beyond the individual dimension and moves toward collective and structural change. According to Freire (2019a), education must be constructed as an instrument of emancipation for building a more just society, in which educators and learners are committed to concrete actions that promote social transformation and that question and confront the structures of injustice present in our reality.

Taking this into consideration, the knowledges necessary for educational practice is grounded in a critical reflection on the teacher's practice, in which theory and practice must not be seen as a dualism, but as an indissociable unity. Therefore, pedagogical practice must be founded on dialogical authenticity so that the educator's actions are aligned with changes rooted in pedagogical ethics.

For Freire (2019a), knowing how to teach requires respect for the learner's knowledge, since knowing how to teach demands critical awareness, aesthetics, and ethics. For the author, knowing how to teach involves embodying one's words through example, because teaching requires critical reflection on practice. Other knowledges identified by Freire (2019a) as essential for educational practice include the idea that knowing how to teach is not to transfer knowledge. According to Freire (2019b, p. 7), educators must "[...] create possibilities for the production or construction of knowledge". Knowing how to teach requires respect for the learner's autonomy. For Freire, it also demands humility, tolerance, and a commitment to defending teachers' rights. It requires the awareness that to know how to teach is to understand that education is a form of intervention in the world. For the educator, knowing how to teach requires openness to dialogue, as well as affection for the learners.

It is crucial to understand these elements in order to achieve an educational practice committed to promoting autonomy, critical consciousness, and active participation in society. Freire's pedagogy is not merely an educational theory; it is a call to action, a profound and significant transformation in the conception and practice of education. Several key points can be observed in his sociopolitical pedagogy, especially in its emphasis on dialogue, critical consciousness, and transformative educational practice. It transcends the mere transfer of knowledge and aims at freedom and social transformation.

Recognizing the need for transforming pedagogical practices and the urgency of education's metamorphosis implies offering teacher education that responds to a new paradigm. At this moment, we believe it is appropriate to bring together the proposals of Edgar Morin and Paulo Freire, both of whom envision a perspective of complexity within transformative education. Morin (2011) proposes the articulation and organization of knowledge so that we may recognize and understand the problems of the world. This requires a reform of thought through an adjustment of the teaching-learning process. This process becomes increasingly broad, deep, and rigorous, as knowledge is, on the one hand, disjointed, divided, and compartmentalized, and, on the other hand, confronted with realities and problems that are increasingly multidisciplinary, transversal, multidimensional, transnational, global, and planetary.

Thus, it is pertinent to mention the authors' contributions, as they reinforce the importance of a new vision of a systemic, interdisciplinary, reflective, and multidimensional pedagogy. The richness of their work contemplates an education for the future grounded in dialogical teaching. It is also transformative due to its emphasis on complexity, reform of thought and knowledge. Therefore, this study seeks to foster reflection on the knowledges necessary for an education for the future and those required for educational practice through research and study.

To promote an educational metamorphosis, teacher education must be based, according to Moraes (2021), on the acceptance of the epistemological constructs of Paulo Freire and Edgar Morin. The teaching knowledges developed by both authors encompass a transdisciplinary, dialogical, ethical, integrative, creative, and multidimensional approach to the application of the new knowledges necessary for 21st-century education.

It is understood that the limitations of the teaching-learning process are generated by a reductionist and disciplinary perspective and by the fragmentation of knowledge. These limitations are expressed in a restricted and narrow view of the educational process. Therefore, teacher education must be grounded in new knowledges, adopting a more transformative, complex, and expansive perspective—one that enables the formation of more human, critical, and responsible individuals. Nonetheless, it is necessary to re-signify pedagogical practices immediately through formative processes grounded in complexity and transformative education.

Given this context, the following research problem emerges: **how can teacher education be proposed in a way that articulates Edgar Morin's complex thought and Paulo Freire's sociopolitical pedagogy?**

For this purpose, teacher education is approached through new knowledges based on complexity and aimed at transformative education in a critical and reflective manner. With this in mind, educators must be offered the new knowledges necessary for teacher training as fundamental support for addressing the challenges of teaching and learning.

