

THE THEORETICAL MODEL OF PEDAGOGICAL ACTION RESEARCH IN THE CONFIGURATION OF THE CURRENT SIGNIFICANCE ASSIGNED TO ACTION RESEARCH*

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Abstract

The article highlights the increasing focus on clarifying the concept of pedagogical action research (PAR) and its critical role in the professional development of educators. It emphasizes the importance of designing and conducting PAR to cultivate investigative competence and foster innovation within educational settings. By refining the theoretical framework of PAR, the article lays the groundwork for advancing contemporary pedagogical thinking, with an emphasis on integrating innovative practices into education to enhance efficiency and effectiveness. The Theoretical Model of Pedagogical Action Research, developed as part of this work, addresses the gaps in existing definitions and models by emphasizing the specificity of PAR. It outlines a framework for the cyclical development of competences such as conceptualizing research, strategic management, critical reflection, educational innovation, re-planning of pedagogical action research etc. This Model provides a structured approach to conducting PAR while advancing educators' abilities to adapt to dynamic teaching environments. Additionally, the paper underscores the benefits of PAR for teachers, including improved problem-solving skills, renewed teaching strategies, and enhanced self-reflection. These qualities contribute to continuous professional growth and resilience in addressing challenges in teaching. Furthermore, PAR equips teachers to respond effectively to contemporary educational demands, such as integrating students with special needs, managing cultural diversity, and aligning with evolving labor market requirements. In the context of globalized education, PAR fosters educators' preparedness to guide students in navigating an interconnected world. By integrating PAR practices, teachers not only enhance their professional

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competences but also strengthen their capacity to drive educational innovation, ensuring their relevance and impact in a rapidly changing educational landscape.

Key words: *Pedagogical research, Action research, Pedagogical action research (PAR), Professional training of teaching staff for PAR, Competences of PAR (CompPAR), Legitimacy of the cyclical development of pedagogical action research competences.*

1. Introduction

The evolution of pedagogical thinking regarding action research highlights its significance as a global and national academic concern. Pedagogical Action Research (PAR) drives innovation in education and fosters an entrepreneurial culture by integrating research into practice. This approach enables educators to identify, implement, and evaluate solutions in real time, ensuring the relevance of innovations in education.

PAR enhances teacher motivation, professionalism, and adaptability to curriculum changes, technological advances, and new legislation. It promotes collaboration, allowing educators to share experiences and strategies, fostering a professional culture of continuous learning.

Teachers engaging in PAR can become researchers in their classrooms, using evidence-based methods to adapt teaching strategies to learners' needs. PAR contributes to sustainable educational change, professional growth, and the advancement of pedagogical sciences, addressing challenges like technological shifts, cultural diversity, and evolving academic demands. It ensures decisions are informed by evidence, resulting in improved education quality and outcomes.

According to V. Capcelea in *Philosophy Treatise* (2020, pp. 310-312), the pursuit of scientific knowledge is as ancient as philosophy, addressing the production of ideas about human existence. The evolution of knowledge theory highlights pedagogical action research as a methodology that actively involves teachers in adapting educational practices to specific contexts, fostering innovation and improvement.

From these considerations, the meaning of the professional training of teaching staff is the formation of entrepreneurial culture at the level of intelligent design of the investigative competences training process. Pedagogical action research, for this purpose, becomes the real context in which the research competences of teaching staff are amplified. Through pedagogical action research, pedagogues can experiment with new didactic strategies and educational approaches, adapting them according to the needs of the learners, actions that ensure effective, personalized and relevant learning for them.

S. Dyer (2021) emphasizes that fostering teaching innovation relies on connection, courage, and practice. Faculty thrive when they collaborate, share knowledge, and align innovations with institutional values and student needs. Courage is essential, as educators must overcome barriers like fear of failure, supported by tools to manage risks and test new ideas. Practice builds expertise, with

opportunities for low-stakes experimentation helping educators refine innovative approaches. Celebrating these efforts not only inspires others but creates a hopeful, transformative culture of continuous improvement in teaching.

B. Jongbloed's (2023) analysis in the *HEInnovate Comparative Case Study on Internationalisation* examines two case studies that demonstrate the transformative potential of internationalisation in higher education. The study highlights how universities integrate global engagement into their teaching, learning, and institutional strategies. The first case focuses on adapting curricula to international markets and fostering student mobility, while the second emphasizes partnerships with global institutions to encourage innovation and cross-border collaboration. Both cases underscore the importance of aligning internationalisation efforts with the needs of students and the local economy. These practices contribute to broader goals of modernizing education systems and fostering entrepreneurial ecosystems.

Pedagogical action research promotes student-centered education, emphasizes student needs, and for these reasons can become a tool for continuous innovation of education, integrating theoretical reflection into educational practice adapted to student needs. In this sense, teachers learn to respond appropriately to the individual challenges of students, adjust strategies according to learning styles and promote educational inclusion. In this context, research allows them to experiment with new technologies, integrate digital resources in education or apply innovative teaching methods (e.g.: project-based education, collaborative learning), which develops the educational experience of students. Pedagogical action research is a continuous process of learning the profession for teachers too, because investigative activity contributes to strengthening adaptability and the tendency to constant improvement, offers opportunities for learning and self-improvement, constitutes an incentive for advancement in the educational or academic career, encouraging teachers to participate in conferences, publish studies or collaborate with higher educational institutions. At the same time, through action research, teachers can implement innovative solutions and become models for other teachers, contributing to the creation of a culture of continuous change and improvement.

