

"Ion Creangă" State Pedagogical University of Chişinău

As a manuscript

C.Z.U.: 37.091.2:373.3(043.2)=111

CHIVU Andreea Gabriela

**PEDAGOGICAL FOUNDATIONS
FOR THE DEVELOPMENT OF LEARNING-TO-LEARN
COMPETENCE IN PRIMARY SCHOOL PUPILS**

Speciality 531.01 – General Theory of Education

SUMMARY

of the doctoral thesis in Educational Sciences

CHIŞINĂU, 2026

The thesis was developed within the Doctoral School of Educational Sciences,
"Ion Creangă" State Pedagogical University of Chişinău

Composition of the Committee for the public defence of the doctoral thesis:

1. AFANAS Aliona, Doctor Habilitatus, Associate Professor, Chair of the Committee, "Ion Creangă" State Pedagogical University of Chişinău;
2. PAPUC Ludmila, PhD, Associate Professor, Scientific Supervisor, "Ion Creangă" State Pedagogical University of Chişinău;
3. BOROZAN Maia, Doctor Habilitatus, Professor, Official Reviewer, "Ion Creangă" State Pedagogical University of Chişinău;
4. ŞEVCIUC Maia, PhD, Professor, Official Reviewer, Moldova State University;
5. BEŢIVU Aurelia, PhD, Associate Professor, Official Reviewer, "Alecă Russo" State University of Bălţi.

The thesis public defense is scheduled for **October 30, 2026, at 12.00 am**
at "Ion Creangă" State Pedagogical University, study block no.2,
Senate Hall, 1, I. Creanga Street, MD-2069.

The doctoral thesis and the summary may be consulted on the website of
"Ion Creangă" State Pedagogical University and on the ANACEC website.

The summary was distributed on 30.09.2026.

Chair of the Committee: **AFANAS Aliona, Doctor Habilitatus,**
Associate Professor

PAPUC Ludmila, PhD, Associate
Professor

Scientific Supervisor:



CHIVU Andreea Gabriela

Author:



CONTENTS

Conceptual framework of the research	4
Thesis content.....	7
General conclusions and recommendations.....	26
Bibliography.....	29
Author's publications on the thesis topic.....	31
Annotation.....	33

LIST OF ABBREVIATIONS:

SD - standard deviation

CIIP - Questionnaire for Assessing Pedagogical Competence in
Implementing the Principles for Developing LTL Competence

LTL competence - learning-to-learn competence

CRCNR - National Curriculum Reference Framework of Romania

CRED - Relevant Curriculum, Open Education for All

UDL - Universal Design for Learning

SEM - standard error of the mean

M - arithmetic mean / mean score

PMCD - Principle of alternating focused and diffuse attention

PDCI - Principle of dividing learning content

PSUM - Principle of summarising

PREC - Principle of reviewing

PVER - Principle of checking

TFPD - Test of the Frequency of Teaching Practices Associated with the
Principles for Developing LTL Competence, as Reported by Pupils

CONCEPTUAL FRAMEWORK OF THE RESEARCH

Relevance of the topic. Current education policies emphasising the development of learning-to-learn competence (LTL competence) support pupils' cognitive autonomy, self-regulation and adaptation to the demands of the knowledge society. In primary education, developing this competence requires a shift from the accumulation of information towards organising, monitoring and evaluating one's own learning, together with a reconsideration of the teacher's role as a facilitator of autonomous and reflective learning [11; 20; 25].

In the present research, the phrase "learning-to-learn competence" is used to designate the dimension relating to the management and self-regulation of one's own learning, integrated in current normative and curricular documents within the key competence "personal, social and learning-to-learn competence". The use of the phrase in a distinct analytical sense is determined by the object of the research and does not imply treating it as a separate key competence within the current normative framework.

Description of the situation in the research field. The literature highlights the multidimensional nature of LTL competence, at the intersection of cognitive, metacognitive, motivational and social processes. International research on metacognition, self-regulation and learning strategies provides reference points for explaining cognitive autonomy [14, p. 906-911; 18, p. 33-40; 23, p. 64-70]. In the Republic of Moldova, the contributions of Afanas A., Borozan M., Șevciuc M., Papuc L. and Bețivu A., from complementary perspectives, reflect concern for teachers' continuing professional development, competence design, the development of learning-to-learn competence and educational change [1; 3; 4; 7; 9].

In this research, LTL competence is defined as an integrated set of knowledge, abilities, attitudes and values, organised through the articulation of cognitive, metacognitive, affective-motivational, social and reflective resources, which enables the pupil to organise, monitor, self-regulate and evaluate their own learning, select and adapt strategies, make use of available resources and support, and transfer acquisitions across diverse contexts, demonstrating curiosity, motivation, flexibility, critical reflection and autonomy [12, p. 199-216; 13, p. 248-272; 14, p. 906-911; 18, p. 33-40; 23, p. 64-70].

The theoretical analysis and pedagogical experience highlight difficulties related to teachers' methodological preparation for metacognitive instruction, the integration of planning, monitoring and self-assessment, the use of formative feedback, task differentiation and the transfer of strategies across contexts. From this perspective, three contradictions emerge: between the importance assigned to LTL competence in education policies and the insufficient clarification of its pedagogical

foundations; between the status of LTL competence in the graduate profile and the limited operationalisation of teaching strategies; and between the need for interactive, reflective learning and the persistence of practices centred on reproducing information [6; 8; 15; 28; 29; 30].

Research problem: What theoretical and methodological foundations can underpin the conceptualisation and development of learning-to-learn competence in primary school pupils?

Purpose of the investigation: to establish the pedagogical foundations and to develop, implement and experimentally validate the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in primary school pupils.

Research hypothesis: The development of LTL competence in primary school pupils will be possible if the theoretical and methodological foundations are determined, the scientific essence of LTL competence is clarified, and the descriptors of the Graduate Profile are operationalised into observable indicators relevant to the primary cycle; the Continuing Professional Development Programme will be implemented and experimentally validated, highlighting the positive dynamics of indicators associated with the development of LTL competence in pupils.

Research objectives

1. to determine the theoretical reference points concerning learning-to-learn competence by interpreting contemporary pedagogical paradigms from the perspective of current education policies in primary education;
2. to experimentally assess the specific characteristics and dynamics of indicators associated with the development of learning-to-learn competence in primary school pupils;
3. to experimentally study the pedagogical competences required by teachers to apply the principles for developing learning-to-learn competence;
4. to identify significant values and to develop and describe the Operational Profile of Learning-to-Learn Competence in Primary School Pupils;
5. to conceptualise and implement the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in pupils;
6. to draw scientific conclusions representing new knowledge concerning the development of learning-to-learn competence in primary education.

Research methodology. The research is grounded in constructivist and socio-cognitive theories of learning, metacognition and self-regulation, competence-based pedagogy and pupil-centred education, as well as European and national

documents concerning key competences and the graduate profile [11; 14; 20; 22; 23; 25; 28; 29; 30].