METHOD

The research on the theme "*Knowledge of Edgar Morin and Paulo Freire for a Transformative Pedagogical Practice*" was carried out with a group of Brazilian and Portuguese teachers participating in an online training course, under the supervision of a research group from a higher education institution in the state of Paraná. The study, funded by CNPq, was entitled "*Knowledge of Morin and Freire in the Web of Interconnection of the Vision of Complexity and Critical Education: Subsidies for Paradigmatic Change in Pedagogical Practice*".

The investigation was guided by the following research problem: **How can a teacher training program be proposed in a way that articulates Edgar Morin's complex thought and Paulo Freire's sociopolitical pedagogy?** As a general aim, the study sought to analyze how teachers understand the relevance of integrating the knowledges of Edgar Morin and Paulo Freire into their pedagogical practices.

To address the study's objective, a qualitative research approach was adopted, as it focuses on meaningful contexts. Creswell (2010, p. 211) characterizes qualitative research as "[...] interpretative, since the investigator is typically involved in a series of experiences nourished and intensified through interaction with participants". The study also presents an exploratory profile, as it investigates a topic that requires further understanding. According to Sampieri, Collado and Lucio (2013), exploratory studies serve to increase proximity to relatively unknown phenomena, obtain information about the possibility of further investigations into a particular real-life context and to establish priorities for future investigations, among other uses.

Exploratory studies serve to familiarize us with relatively unknown phenomena, obtain information about the possibility of conducting more comprehensive research related to a particular context, investigate new problems, identify promising concepts or variables, establish priorities for future research, or follow up on claims and postulates. This type of study is common in research, especially in situations where there is little information (Sampieri; Collado; Lucio, 2013).

The investigative process was grounded in qualitative, exploratory action-research, which enabled the analysis of the relevance of knowledge construction from within the research context itself. Action-research, as described by McNiff (2002), follows an interactive cycle that includes action planning, implementation, observation of results, and reflection on processes. This allows for continuous adjustments, as participants play an active role in identifying problems, developing intervention strategies, and making decisions throughout the research.

The research universe consisted of 52 Brazilian and Portuguese teachers working in basic education. The study involved their active and collaborative participation through questionnaires, written assignments, and dynamic, reflective discussions in a Google Classroom forum.

The teachers were designated P1 to P52 to maintain their anonymity. They were invited to express themselves during and at the end of the investigative process through accounts of their experiences in the course modules and collective discussions, which were recorded and registered. In their recorded contributions, they demonstrated the need for pedagogical practices that promote student autonomy and protagonism, especially when working with active methodologies combined with digital technologies.

To construct the data corpus, we discussed with the teachers the importance of sharing their experiences in pedagogical practice, based on their perceptions of teacher training and the articulation of Edgar Morin's and Paulo Freire's knowledges. Their contributions were collected through a Google Classroom discussion forum.

The methodological stage of the research was fundamental to the investigation, as the chosen scientific method guided the analysis and procedures necessary to achieve the research objectives. After determining the field of investigation and the participants, we established the set of procedures, methods, and techniques that would enable the construction of a specific view of reality and ensure the credibility of the results. The qualitative, exploratory, action-research approach made it possible to: (i) satisfactorily answer the research problem; (ii) meet the established objectives; (iii) conduct an analysis with precision and rigor; and (iv) establish relevant and essential indicators for addressing constructs related to teacher training.

The method used for document and content analysis followed the verification techniques and methodological procedures organized by Bardin (2020), who describes this analytical procedure as a method of categorization that allows the classification of components extracted from the data. Content analysis is a technique used in research to explore and understand underlying meanings in texts, discourses, images, or other forms of data. According to Bardin (2020, p. 11), "[...] content analysis is currently a set of increasingly subtle methodological instruments that are constantly being improved and applied to extremely diverse types of discourse". It involves the objective, systematic, and quantitative description of content while enabling the interpretation of meanings.