2. Current challenges in higher education regarding the assurance of an innovation culture through pedagogical action research

In an attempt to respond to today's ever-evolving challenges, policies aim to evolve towards more efficient processes in the creation and transfer of knowledge, supported in particular by rapid technological progress. The current challenges of pedagogical higher education regarding ensuring the culture of innovation through pedagogical action research include:

- the innovative approach to education in educational policy documents;
- innovation culture has become a global priority (Hubball & Clarke, 2023), resulting from the active promotion of research-based learning and entrepreneurship experiences;

- the evolution of the meaning of *Pedagogical Research*, from action research and experiential research to the adoption of the term *Pedagogical Action Research*;
- PAR is an emerging professional development activity aimed at the pragmatic learning of the profession;
- the tendency to develop the innovative potential of teachers and the formation of entrepreneurial competences that can ensure the integration of graduates into the labor market;
- increased demands of the labor market regarding the development of research, innovation, and entrepreneurship competences;
- the use of international and national socio-professional portals for the exchange of best practices in educational innovation;
- renovating pedagogical action research methodologies to ensure the coherence of scientific education in higher and general education;
- updated policy requirements regarding university management of research infrastructure and the stimulation of university teachers to ensure the methodological support of innovative processes in the context of university – general education institutions partnership (BERA-RSA, 2014).

The exposed arguments certify the actuality and significance of research action in STEM pedagogy from the directives outlined in policy documents within the realm of education research and innovation, which emphasize the imperative for innovative knowledge.

The European Research Council supports frontier research, cross disciplinary proposals and pioneering ideas in new and emerging fields which introduce unconventional and innovative approaches. The European Research Council's mission is to encourage the highest quality research in Europe through competitive funding and to support investigator-driven frontier research across all fields of research, on the basis of scientific excellence.

In this perspective, the possibility of achieving permanent education is analyzed by UNESCO (2022) in terms of solving two fundamental problems of a strategic nature: 1) the capacity of people to learn throughout life, which aims at the evolution of the human personality in modern and postmodern society, intellectually, morally, technologically, etc.; 2) the availability of the means of permanent education – is solved by the explosion of mass media and postmodern means of informational communication. Their solution depends on the psychosocial process of affirming the principles of permanent education, elaborated at the level of UNESCO: the principle of the expansion of education; the principle of innovation; the principle of integration and full utilization of all educational resources.

The Organization for Economic Cooperation and Development (OECD, 2023; 2019a; 2019b; 2017) promotes the idea that in the conceptualization of educational policies, the particularities of national educational systems in various geographical areas will be taken into account. Not all policy options are equally relevant for different countries, different contexts give rise to different priorities. In some countries, policy suggestions may already be in place; in others, they may have less relevance because of specific social, economic and educational structures and

traditions. The policy options establish directions for making educational systems more efficient, initiating this process with the quality assurance of teacher training systems from the perspective of their preparation for PAR.

Figure 1 represents the main challenges of pedagogical higher education highlighting the idea of the need to ensure the attractiveness of the teaching profession and the development of the investigative competences of teaching staff through their constant engagement in PAR activities.

From this perspective, the quality of contemporary education can be ensured through the constant commitment of teachers in the complex process of innovation of the teacher training system. This is achieved by generating innovative knowledge, prioritizing research activities among academic staff and professional advancement through research and competitiveness. Considering these aspects, **clarifying the current challenges of education and research policies regarding the professional training of pedagogues** becomes an issue of great scientific and socio-cultural importance, constituting a major concern for the academic community both globally and nationally.

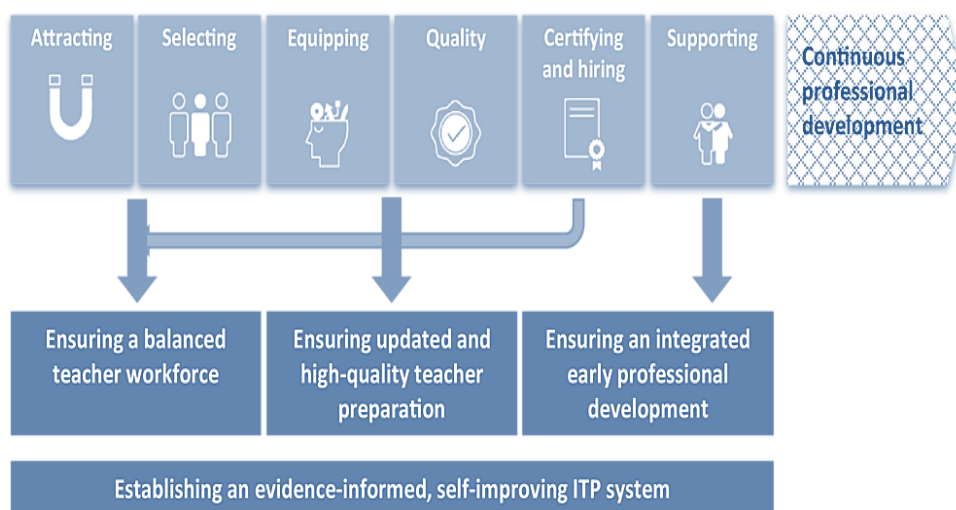


Figure 1. Current challenges of the professional training systems of teachers regarding PAR (Revai *et al.*, 2019)