Research methods. Theoretical analysis and literature synthesis, analysis of curriculum documents, pedagogical modelling, questionnaires and pedagogical tests, observation, a pretest–posttest experiment, comparative analysis, and statistical-mathematical methods for processing and interpreting data were used.

Scientific novelty and originality. These derive from the conceptualisation and operationalisation of the Operational Profile of Learning-to-Learn Competence in Primary School Pupils through indicators and descriptors correlated with education policy documents, as well as from the development and implementation of the Continuing Professional Development Programme for Teachers. The research therefore proposes a coherent theoretical, methodological and praxiological framework for developing LTL competence in primary education.

Theoretical significance. The research contributes to the interpretation of pedagogical paradigms and theories of self-regulated learning from the perspective of LTL competence, to the clarification of the cognitive, metacognitive, affective-motivational, social and reflective dimensions of the competence, and to the foundation of an operational profile for primary school pupils [12; 13; 14; 20; 23].

Praxiological value. This is supported by the research methodology, the study of the dynamics of indicators associated with LTL competence, the Operational Profile and the Continuing Professional Development Programme, which may be used in the design of learning, teacher training and the monitoring of pupils' progress.

The scientific problem solved by the research consists in establishing the pedagogical foundations for developing LTL competence by operationalising the profile, integrating the cognitive, metacognitive, affective-motivational, social and reflective dimensions, and validating the Continuing Professional Development Programme, with a view to fostering pupils' cognitive autonomy.

Implementation of the scientific results. The theoretical and experimental activities were carried out with teachers and pupils from Secondary Schools Nos. 195, 200 and 116 in Bucharest, and the results were used in methodological and pedagogical training activities.

Scientific publications on the thesis topic: 11 scientific and scientific-methodological works: 4 articles in specialised scientific journals [32; 33; 34; 35], 2 papers in the proceedings of national and international scientific conferences [36; 37], and 5 scientific-methodological contributions [38; 39; 40; 41; 42].

Key concepts: learning-to-learn competence (LTL competence), pupils, primary school teachers, development, professional training, principles for developing LTL competence, self-regulated learning, cognitive autonomy.

THESIS CONTENT

The Introduction substantiates the relevance and importance of developing learning-to-learn competence in primary school pupils; specifies the dimensions of research into learning-to-learn competence as a core generator of cognitive autonomy, self-regulation and school adaptation; and presents the research problem, purpose and objectives, methodology, scientific novelty, theoretical significance, applied value, key concepts and the scientific problem solved by the research.

1. Theoretical foundations of learning-to-learn competence

Chapter 1 clarifies the pedagogical meaning of LTL competence, the evolution of the concept, and the cognitive, metacognitive, motivational and socio-affective foundations of self-regulated learning. The analysis of the literature and education policy documents focuses on the didactic transposition of the competence and the operationalisation of the graduate profile for primary education [12; 13; 14; 23].

From a theoretical perspective, LTL competence is a multidimensional construct: the pupil plans, monitors and evaluates the learning process, regulates effort and selects appropriate strategies. Metacognition supports awareness of learning processes, self-regulation organises planning-monitoring-evaluation, while motivation and learning strategies support persistence and transfer [14; 18; 23].

The graduate profile for primary education provides the normative reference point for LTL competence. The descriptors at the elementary level concern clarifying the task, activating prior knowledge, using simple learning techniques, organising information, sustaining attention and perseverance. The research does not propose an alternative normative profile; rather, it operationalises these reference points as observable teaching indicators for primary school pupils [28; 30].

The curricular analysis integrates documents from Romania and the Republic of Moldova. The reference framework developed through CRED in 2021, the Graduate Profile approved by Order No. 6,731/2023, and the CRCNR approved in 2026 consolidate the competence-based approach and coherence among the profile, curricula, learning standards and assessment. In the Republic of Moldova, the National Curriculum for Primary Education and the Curriculum Reference Framework support the same orientation towards autonomy and lifelong learning [24; 26; 27; 28; 29; 30].

In the 2023 Graduate Profile, the official designation is “personal, social and learning-to-learn competence”. The document treats it as one of the eight key competences and describes it in an integrated manner through reflection on oneself, management of one’s own learning, resilience, well-being, relationships and collaboration. The same designation is retained in the 2026 National Curriculum Reference Framework.

The objective of Chapter 1 was to determine the theoretical, epistemological, curricular and education-policy reference points of LTL competence. The methodology was predominantly theoretical-hermeneutic, historical-pedagogical and comparative, using conceptual analysis, critical interpretation and synthesis of research on metacognition, self-regulation and key competences.

The results show that LTL competence cannot be reduced to a study technique; it involves the interaction of cognitive, metacognitive, affective-motivational, social and reflective processes. The pupil understands the task, activates prior knowledge, chooses strategies, monitors progress, seeks support and reflects on the outcome.

The evolution of European documents, from the 2006 formulation to the 2018 Recommendation and LifeComp, broadens the concept from organising one's own learning towards resilience, collaboration, empathy, emotion management and adaptation. These reference points justify the systematic development of LTL competence from primary education onwards [11; 20; 25].

The transversal nature of learning-to-learn competence requires its development through interdisciplinary and transdisciplinary approaches, because the formation and manifestation of LTL competence are not limited to a single school subject. Interdisciplinarity facilitates the correlation of acquisitions and the transfer of learning strategies across curriculum areas, while transdisciplinarity extends their use beyond disciplinary boundaries into authentic learning and life situations. From this perspective, transversality expresses the integrative nature of the competence, whereas interdisciplinary and transdisciplinary approaches represent pedagogical ways of developing, consolidating and transferring it across diverse educational contexts.

Based on the synthesis of the theoretical, psychological, pedagogical and curricular reference points analysed, we formulate the following definition: in our view, learning-to-learn competence in primary school pupils is an integrated set of knowledge, abilities, attitudes and values, organised through the articulation of cognitive, metacognitive, affective-motivational, social and reflective resources, which enables the pupil to organise, monitor, self-regulate and evaluate their own learning, select and adapt strategies, make use of available resources and support, and transfer acquisitions across diverse contexts, demonstrating curiosity, motivation, flexibility, critical reflection and autonomy [12, p. 199-216; 13, p. 248-272; 14, p. 906-911; 18, p. 33-40; 23, p. 64-70]. These reference points support the Operational Profile presented in Chapter 2.

2. Conceptual axis of teacher professional development for developing learning-to-learn competence in primary school pupils

The chapter moves from the conceptual foundation to methodological and applied construction by configuring the LTL competence profile, operationalising the indicators and specifying the mechanism for preparing teachers to apply it.

The conceptual axis correlates pupils' characteristics, curriculum requirements and teachers' professional competences. Curriculum descriptors are adapted to the child's actual possibilities through gradual support, differentiation and reflection, so that autonomy develops progressively rather than through the teacher's premature withdrawal.