In this sense, the present research considered the collection of data and information produced by the participating teachers, as well as the content analysis of these contributions, in order to understand the meanings, significations, communications, and interpretations of reality expressed in their accounts.

RESULTS

The contributions were collected during the development of the thematic studies and involved 52 basic education teachers. It was possible to observe their identification with Freire and Morin, as well as the presence of elements and constructs from both authors in their pedagogical practices. It is important to highlight the dialogue between the two thinkers as a foundation for a transformative education capable of overcoming a simplistic paradigm. The teachers were designated P1 to P52 to preserve their anonymity. They were invited to share their perspectives during and at the end of the investigative process through accounts of their experiences in the course modules and collective discussions, which were recorded and documented. Their contributions demonstrated the need for pedagogical practices that foster student protagonism and autonomy, especially when working with contextualization in a transdisciplinary and dialogical approach within the teaching practice.

Some contributions stand out in the analysis of the first category, "transformative education". The identification of the participants with Freire and Morin can be verified through the convergence of their constructs in pedagogical practices aimed at transformative education, as related by P7:

I agree and believe that the knowledge and teachings of Paulo Freire and Edgar Morin are fundamental to improving and transforming education more and more. Paulo Freire shows us that education should not only be an act of transmitting knowledge, but should be transformative, liberating, creative, and transcendent—where the learner can be the protagonist of their learning and responsible for changing their history for the better. Edgar Morin points to transdisciplinarity as the path to be followed for a complex and transformative education and knowledge, always open to change. Freire and Morin make us think about our pedagogical practice and value the subjective knowledge and understanding of each individual. It is based on love for the learners, contextualization, experience, and individual reality, in order to teach more effectively, offering the student the opportunity to 'learn by doing,' relating theory to practice. Both authors have the same objective: to transform education and teach us to always base our pedagogical practice on ethics, respect for human dignity, and much more (P7).

This perspective aligns with P33's reflections on the importance of fostering the epistemological dialogue between Freire and Morin for a political and transformative education:

I agree with the knowledge and thoughts of Paulo Freire and Edgar Morin regarding education as an intentional and political act, as the only means of social transformation, and as a factor in overcoming the fragmented/reductionist knowledge that prevents a large portion of the population from fully realizing themselves as human beings—both unique and diverse. I believe that through these two perspectives it is possible to understand the persistent and emerging implications that characterize the teaching-learning process and the necessary intervention (P33).

The practice of complex thinking encompasses the development and importance of a rationality that is dialogical, intuitive, and global, committed to culture, social and political responsibility, values of life, and the urgency of actions for social transformation in response to educational needs (Fleury & Behrens, 2022). From this perspective, Petraglia, Dias and Almeida (2020) highlights the proximity between the two thinkers who were central to the contemporary educational context. Both encourage reflection grounded in diversity, prioritizing education as a means of transforming society.

From the convergence of Morin's and Freire's thought, we emphasize the growing need to discuss education for humanization. In this sense, both highlight the urgency of overcoming conservative educational models rooted in traditional stigmas, advocating for an educational understanding grounded in the dialogical nature of teaching and learning.

They also emphasize the relational dimension between teachers and students, the object of knowledge to be understood, and the local context in which learning takes place—always without disregarding the global. This perspective leads to the understanding of singularities while acknowledging multiplicity and diversity (Guérios; Haracemiv; Soek, 2021).