T. Burns and F. Köster (2016) analyzed key challenges in governing education systems, focusing on complexity, accountability, capacity building, and strategic thinking. Their review of OECD studies highlighted issues faced by contemporary education systems and emphasized the need for adaptive innovation in changing contexts. Their *Managerial Model of Complex Innovation* underscores the importance of teacher training in both research and innovation to address system complexity and drive effective educational change.

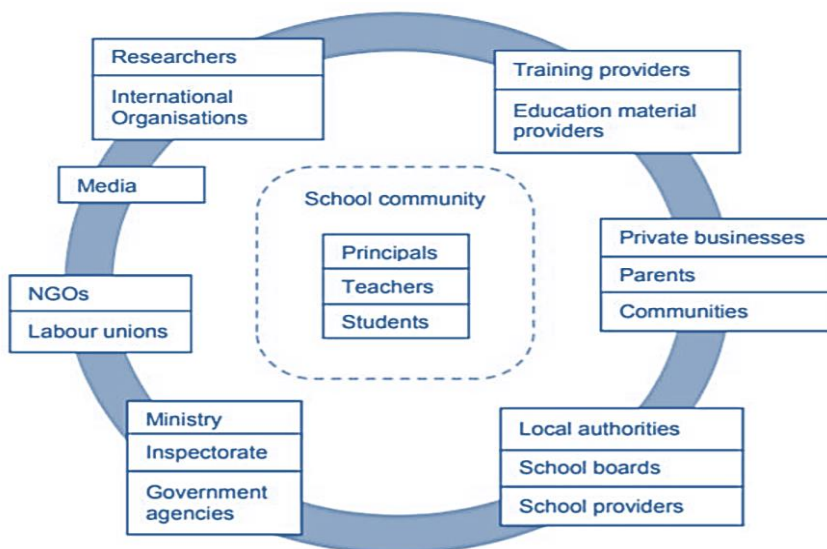


Figure 2. The managerial model of complex innovation of the educational system from the perspective of teaching staff training for educational research and innovation (Burns, Köster, 2016)

This approach involves the development of critical analysis competences, the formulation and testing of hypotheses, the collection and interpretation of data, and the application of research findings in practice. Preparing teachers for these complex roles is essential to create an adaptive and evidence-based educational environment capable of meeting the varied needs of students and adapting to rapid changes in society.

Investigative competence is essential for the contemporary educational system because it allows teachers to explore and better understand the teaching-learning-assessment process (Guerriero, 2017). The conceptual model of teachers' investigative competence provides a comprehensive framework for the development and evaluation of this critical dimension; defines the key components of investigative competence, such as formulating the research problem and purpose, collecting and analyzing data, and using the results to facilitate teaching practice (Figure 3).

Research and innovation competence involves the ability to conduct scientific research and apply its results to create impactful solutions across various domains. It encompasses skills such as formulating questions, planning research, selecting methods (qualitative, quantitative, or mixed), and analyzing data. For teachers, this competence includes identifying educational problems, designing appropriate methodologies, and interpreting results to improve educational practices and strategies.

Teachers use their experiences and observed contexts to generate evidence-based insights, share findings with peers and stakeholders, and apply solutions that

enhance teaching and learning. Their creativity fosters interdisciplinary connections and innovative approaches to address current and future challenges.