The LTL competence profile performs an explanatory function, by relating cognitive development to manifestations of autonomy, and a projective function, by guiding tasks, support and assessment criteria. Each descriptor is associated with learning situations and observable evidence of progress [5; 12].

In this research, the Grade 4 Graduate Profile is used as a normative and descriptive anchor for configuring the LTL competence profile in primary school pupils. The descriptors of the elementary level of acquisition of key competences, especially Key Competence 5 – personal, social and learning-to-learn competence – provide the basis for defining the components of the competence, operationalising them, and grounding the assessment tools and pedagogical interventions subsequently integrated into the Teacher Training Programme [33; 28; 29; 30].

Reference to the Graduate Profile approved in 2023 and the 2026 CRCNR makes it possible to correlate LTL competence with key-competence descriptors and the graduate's priority attributes [28; 29].

The theoretical analysis identified five dimensions of LTL competence: cognitive, metacognitive, affective-motivational, social and reflective. In Figure 1, the Operational Profile of LTL competence is structured into three components—cognitive, metacognitive and reflective—while the affective-motivational and social dimensions are integrated transversally. This organisation enables LTL competence to be translated into observable indicators appropriate for primary school pupils [14; 18; 23; 33].

At the operational level, the pupil clarifies the task, activates prior knowledge, selects simple techniques, organises information, perseveres, checks results, seeks support and reflects on progress [2; 12; 14; 23].

The figure represents a functional architecture rather than a rigid sequence: the pupil may return to the objective, modify the strategy and seek support, while reflection may occur during and at the end of the task [14; 23].

For profile assessment, a single manifestation is not sufficient. Behaviours should be observed across different tasks and subjects in order to distinguish the accidental use of a technique from the pupil's ability to select and consciously transfer it. The teacher's observation, the pupil's explanation and the product created together provide more robust evidence of the level of development of LTL competence [15; 21].

From a didactic perspective, the three operational components do not function separately. Understanding and organising the task activate cognitive resources; monitoring and adjusting the strategy require metacognitive resources; while evaluating the outcome and formulating a personal explanation draw on the reflective component. The teacher can follow these manifestations through systematic observation, analysis of pupils' products and the explanations they provide, avoiding the reduction of the competence to the execution of a single working technique.

Although the theoretical analysis distinguishes five dimensions of LTL competence—cognitive, metacognitive, affective-motivational, social and reflective—the Operational Profile synthesises them into three components: cognitive, metacognitive and reflective. This choice has a methodological role, because these components can be translated more directly into observable behaviours and assessable indicators in primary school pupils. The affective-motivational and social dimensions are not excluded; rather, they are integrated transversally through motivation, perseverance, collaboration, communication and help-seeking. Thus, the transition from five dimensions to three components represents a functional simplification for assessment and teaching intervention, not a reduction of the theoretical structure of LTL competence.

A comparison of curriculum documents from Romania and the Republic of Moldova highlights complementary emphases on seeking support, organising information, self-assessment, clarifying the task, activating prior knowledge and perseverance. Bringing these together supports progression from supported action to the autonomous and reasoned choice of a strategy [27; 28; 29].

The Operational Profile of LTL competence developed within the research makes use of the descriptors and curricular reference points of the Graduate Profile by translating them into operational indicators appropriate for primary school pupils and correlated with Figure 1. The cognitive dimension is monitored through indicators of understanding and organisation, the metacognitive dimension through indicators of monitoring and self-regulation, and the reflective dimension through indicators of self-assessment and autonomy. The operationalisation presented in the table provides a

methodological basis both for investigating the level of development of LTL competence in pupils and for training teachers to design authentic learning situations.

Figure 1 synthesises the three components of LTL competence and the progression from organising one's own learning to self-regulation, collaboration, self-assessment and autonomy. Table 1 translates these reference points into indicators, learning products and assessment tools that can be used in instructional design and teacher training.

In real learning situations, the three operational components can be observed simultaneously. During a reading task, the pupil clarifies the requirement and selects the main ideas (cognitive component), checks understanding and requests support when difficulties arise (metacognitive component), then explains which strategy helped to understand the text (reflective component). Similar combinations appear in mathematical problem solving and group projects, where planning, monitoring, feedback and transfer are integrated within the same activity.

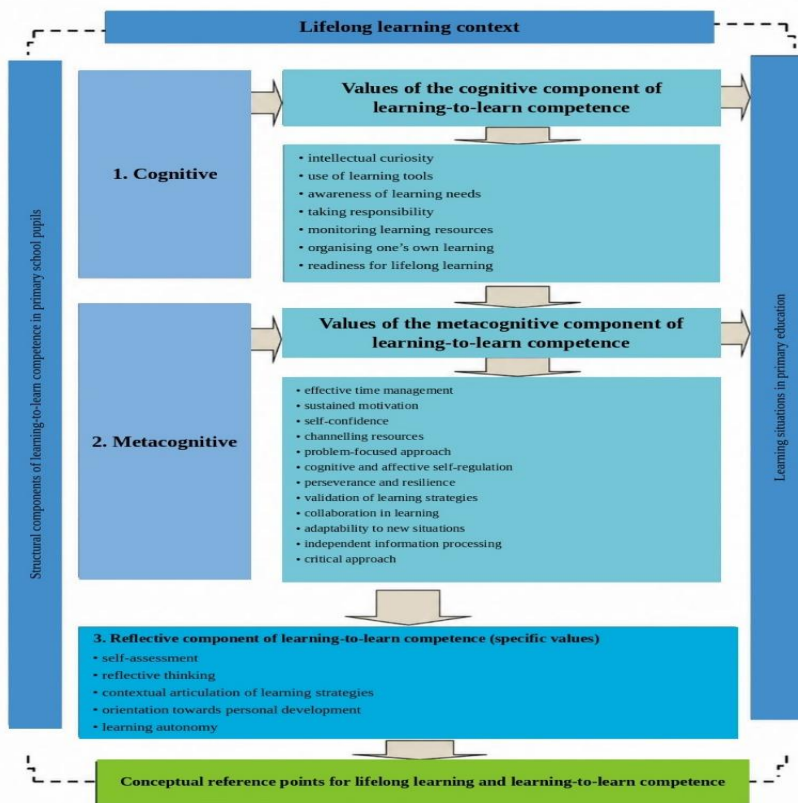


Figure 1. Operational Profile of Learning-to-Learn Competence in Primary School Pupils

This operationalisation makes explicit the link between the theoretical framework and the proposed model: metacognition is translated into planning, monitoring and self-assessment; self-regulation is reflected in time management, perseverance and strategy adjustment; motivation supports confidence and responsibility; and learning strategies become visible in the organisation of information, use of resources and transfer to new contexts. The profile therefore functions as a tool for planning, observation, assessment and teacher training.