Regarding the transformation of pedagogical practices through the dialogue between Freire and Morin, teachers pointed out the need to overcome the simplistic paradigm associated with traditional and fragmented practices. P49 highlighted:

I agree with Freire's ideas when he says that the act of educating is a continuous process that involves both the teacher and the learner, and that both teach and learn; that is, what one does not know may be known by the other. Unfortunately, fragmented teaching with isolated subjects weakens and hinders transformation, and it is up to us teachers to seek alternatives for possible changes. Certainly, it is not easy, but Morin's thought helps us better understand how to navigate through various areas of knowledge, identifying the importance of domains beyond the one in which we were trained and thus adding other forms of knowledge and skills to make our classes more dynamic. I understood that complex thinking leads us to multiple perspectives on aspects that shape our reality and that of our students—social, cultural, political, religious, economic, among others—and all of this contributes to forming a well-grounded mind rather than a mind full of things that do not contribute to intellectual, educational, and emotional growth (P49).

This account aligns with P48's contribution regarding the identification with Morin's and Freire's constructs and their relevance for overcoming the simplistic paradigm:

I not only agree, but I consider it impossible not to identify with the proposals of Paulo Freire and Edgar Morin, especially since they manage to present a systemic and holistic vision of how Education should be conceived, represented, and valued. These thinkers present many convergent lines of thought. Thus, in my understanding, there is a common path between them in which: the overcoming of the past is sought, through the surpassing of the Newtonian-Cartesian and simplistic paradigm; the present is cultivated through the creation of a new pedagogical vision and the Reform of Thought; and the future is constructed through an Education that promotes the self-formation of the Person, the Ethical Subject—an aware, free, responsible, and planetary citizen (P48).

Prigol and Behrens (2020) highlight that, in the face of new contexts emerging in education, the reform of thought and the reconnection of knowledge have become imperative. These demands call for changes not only in educational systems but also in teachers' pedagogical practices, requiring an immediate effort to strengthen both initial and continuing teacher education. Such preparation is essential to support a teaching practice guided by the principles of a new educational theory aimed at overcoming a positivist, reductionist, and fragmented paradigm—one that has traditionally shaped teacher training and professional knowledge.

In this sense, we seek an educational conception grounded in the epistemological constructs of Freire and Morin, which reveal the importance of dialogue supported by convergent and complementary elements capable of creating pathways for epistemologically fostering a new transformative and complex pedagogical practice. Their theoretical frameworks share ethical perspectives, the reform of thought, contextualization, dialogue, autonomy, and the protagonism of learners, all of which contribute to the reconnection of knowledge (Prigol & Behrens, 2020).

Considering the need to promote student protagonism and the teachers' identification with Freire's and Morin's constructs for the formation of autonomous and agentic individuals, P50 noted:

I strongly agree with the idea that education cannot be merely an act of knowledge (perhaps only a reproduction of the world's knowledge passed down from generation to generation), but rather education as a political act, as a creative, transcendent, and liberating act. Even teaching young children, I feel that working with this idea and offering my little ones the pleasure of discovering and building, of seeing how simple new things they learn/build change their lives, their relationships, and make them grow pedagogically and humanly. I like to provide opportunities for the little ones to be protagonists of their own story and journey, and yes, as Paulo Freire and Edgar Morin rightly pointed out, for students to become subjects responsible for their own processes of formation and transformation (P50).

This perspective aligns with P9's view regarding the importance of fostering student protagonism in the teaching–learning process for transformative education:

I agree with both thinkers, as the ideas of Freire and Morin align with the proposed changes in the new high school curriculum where I work. They place the student as the protagonist of their own educational process. Furthermore, both propose that there should be a connection between areas of knowledge, since scientific knowledge exists within a complex context that must be understood as a whole and not from an isolated perspective (P9).

It is both necessary and urgent to consider education as a driving force for student empowerment and for the reconstruction of the active social subject—one capable of pointing out new paths in the continuous weaving of knowledge. In times permeated by uncertainty, characteristic of the contemporary era, educational thought demands critical dialogue and a constant openness to the new. From this perspective, we highlight the articulation of Freire's and Morin's ideas, from which the contributions and convergences of their postulates for the educational field emerge (Nascimento, 2013).