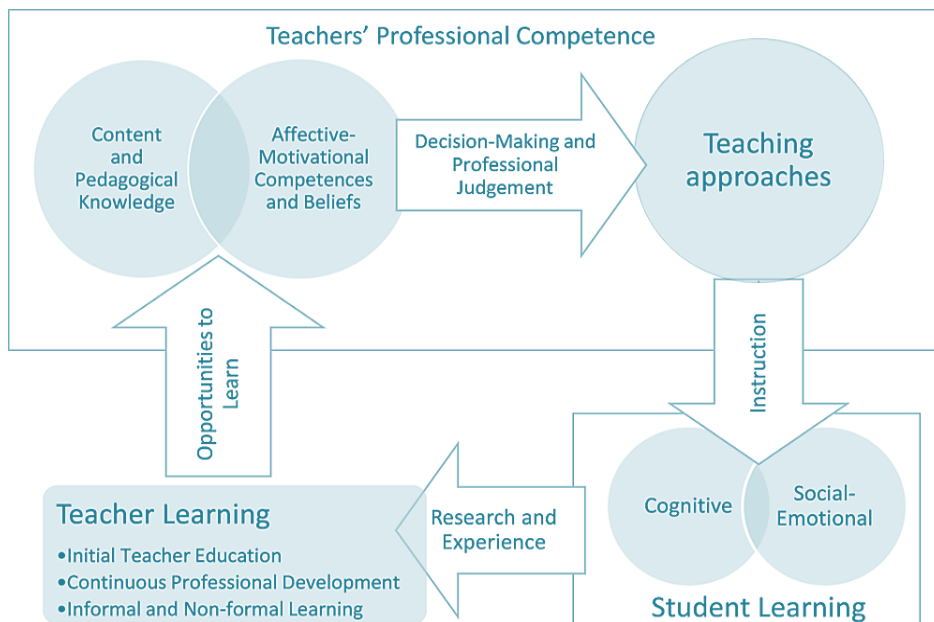


Figure 3. The conceptual model of the investigative competence of teaching staff (Guerriero, 2017)

The rapid evolution of technology and labor market demands necessitates teacher adaptability through modern professional development. Teachers transition from knowledge consumers to creators, contributing to educational progress and fostering school-community collaborations for sustainable solutions, benefiting education and society (Börner, 2018).

The transition to innovation requires analyzing existing models and developing new ones to meet societal, labor market, and educational system demands. Cristea *et al.* (2016) identified four pedagogical research models: *Managerial Model* – decision-centered, involving problem identification, proposing solutions, and selecting the optimal choice by decision-makers considering multiple factors (epistemic, economic, political); *Epistemological Model* – knowledge-centered, emphasizing the connection between theory, methodology, and application in practical contexts; *Participatory Model* – focused on awareness, involving decision-makers, educators, and communities in improving the education system; *Social Model* – interaction-based, fostering collaboration between social partners to enhance education quality.

The participatory model highlights the active involvement of teachers in research, promoting educational innovation and systemic improvement.

3. Research results

Action research in education provides a structured, investigative approach that allows for in-depth observation, analysis, and understanding of social contexts, while also enabling targeted interventions to foster improvement and engagement. This research methodology focuses on addressing specific challenges within particular educational environments and is oriented toward achieving meaningful outcomes. A core aspect of action research is its collaborative nature, which emphasizes partnership between researchers and participants, all of whom are actively engaged in the transformative process. Knowledge is expanded through reflection and inquiry, employing a blend of qualitative and quantitative research methods for thorough data collection. Action research thus supports the production of diverse types of knowledge, from practical insights applicable to daily teaching to theoretical frameworks that inform broader educational practices.

The conceptual development of the Theoretical Model of Pedagogical Action Research was preceded by preliminary research focused on identifying professional training needs aimed at developing pedagogical action competencies in future pedagogues. To assess these needs, a questionnaire was designed and administered to gauge the perspectives of general education teachers on the importance of research competencies in their professional practice.

Conducted between January and February 2024 (fulfilled by A. Scutaru, D. Antoci), this survey involved 132 teaching staff members, who shared their insights on the importance and demand for professional development in research-related competences. The scale used to present the results related to the needs of teaching staff in the training of pedagogical action research competence is of a summative type. Each question is evaluated individually, the results being expressed as a percentage, with values between 0% and 100%, indicating the percentile of necessity expressed by the respondents.

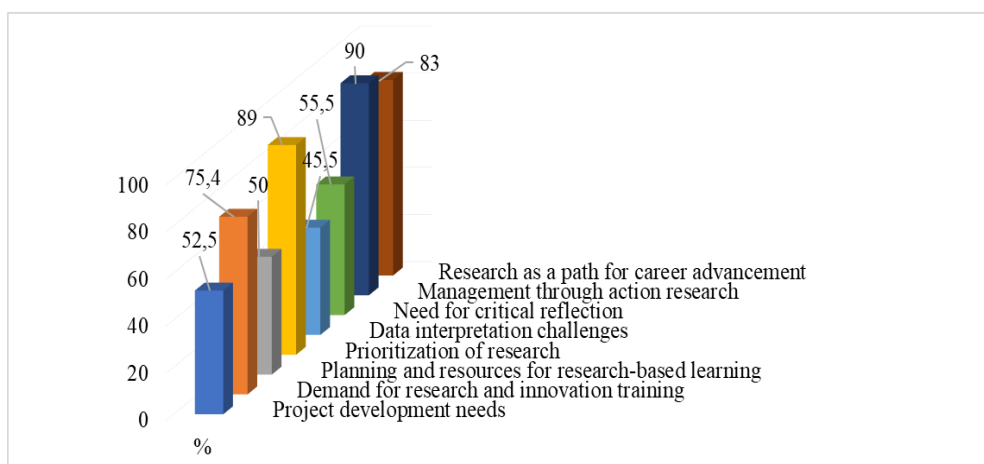


Figure 4. Areas needing improvement in professional development for teachers: findings from pedagogical action research (%)

The responses revealed several critical areas for improvement in teachers' professional training, particularly in relation to pedagogical action research (Figure 4):