Table 1. Operationalisation of the Descriptors of the Grade 4 Graduate Profile within the Operational Profile of LTL Competence [30; 28]

Component from Figure 1 / operational dimension	Observable and quantifiable operational indicators	Learning products / assessment tools	Use in pedagogical intervention and teacher training
Cognitive - task clarification and organisation of one's own learning	The pupil reformulates the requirement in their own words; identifies the working steps; identifies the materials needed; orders information according to simple criteria.	Task-analysis sheet; list of steps; graphic organiser; observation grid with levels 0–3.	The teacher models how to read the requirement, divide the task into stages and formulate simple objectives; teacher training includes practising learning-planning routines.
Cognitive - use of learning tools and activation of prior knowledge	The pupil states what they already know about the topic; selects keywords; uses highlighting, diagrams, tables, concept maps or age-appropriate digital resources.	K-W-L organiser; portfolio with diagrams and tables; strategy sheet; oral or written responses.	The teacher plans moments of cognitive anticipation and demonstrates the use of simple learning tools in different subject contexts.
Cognitive - monitoring resources and taking responsibility for learning	The pupil identifies available resources; asks for clarification; chooses appropriate support; completes the task undertaken and explains which resource was helpful.	Learning journal; "I need help with..." sheet; resource portfolio; observation of requests for support.	The teacher develops routines for gradual support, autonomy and responsibility; the training programme includes scaffolding strategies and process-oriented feedback.
Metacognitive - time management, progress monitoring and self-regulation	The pupil monitors working time; checks the steps completed; returns to the task after a	Checklist; learning traffic light; metacognitive journal; self-monitoring sheet.	The teacher introduces explicit success criteria and brief moments of reflection; teacher

Component from Figure 1 / operational dimension	Observable and quantifiable operational indicators	Learning products / assessment tools	Use in pedagogical intervention and teacher training
	difficulty; adjusts the strategy when it is not working.		training emphasises planning-monitoring-evaluation.
Metacognitive - perseverance, motivation, self-confidence and adaptability	The pupil remains engaged in the activity; tries an alternative solution; accepts feedback; identifies a difficulty and a possible improvement.	Perseverance scale 0–3; difficulties journal; revised final product; rubric for effort and progress.	The teacher uses graded tasks, formative feedback and encouragement of personal strategies for overcoming obstacles.
Metacognitive - collaboration, problem solving and critical approach	The pupil takes on a role in the group; listens to classmates' opinions; compares solutions;	Collaboration rubric; peer assessment;	The teacher creates contexts for cooperative learning and reasoned dialogue;
Metacognitive - collaboration (continued)	justifies the choice of a strategy; gives simple and respectful feedback.	teamwork sheet; portfolio of group products.	problem solving; training emphasises communication and peer feedback.
Reflective - self-assessment and reflective thinking about progress	The pupil compares the product with the given criteria; identifies one success and one difficulty; corrects simple errors; answers questions such as “What have I learned?” and “What can I improve?”.	Self-assessment grid; reflective journal; exit ticket; analysis of successive versions of the product.	The teacher turns assessment into a formative and reflective process; the training programme includes the design of metacognitive questions and progress feedback.
Reflective - contextualisation of strategies, transfer and learning autonomy	The pupil applies a strategy in a new subject; explains its usefulness; adapts the working steps; formulates a personal learning objective.	Interdisciplinary/transdisciplinary tasks; transfer sheet; comparative portfolio; project-based assessment.	The teacher designs integrated activities and asks pupils to verbalise the strategy; training supports transfer across subjects and pupils' progressive autonomy.

Accordingly, Table 1 should be read as a pedagogical translation of the profile rather than as a rigid checklist. Each descriptor is associated with observable indicators, possible learning products and forms of support that help the teacher

identify progress, adjust scaffolding and create opportunities for increasingly autonomous use of learning strategies across subjects. The indicators and descriptors were formulated so that they can be recognised in concrete school behaviours: the pupil clarifies the requirement, activates prior knowledge, selects resources, plans the steps, checks the result and explains how learning took place. Their use across different subjects and tasks makes it possible to distinguish the occasional application of a technique from the conscious transfer of a strategy. In this way, operationalising the profile becomes both an assessment reference and support for designing teaching interventions and teacher training [15; 21].

From a pedagogical perspective, use of the Operational Profile requires the indicators to be interpreted in relation to the degree of autonomy demonstrated by the pupil and the support required to complete the task. Assessment does not focus only on the presence of a behaviour, but also on its stability, the ability to adapt to new requirements and the possibility of transfer to another learning context. Progress is therefore expressed through the gradual transition from external support to increasingly autonomous control of one's own activity [14; 18; 23].

The Operational Profile provides teachers with a reference point for designing situations in which these behaviours can become visible.

It does not function as a rigid classification grid, but as a pedagogical reference point for observing progress, formulating feedback and adjusting the support offered to the pupil, in accordance with age characteristics and the curricular requirements of primary education [28; 30; 33].

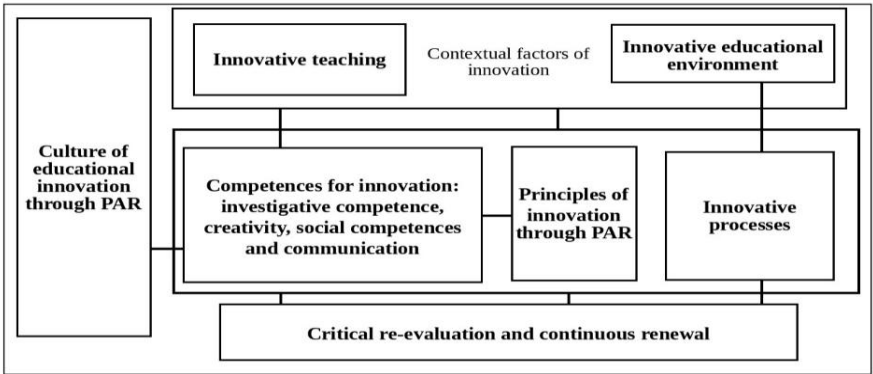


Figure 2. Teacher Culture through Pedagogical Action Research for the Development of Learning-to-Learn Competence (PAR)
 [36, p. 158-162; 38, p. 1864-1866]

Figure 2 clarifies the place of pedagogical action research in the architecture of teacher training, showing that educational innovation becomes relevant to LTL

competence when the teacher examines their own practice, formulates intervention hypotheses, tests teaching solutions and critically revisits the results obtained. In this sense, the diagram marks the transition from the LTL competence profile, theoretically defined and curricularly operationalised, to observable pedagogical actions adjusted according to pupils' responses and the actual dynamics of the classroom.

Building on these reference points, the analysis continues by examining the contextual dimensions that influence the development of LTL competence in the school environment. Effective learning is anchored in an innovative educational environment that promotes innovative teaching through active, pupil-centred methods fostering critical and creative thinking; a culture of pedagogical action research (PAR) through the continuous re-evaluation of practices, reflective learning and adaptability; and competences for innovation, including investigative competence, applied creativity, social competences and assertive communication [10].