According to Moraes (2021), the educational and dialogical practice of the social and contemporary individual aligns with the complexity grounded in the respect to dignity of the human person, in the planetary identity, cultural diversity and the seek of paths for an education based on the study of complexity and dialogical education. Thus, it is possible to understand that the dialogue between Freire and Morin points to epistemological subsidies that connect and complement each other. They constitute epistemological foundations that foster teachers' work in both transdisciplinary and interdisciplinary ways, promoting an educational practice that is dialogical, complex, and emancipatory (Moraes, 2021). Participant 23 emphasized this alignment with the authors, especially regarding transdisciplinarity:

They form epistemological thoughts that foster the teacher's work in both transdisciplinary and interdisciplinary ways for an educational practice that is dialogical, complex and liberating (Moraes, 2021). P23 emphasized this alignment with the authors, especially regarding transdisciplinarity:

I identify with Freire and Morin, and I am fascinated by the dynamic of looking at the importance of involving different levels of reality, different domains or areas of knowledge with our students, requiring from us a truly transdisciplinary thought for its understanding, the encounter of knowledge. I believe that a transdisciplinary attitude is truly necessary, of walking between different areas of knowledge so that education can truly, as he points out, only be worthwhile when it forms a well-formed mind (P23).

P23's opinion converges with P35's account of transdisciplinarity in the pursuit of a more dialogical and multidimensional practice:

I agree and believe that the knowledge and teachings of Paulo Freire and Edgar Morin are fundamental to improving and transforming education more and more. Paulo Freire shows us that education should not only be an act of transmitting knowledge, but should be transformative, liberating, creative and transcendent, where the student can be the protagonist of their learning and responsible for changing their history for the better. Edgar Morin points to transdisciplinarity as the path to be followed for an education and a complex and transformative knowledge that is always open to change (P35).

According to Boneti, Langner and Asinelli-Luz (2022), from the ideas of Edgar Morin and Paulo Freire, it is possible to build a school genuinely focused on teaching. This requires adopting essential premises such as: the understanding that knowledge is constructed through dialogue; the interrelation between objective and subjective inquiry; the connection between nature and subjectivity with rational objectivity; the articulation between the school world and the practical world of life through the re-signification of the word; the reconstruction of the notion of the unity between life and death; the valorization of criticality, curiosity, and research in educational practice; the attribution of quality and rationality to poetry, literary expression, and art; the rupture with linear thinking and cause–effect dualism; the abandonment of the idea of the infallibility of knowledge; and the recognition of knowledge as the ability to read not only the written word but also the social, political, economic, and cultural world—that is, the lived reality.

According to Brauer and Freire (2021), the attempt to converge Freire's and Morin's perspectives suggests a highly relevant discussion. Both move away from the traditional paradigm by emphasizing the importance of knowledge rooted in learners' prior experiences and realities, encouraging new ways of thinking grounded in ecologized actions mediated by language as transformative practices for individuals and society. Thus, it becomes necessary to acknowledge that social and discursive practices are not neutral, since they involve ideological and political choices and reveal power relations capable of producing distinct effects in the social sphere.

In this process of humanization of the educational space, P16 highlighted the need to work with contextualization in light of Freire's and Morin's perspectives to transform reality:

More than agreeing with Freire and Morin's ideas on education, I am convinced that they offer many solutions to the challenges education will face in the future. I would like to highlight some of the authors' ideas that I subscribe to, the first of which, in my opinion, is shared by both authors, despite being presented in different forms. The contextualization of teaching, content, and knowledge to be addressed in education is increasingly consensual among teachers, and this is largely due to these authors. Freire alerts us to the need for a deep understanding of the context and society in which the school and students are situated. It is from this knowledge of reality that we identify the words and themes that spark students' interest in participating in pedagogical activities that lead to knowledge and learning. From these contextualized and localized contents, the teacher begins a process of expanding the content to national and international levels, while simultaneously generalizing the content (P16).