- *Project development needs*: over half of the teachers surveyed (52.5%) faced challenges in designing research projects within the school setting. This result points to a need for structured support in project formulation, indicating that foundational competences in research design may be lacking or underdeveloped.
- *Demand for research and innovation training*: a substantial part (75.4%) expressed the need for further training in research and innovation, showing a clear interest among teachers to improve their research competencies to support their professional roles.
- *Planning and resources for research-based learning*: the medium-level need (50%) for research-based planning resources suggests that while some teachers may have basic research skills, there is a gap in accessible, practical resources that integrate research with student learning planning.
- *Prioritization of research*: with 89% of teachers emphasizing the importance of making research a priority, there is a strong interest in embedding research as a core component of their educational practice. This reflects a general alignment with the values of action research, which calls for continuous improvement.
- *Data interpretation challenges*: the moderate difficulties faced in data interpretation (45.5%) reveal a critical area for development in analytical skills. Teachers may require additional support in understanding both theoretical and practical aspects of data analysis.
- *Need for critical reflection*: more than half (55.5%) expressed a need for improvement in critical reflection following research activities, underscoring the importance of reflective practices within the pedagogical action research activities.
- *Management through action research*: nearly 90% of respondents highlighted the value of action research in effective classroom and school management, suggesting that teachers recognize the practical benefits of applying action research in daily educational operations.
- *Research as a path for career advancement*: with 83% agreeing on the importance of research for career progression, this result underscores the need for integrating pedagogical research competences in professional development pathways.

These findings underscore the value of conceptualizing and developing pedagogical action research to address specific professional needs in teacher training.

4. Theoretical Model of Pedagogical Action Research

The results obtained in the framework of the experimental research substantiated the development of the Theoretical Model of Pedagogical Action Research (Figure 4).

Pedagogical action research is a coherent, cyclical and permanent investigative process, organized on the basis of a plan of successive, interconnected and interdependent actions, carried out within a functional partnership between the teacher-researcher and the research participants with fluid roles of mutual support, according to the stages/steps of research conceptualization, organization, self-evaluation, critical reflection by participants, implementation of innovations and progressive changes in the process educational, which generates the affirmation/validation of educational research and innovation competences, stimulating the professional development of teaching staff.

PAR methodology based on self-structuring methods are built at the level of: a) *discovery through research, observation and innovation*, achieved through the use of resources, which appeal to inductive reasoning, “for which the implementation of innovative knowledge requires awareness of available resources”; b) *the pedagogical inventions generated by the knowledge experience from research, carried out in learning conditions through PAR (learning by doing)* oriented towards solving problems of different levels and degrees of difficulty are approached through the prism of “pedagogy of competences”; c) *the technologies of action research* related to the challenges of the current world, education involves solving complex psychological and social problems, which stimulate the development of cognitive and social behavior with the function of adapting to concrete situations, approachable efficiently and autonomously through methods or techniques of pedagogical self-reflection, didactic research and through group and microgroup projects, etc.; d) *research-learning techniques and reflective evaluation through active researcher-teacher-student collaboration* in which the teacher has the role of an expert guide in research for students; e) *new methodologies for organizing action research situations by experimenting with pedagogical innovations* within which the teacher, in order to fulfill an interactive role of companion and guide, must be a researcher himself, a seeker of appropriate solutions that stimulate the continuous formative assessment of students, examine in the area of the act/thought dialectic, the self/other dialectic and the freedom/constraint dialectic; f) *training through socio-constructivist research* in which the teacher interacts with the students in a socio-cultural context created and efficiently utilized during the 8 stages of the PAR.