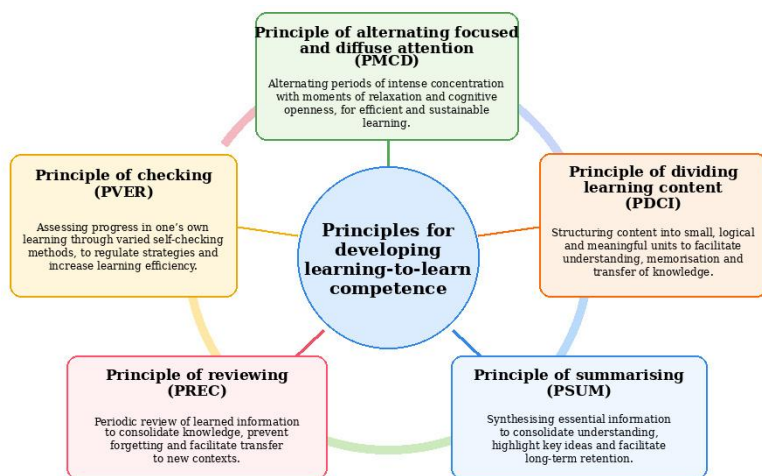


Figure 3. Principles for Developing Learning-to-Learn Competence [16; 17]

Figure 3 synthesises the five principles for developing LTL competence used in the research, by adapting the reference points formulated by Barbara Oakley to the characteristics of school learning in primary education: alternating focused and diffuse attention, dividing learning content, summarising, reviewing and checking. Their articulation is intended to progressively support the processes of organising, monitoring and regulating one's own learning through the management of cognitive effort, the accessible structuring of content, the selection of essential ideas, the consolidation of learning, and the checking of the level of understanding. From this

perspective, the principles are not used as isolated procedures, but as complementary pedagogical reference points integrated into learning situations that foster reflection, transfer and the gradual development of pupils' cognitive autonomy.

The objective of Chapter 2 was to structure the conceptual and methodological axis of LTL competence and formulate a profile adapted to primary school age by correlating the dimensions of the competence with pupils' cognitive, metacognitive, affective-motivational and socio-emotional characteristics.

The chapter concludes that the development of LTL competence must be consciously, gradually and systematically designed. The teacher mediates autonomy through learning situations that require observation, questioning, strategy choice, collaboration and reflection; the operational profile thus becomes the basis for the training programme and the experimental approach.

3. Pedagogical context for developing learning-to-learn competence in primary school pupils

The Continuing Professional Development Programme was designed as both a formative intervention and a research tool, aimed at developing teachers' competences to design, apply and evaluate strategies for LTL competence. It linked teacher training with classroom application and with the assessment of changes observed in teachers and pupils. The principles formulated by Barbara Oakley were adapted into principles for developing LTL competence in primary education [16; 17]: alternating focused and diffuse attention, dividing content, summarising, reviewing and checking. They were integrated into activities requiring planning, monitoring, reflection and transfer, without being treated as rigid or isolated procedures.

The programme included needs diagnosis, training sessions, demonstration lessons, activity design, pedagogical reflection and exchanges of good practice. Teachers analysed concrete classroom situations and adapted the strategies to pupils' characteristics and curriculum objectives. The intervention was carried out in three stages: initiation and establishment of the working framework, intervention through thematic modules, and a feedback stage devoted to analysing experiences of application and establishing directions for transfer into current practice.

The programme architecture followed the relationship among knowledge, practice and transfer. Theoretical information was linked to the analysis of concrete classroom situations, activity design and reflection on observed effects. This sequence is necessary because mere terminological familiarity does not guarantee changes in practice, while professional competence is strengthened through repeated application and critical examination of teaching decisions.

Within this logic, the Training Programme pursued, in a complementary manner, the development of knowledge and understanding related to LTL competence, the practice of the principles and their transfer into teaching practice. In the experimental evaluation, CIIP targeted the applied component of the approach by capturing the self-reported frequency of practices associated with the principles for developing LTL competence, while knowledge and understanding were addressed through the programme's objectives, content and formative activities. The instrument contains 25 items, five for each of the five principles, with responses on a five-point Likert scale. The data obtained therefore describe practices reported by teachers and are interpreted in relation to the limitations of the instrument.

The professional competences targeted included the use of language specific to LTL competence, explanation of manifestations of the competence, design of activities appropriate for primary education, application of strategies and reflective analysis of their effects on pupils.

The transversal competences targeted included autonomy and responsibility in analysing LTL competence, independence in searching for relevant information, professional communication and teamwork. The programme also focused on the ability to reflectively analyse one's own activity, because the application of a strategy becomes formative when the teacher can explain the choice made, assess its effects on pupils and decide what should be retained or modified. These acquisitions support continuing professional development and collaboration among teachers within the school community. Reflection at the end of each stage focused on the difference between teaching intention and observed effect. Teachers analysed pupils' reactions, persistent difficulties and the changes required for a new application. This loop of design, action, observation and regulation brings the programme closer to the logic of pedagogical action research and supports evidence-informed practice. In this framework, professional experience is valued not merely as length of service, but as a resource for interpreting learning situations and justifying pedagogical decisions.

Continuing professional development was conceived as a participatory process in which teachers' professional experience becomes a resource for learning and for regulating the intervention. The exchange of solutions, analysis of encountered difficulties and reflection on one's own activity allow the principles for developing LTL competence to be adapted to different school contexts. From this perspective, the teacher does not mechanically adopt a technique, but relates it to lesson objectives, pupils' characteristics and the effects observed in classroom activity.

Programme evaluation was aligned with the training objectives and was not limited to teachers' formal participation. Comparison of initial and final results,

analysis of responses for each principle and consideration of professional experience make it possible to identify the direction of change. These data are complemented by pupils' responses concerning the frequency of teaching practices, supporting a more cautious interpretation of the transfer of strategies into current practice.

Transfer to the classroom was supported through tasks in which teachers reformulated objectives, constructed work sequences and anticipated pupils' responses. Emphasis was placed on justifying teaching decisions: why a cognitive break is necessary, what criterion guides the division of content, how understanding is checked, and when the support offered to the pupil should be reduced. Through this reasoning, the technique used is transformed into a conscious professional decision adapted to the actual dynamics of the class.

At the same time, the programme seeks to avoid rigid application of the principles for developing LTL competence. The frequency and form of the strategies are adapted to the content, the pace of the class and pupils' level of autonomy, while preserving their pedagogical function: directing attention, reducing cognitive overload, consolidating essential ideas, reviewing and checking understanding. Relating activities to the indicators of the Operational Profile of LTL competence ensures coherence among objectives, teaching intervention and the assessment of pupils' progress. The programme thus links the Operational Profile, teaching practice and the assessment of pupils' progress.

The program was implemented within schools' continuing professional development framework and comprised structured working sessions, demonstration lessons, opportunities for pedagogical reflection, and the exchange of good practices. The intervention focused on four key areas: (1) the identification of professional development needs; (2) the delivery of training activities; (3) the implementation of the targeted strategies in classroom practice; and (4) the monitoring of their effects on teaching practices and student outcomes. Accordingly, the program can be conceptualized as a research-informed pedagogical intervention rather than merely an implementation activity.