This statement resonates with P34's perspective, who identifies Freire's and Morin's constructs when working with contextualization and social dimensions across all facets of teaching:

I totally identify with this! For me, the concepts that there is no teaching without learning and that teaching is not a transfer of knowledge—both from Paulo Freire—are the basis and essence of being a good teacher; the minimum, I would say. Furthermore, the complexity of Morin's thought, understanding the student as a multidimensional human being, analyzing the context, the social aspect, and all its facets so that teaching is as inclusive and broad as possible. As both thinkers say, education is political, grounded in ethics and citizenship. Knowledge is something extremely precious, something that makes us more complete and more human within the complex society in which we live. I really enjoyed learning more about these concepts and identified with them a lot! Excellent! All education in the world should be based on these principles (P34).

Education, for Freire and Morin, is conceived as an instrument of democracy and citizenship, establishing through dialogue the construction of a complex, critical, reflective, and transformative educational process. According to Guimarães (2020), while Freire bases his conception of education on the learner's concrete capacity to learn and grow in a process of self-discovery as a critical and autonomous subject, Morin develops a theoretical understanding of the human being as multidimensional. Both advocate for the integration of concrete experiences through the application of their theories based on contextualization and humanization, aiming at changes in the educational model to expand the perception of reality toward a new systemic-dialectical-experiential vision.

According to Moraes (2021) and Fleury and Behrens (2022), both Morin and Freire advocate for a new human posture in society. They aim for a new understanding of human beings and the world, recognizing teachers and students as collaborators in the teaching-learning process. They demonstrate in their postulates the importance of dialogue for the development of more democratic, ethical, and inclusive practices. Based on this understanding and the importance of their constructs towards a more dialogical pedagogy for the transformation of the educational universe, P25 stated:

As a primary school teacher in the state of Paraná, I strive to apply the ideas of Freire and Morin in my daily practice. It is challenging because the system is organized in a fragmented way and follows a banking model of education (a deposit of content), but through study, discipline, and practicing, inspired by these thinkers and also through exchanges with students, we work towards a more dialogical education (P25).

P25's account aligns with P46's statement regarding the need to move beyond a banking and reductionist education model towards a pedagogical practice grounded in dialogue and student participation.

Both Morin and Freire conceive of man as a universe of possibilities. From this perspective, education should be an instrument of growth and discovery. Humanization occurs to the extent that one transcends the predetermined limits and boundaries of thought. A school system that seeks to level its subjects, classifying them in a segmented perspective, is not capable of providing the necessary liberation and transcendence. In this sense, both, whether from the dialectic pointed out by Freire or from the epistemological and complex perspective highlighted by Morin, view the subject and society through an education grounded in dialogue (P46).

Freire and Morin's transformative and complex education engages in dialogue for the construction of knowledge and highlights the importance of contextualizing content, developing student autonomy, and fostering a democratic, ethical, critical, and empathetic teacher. In pursuit of an education focused on understanding social, local, and global reality, the authors emphasize the relevance of the ethical dimension, which encompasses the personal, civic, and social dimensions; in other words, both work towards an education that teaches how to live with love (Prigol; Behrens, 2020).

The teachers' accounts revealed their identification with Freire and Morin, as well as the presence of elements from both authors in their pedagogical practices. These practices aim at constructing a transformative education capable of overcoming the simplifying paradigm, which treats knowledge and action in a fragmented and reductionist way. The findings indicate that teachers recognize the need for a transformative pedagogical approach that fosters student autonomy and protagonism, works with contextualized content in a transdisciplinary manner, and is grounded in dialogue and compassion in their teaching practice.

DISCUSSIONS

According to the participants' accounts recorded throughout and at the end of the online course, we identified the presence of elements and constructs from Freire and Morin, as well as the epistemological dialogue between them, in the teachers' pedagogical practices. It is possible to highlight the construction of a transformative education grounded in overcoming the simplistic paradigm that treats knowledge in a fragmented and reductionist way—an approach no longer capable of responding to the present or future demands of a banking education model. Consequently, the teachers emphasized the need for a transformative pedagogical practice guided by complexity, one that values student autonomy and protagonism. They stressed the importance of working with contextualized content in a transdisciplinary manner, grounded in dialogue and love in the conduct of teaching practice.