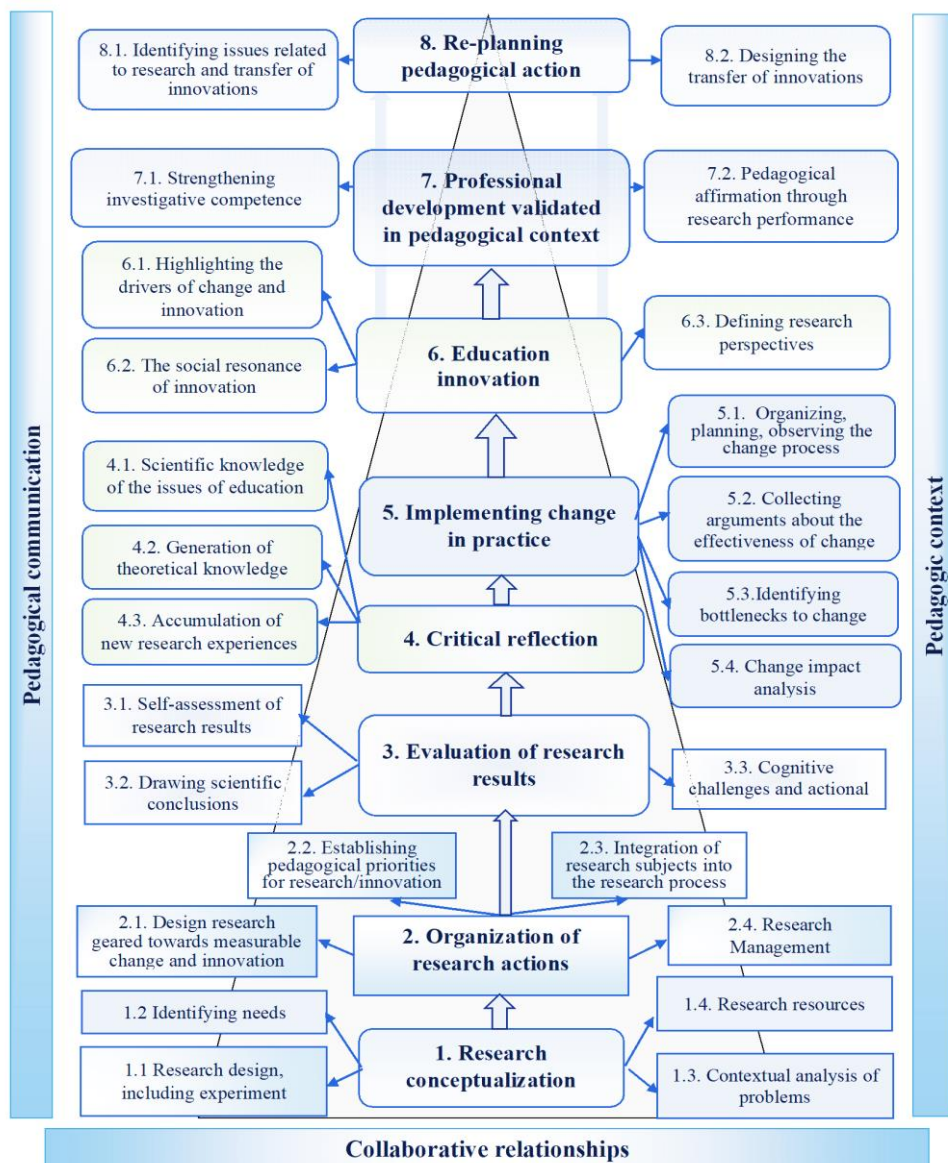


Figure 5. The Theoretical Model of Pedagogical Action Research (Borozan & Antoci, 2024)

Theoretical Model PAR presents a complex systematized approach that consists of active involvement, collaboration and reflection on the transfer of the contents of the educational, social, cultural environment in educational practice. Pedagogical action research is based on the belief that teachers are not only practitioners, but also researchers who contribute to the shaping of experiences,

knowledge and educational policies by correlation with innovative dimensions (Antoci & Borozan, 2024).

The **Theoretical Model of Pedagogical Action Research (PAR)** emphasizes a cyclical process of planning, action, observation, and reflection to address educational challenges and enhance outcomes. This participatory model involves teachers as co-creators of knowledge, actively engaging in generating, applying, and transferring research findings to improve teaching practices and educational policies.

Key principles include collaboration among stakeholders to design and analyze interventions, a focus on contextual influences, and praxis, integrating theory and practice. Critical reflection on research findings is essential for identifying trends, addressing biases, and applying insights to refine educational practices.

By fostering innovation, strategic planning, and knowledge transfer, the **Theoretical Model of Pedagogical Action Research** supports continuous improvement and professional development. In higher education, it advances pedagogical science, promotes effective teacher training strategies, and ensures the ongoing evolution of educational content and methodologies.

Overall, critical reflection on research results serves as a catalyst for continuous learning and improvement in education. By engaging in this reflective process, educators can refine their practices, enhance student learning experiences, and contribute to the ongoing advancement of educational research and practice.

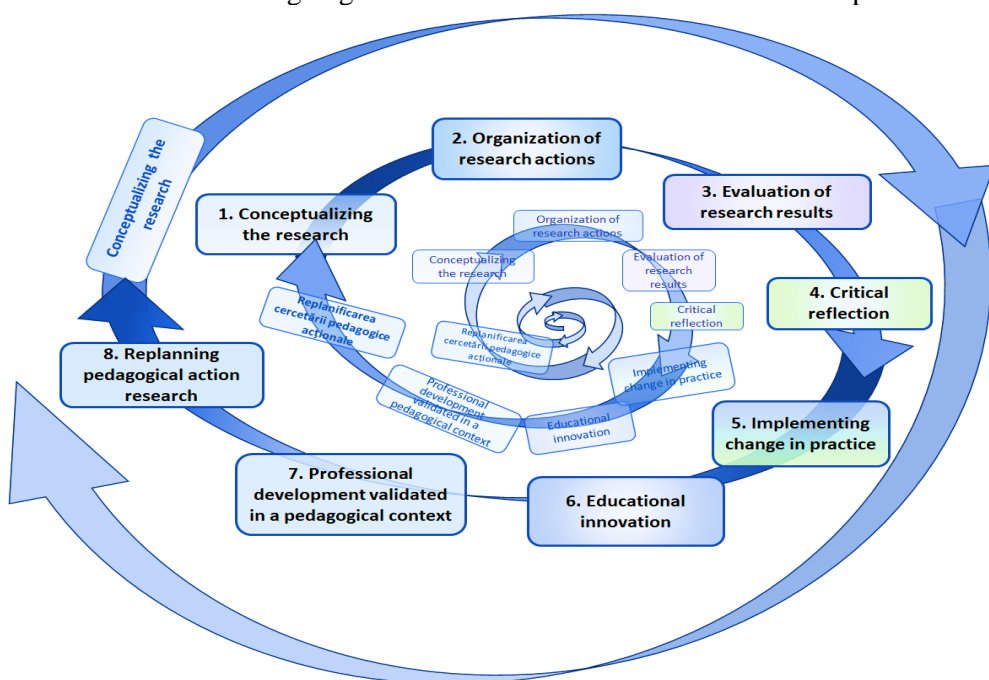


Figure 6. Legitimacy of the cyclical development of pedagogical action research competences (CompPAR) (Antoci & Borozan, 2024)