This methodological framework is further developed in the author's article on the continuing professional development program for teachers aimed at fostering CÎ among primary school students [41, pp. 508–513; 34].

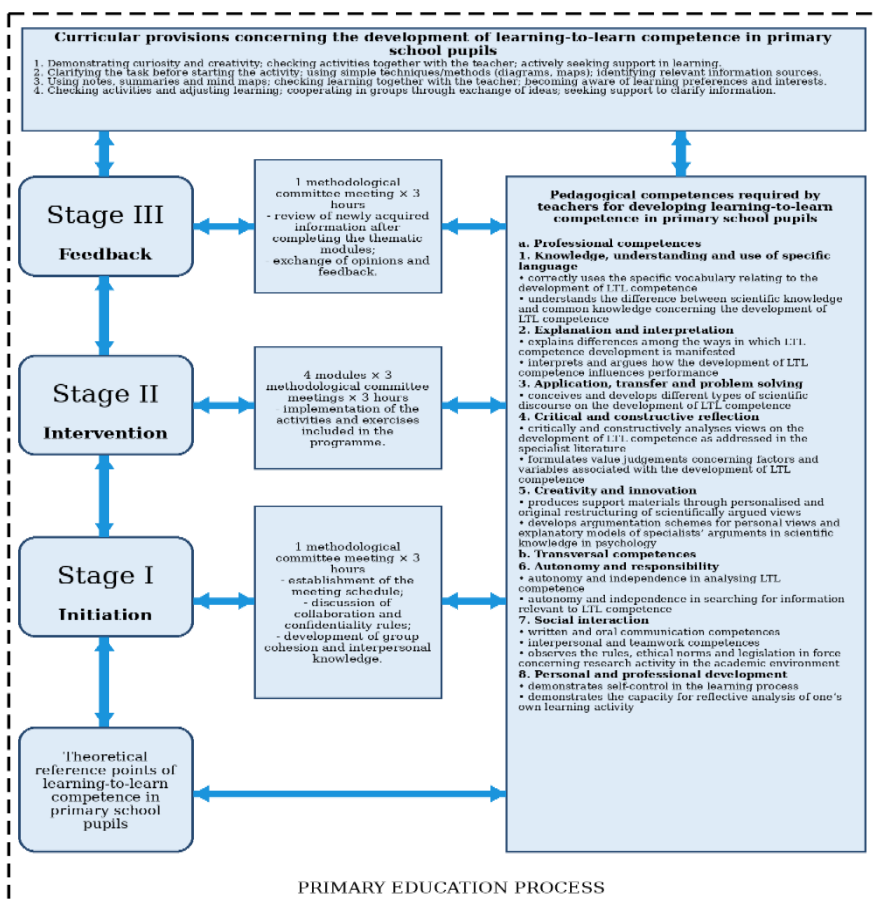


Figure 4. Continuing Professional Development Programme for Primary School Teachers Aimed at Developing Learning-to-Learn Competence in Pupils

Figure 4 highlights the sequence of stages in the training programme, from teacher training to the application of LTL strategies in teaching and the assessment of effects on pupils. The programme is organised as a formative intervention with a research role: teachers are trained, apply the strategies in class, and the results are measured through pretest–posttest instruments. The figure thus links the theoretical model in Chapter 1 with the curricular operationalisation developed in Chapter 2.

The research design was quasi-experimental, with pretest and posttest measurements and two categories of participants: teachers and pupils. For teachers, the self-reported application of the principles for developing LTL competence was analysed; for pupils, the frequency of the teaching practices associated with these

principles and the dynamics of self-perception were examined. Statistical analyses included comparisons of means, the paired-samples t test, correlations and moderation analysis.

Study objectives:

O1. To determine teachers' initial self-reported level of application of the principles for developing LTL competence in primary classes;

O2. To develop the training programme for teachers with the aim of improving their level of knowledge concerning LTL competence;

O3. To determine teachers' self-reported level of application of the principles for developing LTL competence in primary classes after their participation in the training programme;

O4. To formulate scientific conclusions concerning changes in the self-reported application of the principles for developing LTL competence by primary school teachers.

To achieve the proposed objectives, the experimental research was conducted between 1 October 2023 and 31 August 2024, as follows:

At the teacher stage, pretest and posttest data were compared using the paired-samples t test. M denotes the mean, SD the standard deviation and SEM the standard error of the mean, while PMCD, PDCI, PSUM, PREC and PVER denote the five principles analysed.

Table 2. Mean Scores Obtained by Teachers for the Application of the Principles for Developing LTL Competence Before and After Participation in the Training Programme

		M	N	SD	SEM
Pair 1	PMCD	18.43	65	2.91	.36
	PMCDpost	21.03	65	1.83	.23
Pair 2	PDCI	23.22	65	1.93	.24
	PDCIpost	23.72	65	1.33	.17
Pair 3	PSUM	20.46	65	3.62	.45
	PSUMpost	22.15	65	2.06	.26
Pair 4	PREC	21.35	65	2.53	.31
	PRECpost	22.43	65	1.91	.24
Pair 5	PVER	22.00	65	2.82	.35
	PVERpost	22.71	65	1.94	.24

Table 2 indicates a posttest increase for all five principles, showing a higher self-reported frequency of strategy application after participation in the programme.

Table 3. Paired-Samples t Test for the Application of the Principles for Developing LTL Competence by Primary School Teachers Before and After Participation in the Training Programme

		M	SD	SEM	95% Confidence Interval		t	df	p
					Min.	Max.			
Pair 1	PMCD - PMCD _{post}	-2.60	2.44	.30	-3.21	-1.99	-8.59	64	< .001
Pair 2	PDCI - PDCI _{post}	-.51	1.02	.13	-.76	-.26	-4.02	64	< .001
Pair 3	PSUM - PSUM _{post}	-1.69	2.38	.30	-2.28	-1.10	-5.74	64	< .001
Pair 4	PREC - PREC _{post}	-1.08	1.20	.15	-1.38	-.78	-7.22	64	< .001
Pair 5	PVER - PVER _{post}	-.71	1.38	.17	-1.05	-.37	-4.14	64	< .001

The t tests confirm that the differences between pretest and posttest are statistically significant for all principles of LTL competence development. The results therefore reflect not only a descriptive variation in the means, but also inferentially support the effect of the formative intervention on the practices reported by teachers, within the limits of the sample and the instrument used.