The research enabled the recognition of the need to re-signify pedagogical practices through formative processes grounded in complexity and transformative education, considering the dialogues embedded in Freire's and Morin's constructs. This dialogue generates an impetus for new pedagogical practices oriented toward transformative education—practices centered on ethics, the human condition, development, and understanding, while embracing human plurality, cultural diversity, and the interrelations between individuals, nature, and society when transdisciplinary knowledge is privileged. Furthermore, it offers a rich opportunity to explore different perspectives on knowledge construction, education, and the understanding of complexity.

The relevance of Edgar Morin's and Paulo Freire's knowledge lies in the possibility of enriching and expanding approaches to understanding knowledge, education, and complexity in an increasingly globalized reality. Their contributions are significant in their respective fields, and one of the reasons for undertaking this convergence of authors was the complementarity of their perspectives regarding knowledge, education, and social transformation.

The epistemological constructs of Paulo Freire and Edgar Morin, reaffirmed by the research, enabled a synergy between their approaches, promoting a deeper and more comprehensive understanding of educational and social issues. The integration of their perspectives contributed to the development of a more robust conceptual foundation for addressing the increasingly complex educational challenges of a technological and interconnected world.

The teachers' contributions revealed the urgency of overcoming the simplistic paradigm in the education of the future—one marked by fragmented, compartmentalized, quantifiable, and monodisciplinary knowledge, which results in a blind intelligence incapable of producing a global vision. It is necessary to strive for a transformative, critical, and dialogical education, one that is contextualized within students' realities, aligned with societal demands, and attentive to the cultural and economic issues that permeate the educational universe.

CONCLUSION

In the context of teaching knowledge and pedagogical practices, we sought answers to one central question: How can a teacher training program be articulated with Edgar Morin's complex thought and Paulo Freire's sociopolitical pedagogy? The final objective of this research was reached by conducting an interpretative analysis of the relevance of internalizing Morin's construct of complex knowledge and Freire's sociopolitical pedagogy within teacher training grounded in new forms of knowledge.

This qualitative research, developed through an action-research format, satisfactorily addressed the proposed problem and achieved its intended objective. Through an interpretative analysis, we examined the significance of Edgar Morin's and Paulo Freire's ideas for teacher training aimed at more transformative pedagogical practices. The investigative process made it possible to analyze how the construction of knowledge informed by Morin's complex thought and Freire's sociopolitical pedagogy can be fostered through an online teacher-education course that responds to new educational demands.

The current educational reality requires the incorporation of Paulo Freire's and Edgar Morin's epistemological constructs, as their theoretical connections point toward transformations in the educational environment aimed at preparing teachers for a transdisciplinary, dialogical, ethical, integrative, and creative practice. In this sense, we emphasize the role of new knowledges necessary for the education of the future and for transforming the educational environment through knowledge aligned with the demands of educational practice.

To guide these new practices, we sought to construct a pathway that enables dialogue among multiple sources of information and collected texts, articulated with Morin's complex thought and Freire's transformative pedagogy. According to the participating teachers, these practices must be adapted to the principles of Morin's complexity and Freire's transformative pedagogy.

Based on the findings of this study, we envision a new perspective on society—one that seeks alternative ways and paths to learn and understand the complex and comprehensive educational space. It is both necessary and urgent to transform the school into a vibrant environment where students learn to live through reflection and critical thinking, supported by dialogical and stimulating contexts and by well-prepared teachers trained through programs grounded in new knowledges.

We believe that the research pathway contributed to helping teachers identify ways to develop innovative pedagogical practices informed by complexity and transformative action, drawing on the constructs of Paulo Freire and Edgar Morin to build knowledge in a critical and reflective manner.

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PF: Conceptualization, Data analysis, Methodology, Writing, Review. MAB: Project administration, Review.

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