The Legitimacy of the cyclical development of pedagogical action research competences reflects a progressive process, in which each stage of PAR contributes to the strengthening of investigative competences necessary for educational researchers ensuring continuous professional development: a) **research conceptualization competence** is the stage in which researchers identify and structure research objectives and problems, contributing to the formation of theoretical analysis competences and the formation of abilities of clearly define the purpose and working hypotheses; b) **strategic research management competence** involves planning actions to develop organizational and time management competences, allowing researchers to coordinate their activities in a structured and efficient way; c) **the competence to evaluate the research results** is achieved through the critical analysis of the data and the formation of competences for the objective interpretation of the results. This stage strengthens the researchers' capacity to review and validate the data obtained, developing their evaluation and feedback abilities; d) **critical reflection competence** allows researchers to identify objectives and adapt perspectives, which contributes to the formation of reflective attitudes and research competences, facilitating the continuous improvement of practices; e) **the competence to implement change in practice** involves the ability to apply the results of research to fact, which requires the development of adaptation and implementation competences, which are essential for the transfer of innovation in the real educational environment; f) **education innovation competence** strengthens creativity and flexibility, stimulating the capacity of researchers to create new solutions and respond to the changing needs of education; g) **professional development competence validated in a pedagogical context** ensures continuous improvement of abilities in practice, offers researchers the opportunity to strengthen their competences in an authentic context that validates professional progress; h) **the competence of replanning pedagogical action research** constitutes the last stage of the cycle, in which researchers integrate the accumulated experiences, replanning new directions of research, a fact that stimulates adaptability and engagement in the continuous learning process.

Thus, the *Legitimacy of the cyclical development of the competences of pedagogical action research* facilitates a complex and integrated process of accumulation of knowledge, experiences, abilities, attitudes, where each stage contributes to the construction of increasingly advanced competences, adapted to the educational context of innovation processes.

The legitimacy of the cyclical development of the key investigative competences required for the PAR is promoted and argued pedagogically, in terms of philosophy and policy of education for: - consolidation on the background of the universal values of innovative knowledge in interdependent relationships; - reconstitution the PAR-specific professional competences, functionally and structurally integrated at the level of the Theoretical Model of PAR; - development the "investigative competences" related to the design and organization of PAR that allow the adaptation of teaching staff to change under the conditions of the globalization of knowledge in the postmodern informational society; - anticipation

“the emerging future of education and the professional competences of teaching staff prospected” in the framework of “Education 2030” (OECD, 2019a).

This level of innovation is a dynamic and multidimensional component in the action research model, promoting continuous improvement, responsiveness to societal needs, and the rigorous application of research-informed practices to optimize educational outcomes.

The paradigm of pedagogical research and educational innovation has expanded to a multidisciplinary, inter- and transdisciplinary approach, promoting new scientific knowledge. It supports the development of investigative and entrepreneurial competences of students and teachers, essential for the integration of graduates on the labor market and for strengthening the attractiveness of the teaching career. In a context of dynamic requirements on the educational market, the development of entrepreneurial competences of teaching staff becomes important for the management of educational institutions, supporting educational marketing strategies and research culture.

Inter-institutional cooperation focuses on key directions: designing and promoting innovative pedagogical research, motivating teachers to advance their careers through scientific research, mediating institutional experiences, research-based curriculum development and organizing scientific events. The objectives of these partnerships include continuing education for the exchange of PAR best practices and the creation of PAR expert groups that respond to current educational challenges.

5. Conclusions

In the university environment, PAR is essential for addressing diverse student needs and adapting to the challenges of modern higher education, including new technologies, interdisciplinary approaches, and student-centered learning. Institutions worldwide adopt innovative teaching strategies and interdisciplinary curricula to develop future leaders with competencies suited for evolving knowledge societies. This approach equips students with the skills needed to thrive in innovative and dynamic environments.

One of the main objectives of the European University is to ensure a high quality of learning through research for innovation. To this end, in May 2019, the European University opened the Center for Innovative Teaching (<https://eu.edu.ge>), which focuses on improving the continuous professional development of academic staff and introducing innovative teaching methods in higher education

The European Research Council supports frontier research, cross disciplinary proposals and pioneering ideas in new and emerging fields which introduce unconventional and innovative approaches. The ERC’s mission is to encourage the highest quality research in Europe through competitive funding and to support investigator-driven frontier research across all fields of research, on the basis of scientific excellence.

The *Theoretical Model of Pedagogical Action Research* emphasizes collaboration and progressive training to develop research and innovation competencies. It integrates key components like identifying problems, strategic

planning, action, analysis, and reflection, fostering continuous improvement in educational practices.