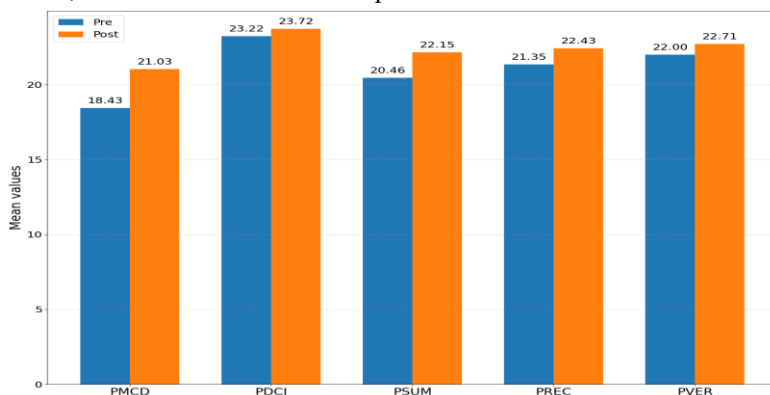


Figure 5. Teachers' Pretest and Posttest Scores for the Implementation of the Principles for Developing LTL Competence

Figure 5 visually confirms the increase in posttest scores for all five principles and the consistency between the descriptive results and the significance tests.

The differences are significant for all principles. The more pronounced increases in alternating attention, summarising and checking suggest that training activities particularly facilitated strategies that can be readily integrated into teaching routines and immediate feedback.

The pedagogical interpretation shows that continuing professional development is effective when it combines information with practice, reflection and transfer to the classroom. The programme functioned as a space for analysing and adjusting practices, not merely as the transmission of theoretical content.

11. Teachers' level of experience moderates the relationship between the application of UDL principles and the implementation of the principles for developing LTL competence in primary classes.

To test this hypothesis, a moderation analysis was conducted, with the application of UDL principles as the predictor, the strategies specific to the principles for developing LTL competence as the dependent variable, and teachers' level of experience as the moderator.

The moderation analysis shows that teaching experience plays a moderating role because the $UDL \times \text{experience}$ interaction is statistically significant. This finding suggests that professional experience functions not merely as seniority in the system, but also as a resource for interpreting and adapting strategies; more experienced teachers are able to transfer inclusive principles more effectively into the implementation of the principles for developing LTL competence.

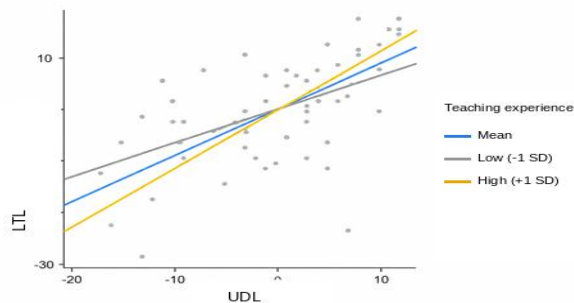


Figure 6. Moderation Analysis of the UDL–LTL Relationship According to Teachers' Experience

The graphical representation is consistent with the positive $UDL \times \text{experience}$ interaction ($b = .19$, $p = .02$), indicating that the association between UDL and the implementation of LTL competence becomes stronger as teaching experience increases.

The moderation effect should be interpreted with caution. The result does not indicate that professional experience alone determines the application of UDL principles or the development of LTL competence; rather, it shows that the strength of the relationship between these variables differs according to teaching experience. Experienced teachers may have a broader repertoire of examples, routines and adjustment strategies, which facilitates the transfer of inclusive principles to the planning, monitoring and self-regulation of learning.

The differences between experience levels should not be interpreted as a value ranking of teachers. Rather, they point to the need for differentiated professional-development pathways: beginning teachers benefit from explicit scenarios, modelling and mentoring, whereas experienced teachers can be invited to analyse ambiguous situations, justify adaptations and provide collegial support. The moderation result also highlights the contextual nature of transfer, since the same strategy may operate differently depending on the subject, task complexity, group heterogeneity and available time.

Given this result, hypothesis I1 is supported by the analysed data.

The pupil analysis examines the pretest–posttest dynamics of responses concerning the frequency of teaching practices associated with the principles for developing LTL competence and changes in self-perception. TFPD contains 15 items, three for each principle; any uncertainties were explained orally without suggesting a response option.

The results are interpreted using means, standard deviations, the t test and effect size. In the absence of a control group, the differences are treated as associations with the intervention period, without attributing exclusive causality to the programme.

The research sample consisted of Grade 2 pupils enrolled at three schools in Sector 3, Bucharest: Secondary School No. 195, Secondary School No. 200 and Secondary School No. 116. Of the 68 participants, 38 were male and 30 female.

Pupil data were compared at pretest and posttest using the paired-samples t test; the same abbreviations PMCD, PDCI, PSUM, PREC and PVER are used for the five principles for developing LTL competence.

Table 4. Mean Pretest and Posttest Scores for the Frequency of Teaching Practices Associated with the Principles for Developing LTL Competence, as Reported by Pupils

		M	N	SD	SEM
Pair 1	PMCD	13.72	68	1.13	.14
	PMCDpost	14.06	68	.84	.10
Pair 2	PDCI	10.97	68	1.75	.21
	PDCIpost	12.35	68	1.16	.14
Pair 3	PSUM	10.12	68	1.87	.23
	PSUMpost	12.51	68	1.03	.13
Pair 4	PREC	13.32	68	1.67	.20
	PRECpost	13.81	68	1.08	.13
Pair 5	PVER	11.87	68	3.02	.37
	PVERpost	13.15	68	1.68	.20

In Table 4, the means increase for all five principles. The largest difference occurs for summarising (10.12–12.51; +2.39 points), followed by dividing content (10.97–12.35; +1.38), checking (11.87–13.15; +1.28), reviewing (13.32–13.81; +0.49) and alternating focused and diffuse attention (13.72–14.06; +0.34). Standard deviations are lower at posttest for each principle, indicating less dispersion in pupils' responses.

The descriptive data indicate, at posttest, a higher reported frequency of teaching practices associated with the development of LTL competence and greater homogeneity in pupils' responses. Because the study did not include a control group, the differences are interpreted as associated with the intervention period, without claiming that the programme was their sole cause.

For testing pretest–posttest differences in the frequency of teaching practices associated with the principles of CII development, as reported by students, M indicates the mean score, SD the standard deviation, and SEM the standard error of the mean; PMCD, PDCI, PSUM, PREC, and PVER denote the five principles of CII development examined in the pedagogical intervention.

The simultaneous increase in means and decrease in standard deviations shows that posttest responses were not only higher, but also more closely clustered. The magnitude of change was not identical across principles: progress was more pronounced for summarising, dividing content and checking, and more modest for reviewing and alternating focused and diffuse attention. This pattern supports a differentiated pedagogical reading of the results, while the absence of a control group requires the observed differences to remain associated with the intervention period rather than interpreted as exclusive causal effects.