By involving learners and teachers in research, the *Theoretical Model* promotes educational innovation, self-evaluation, and professional growth while encouraging the integration of new practices into pedagogy. It supports the development of research competencies across all educational levels, advancing vocational training and adaptation to technological and social changes.

This integrative framework enhances pedagogical methodologies, ensuring the evolution of educational innovation and professional training quality to meet current educational demands.

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REFERENCES

1. Antoci, D., Boroza, M. (2024). Action research in pedagogy from the perspective of innovative education. In: *матеріали XI Міжнародної науково-практичної конференції «Регіональні культурні, мистецькі та освітні практики», яка відбулася 24 квітня 2024 року в Університеті Григорія Сковороди в Переяславі. Переяслав (Київська обл.): Домбровська Я.М., 2024. pp. 3-12. ISBN 978-617-7747-96-2.*
2. Börner, K. et al. (2018). *Skill discrepancies between research, education, and jobs reveal the critical need to supply soft skills for the data economy*. PNAS, December 11, 2018, 115 (50) 12630-12637. URL: <https://doi.org/10.1073/pnas.1804247115>
3. Burns, T., Köster, F. (2016). *Governing Education in a Complex World: Educational research and Innovation*. Paris: OECD Publishing. URL: https://read.oecd-ilibrary.org/education/governing-education-in-a-complex-world_9789264255364-en#page9
4. Cristea, S., Cojocaru-Boroza, M., Sadovei, L., Papuc, L. (2016). *Teoria și praxiologia cercetării pedagogice*. Bucharest: Didactică și Pedagogică Publishing House.
5. Capcelea, V. (2020). *Tratat de filosofie*. Bucharest: Pro Universitaris Publishing House.
6. Dyer, S. (2021). *How can we support innovation in teaching practices within universities?* Retrieved at: https://www.timeshighereducation.com/campus/how-can-we-support-innovation-teaching-practices-within-universities?fbclid=IwAR0-Qp_JegP5KmiwR78J0ZFevbFIja8_7BLegNJnLKHGn22n28WZeKux9Y
7. Guerriero, S. (ed.). (2017). *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*, Educational Research and Innovation, OECD Publishing, Paris: <https://doi.org/10.1787/9789264270695-en>.

8. Hubball, H., Clarke, A. (2010). Diverse Methodological Approaches and Considerations for SoTL in Higher Education. *The Canadian Journal for the Scholarship of Teaching and Learning*, 1. 10.5206/cjsotl-rcacea.2010.1.2.
9. Jongbloed, B. (2023). *Innovation in Teaching and Learning through Internationalisation. Comparative Case Study for HEInnovate*. CHEPS, University of Twente. Retrieved at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.heinnovate.eu/sites/default/files/shared_file/HEInnovate_Comparative%20case%20study_Internationalisation%20%281%29.pdf
10. Revai, N., Paniagua Rodríguez, A., Toon, D. (2019). *A Flying Start: Improving Teacher Initial Preparation Systems*. 10.1787/cf74e549-en.
11. ***BERA-RSA. (2014). *Research and the Teaching Profession. Building the capacity for a self-improving education system*. Final report of the BERA-RSA Inquiry into the role of research in teacher education. Retrieved at: <https://www.thersa.org/globalassets/pdfs/bera-rsa-research-teaching-profession-full-report-for-web-2.pdf>
12. ***OECD. (2023). *Education Policy Perspectives*, 78. Retrieved at: <https://doi.org/10.1787/5cc2d673-en>
13. ***OECD. (2019a). *Future of Education and Skills 2030: OECD Learning Compass 2030*. Retrieved at: efaidnbmnnnibpcajpcglclefindmkaj/https://www.oecd.org/content/dam/oecd/en/about/projects/edu/education-2040/1-1-learning-compass/OECD_Learning_Compass_2030_Concept_Note_Series.pdf
14. ***OECD. (2019b). *Teacher initial education* [online]. [accessed on 02.04.2024]. Retrieved at: <https://gpseducation.oecd.org/revieweducationpolicies/#!node=41731&filter=all>
15. ***OECD. (2017). “Innovation, education and learning: An ecosystems approach”, in *Schools at the Crossroads of Innovation in Cities and Regions*, OECD Publishing, Paris. Retrieved at: <https://doi.org/10.1787/9-789264282766-3-en>.
16. ***UNESCO. (2022). International expert group supports Moldova’s research and innovation system [online]. 3 October, 2022 [accessed on 02.04.2024]. In: *International expert group supports Moldova’s research and innovation system – UNESCO-IESALC*.
17. <https://erc.europa.eu/support/document-library>
18. <https://www.acu.edu.au/about-acu/news/2018/september/innovation-and-accountability-in-teacher-education-setting-directions-for-new-cultures-in-teacher-education>
19. https://eu.edu.ge/en/innovative-teaching-training-center?fbclid=IwAR3-oBFa6dGpXwSqLnhJkg9Xx4hn0MDuC0F-thxnpbCWKGU_vVBgAECu0Sks