Table 5. Paired-Samples t Test for the Frequency of Teaching Practices Associated with the Principles for Developing LTL Competence, as Reported by Pupils, at Pretest and Posttest

		M	SD	SEM	95% Confidence Interval		t	df	p
					Min.	Max.			
Pair 1	PMCD - PMCDpost	-.34	.75	.09	-.52	-.16	-3.74	67	< .001
Pair 2	PDCI - PDCIpost	-1.38	1.51	.18	-1.75	-1.02	-7.57	67	< .001
Pair 3	PSUM - PSUMpost	-2.39	1.27	.15	-2.71	-2.09	-15.55	67	< .001
Pair 4	PREC - PRECpost	-.49	1.06	.13	-.74	-.23	-3.78	67	< .001
Pair 5	PVER - PVERpost	-1.28	2.14	.26	-1.79	-.76	-4.92	67	< .001

Table 5 shows significant differences for all five pairs ($df = 67$; $p < .001$). The largest mean difference is for summarising ($MD = -2.39$; $t = -15.55$), followed by dividing content ($MD = -1.38$; $t = -7.57$) and checking ($MD = -1.28$; $t = -4.92$). The differences are smaller for reviewing ($MD = -0.49$; $t = -3.78$) and alternating attention ($MD = -0.34$; $t = -3.74$), but remain statistically significant. The negative sign of the difference reflects the pretest-minus-posttest calculation.

At posttest, pupils reported a higher frequency of teaching practices associated with all five principles analysed. This finding complements teachers' self-assessments with data based on pupils' direct classroom experience; their responses do not constitute an evaluation of the level of implementation of the principles, but self-reported frequencies of specific teaching practices.

The author's contribution consists in adapting the items for young school-age pupils, relating them to the principles for developing LTL competence and comparatively interpreting the data obtained, so that the statistical analysis supports pedagogical, not merely descriptive, conclusions.

The following graph compares pupils' scores on the five principles for developing LTL competence before and after the teaching programme.

In the graphical representation of pupils' results, PMCD, PDCI, PSUM, PREC and PVER denote, in the same order, alternating focused and diffuse attention, dividing content, summarising, reviewing and checking, allowing visual comparison of the evolution of each principle for developing LTL competence.

The consistency between the increase in means and the t-test values supports the robustness of the observed differences. However, the magnitude is not identical: progress is more pronounced for summarising, dividing content and checking, and smaller for reviewing and alternating attention. Figure 7 presents these differences visually.

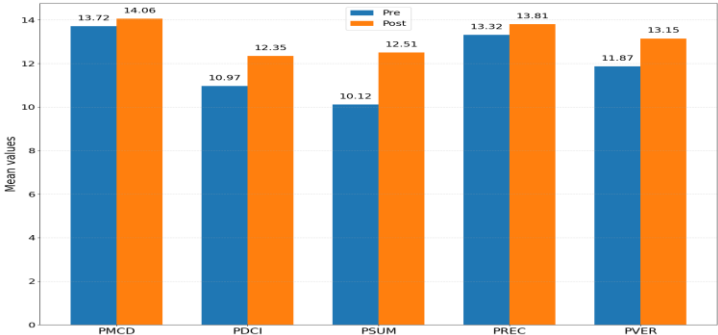


Figure 7. Pretest and Posttest Scores for the Frequency of Teaching Practices Associated with the Principles for Developing LTL Competence, as Reported by Pupils

Figure 7 shows higher posttest means for each principle. The graph visually confirms the order of the differences presented in Tables 4 and 5 without adding any new causal relationship to the statistical data.

Teachers' and pupils' data show the same general direction: teachers report more systematic use of the principles, while pupils report a higher frequency of the teaching practices associated with them. The convergence of the sources strengthens the interpretation without eliminating the limitations of self-reported data and the pretest–posttest design.

The data in Chapter 3 indicate pretest–posttest differences for both teachers and pupils. For pupils, scores associated with practices grouped under the five principles are higher at posttest ($p < .001$), while several components of self-perception also show significant increases.

The results support the usefulness of the programme as a training resource and provide arguments for continuing activities involving design, feedback, review and self-assessment. Generalisation should be undertaken cautiously, given the sample of 68 pupils, the duration of the intervention and the absence of a control group.

In the teacher study, correlations and moderation analysis indicate an association among LTL competence development strategies, UDL principles and professional experience. These results do not show that experience alone determines the application of practices, but that the strength of the relationship differs according to the level of experience.

For self-perception, differences are significant for scholastic competence ($t = -7.90$; $p < .001$; $d = -0.96$), social competence ($t = -7.51$; $p < .001$; $d = -0.91$), athletic competence ($t = -3.26$; $p = .002$; $d = -0.40$), conduct ($t = -5.74$; $p < .001$; $d = -0.70$) and self-esteem ($t = -3.02$; $p = .004$; $d = -0.37$). For physical appearance, the difference is not significant ($t = -0.30$; $p = .765$; $d = -0.04$).

The contribution of the chapter lies in linking teacher training with practices reported by teachers and with pupils' responses concerning the frequency of teaching practices associated with the principles for developing LTL competence; the results describe a temporal association with the intervention, not exclusive causality.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

The pedagogical research conducted, through the theoretical and practical contributions developed on the basis of a synthesis of ideas from competence-based pedagogy, educational psychology, curriculum theory, models of self-regulated learning and the pupil-centred education paradigm, makes a scientific contribution to strengthening the pedagogical foundations for developing learning-to-learn competence (LTL competence) in primary school pupils. By configuring a coherent

theoretical-conceptual framework, the research explains the nature, structure and mechanisms of LTL competence development and provides the foundation for the methodology and experimental study developed in the subsequent stages, with the aim of forming autonomous, reflective pupils capable of managing their own learning and of providing theoretical premises for optimising pedagogical practices in primary education.

The theoretical analysis showed that learning-to-learn competence is a complex, transversal pedagogical construct underpinning autonomous, self-regulated and lifelong learning; within the current normative framework, it is integrated into the key competence “personal, social and learning-to-learn competence” and contributes to personality development in the knowledge society. Critical analysis of contemporary pedagogical paradigms—constructivist, socio-constructivist, cognitive, metacognitive, humanistic and lifelong-learning—showed that developing LTL competence requires the integration of cognitive, metacognitive, motivational, affective and social processes into an educational approach centred on pupils, learning autonomy and reflection on learning experience.

The interpretation of national and international education policy documents confirmed their convergence towards valuing LTL competence as a transversal dimension of education and showed that the development of LTL competence represents a strategic direction in the modernisation of education, promoted as a prerequisite for developing the competences needed in the twenty-first century. In this context, the conceptual reference points, principles, dimensions and descriptors of learning-to-learn competence were systematised, and the need to address it as a priority outcome of the educational process in primary education was substantiated. The European recommendations on key competences, the curriculum documents from Romania and the Republic of Moldova, and the curriculum modernisation initiatives analysed support the need for the early development of cognitive autonomy, responsibility for one’s own learning and the ability to transfer strategies across different contexts.

The theoretical study made it possible to delimit the main dimensions used in establishing the LTL competence profile for primary school pupils: the cognitive dimension, oriented towards the use of strategies for organising and processing information; the metacognitive dimension, expressed through planning, monitoring and self-assessment; the affective-motivational dimension, associated with curiosity, perseverance and self-efficacy; the social dimension, reflected in collaboration and communication; and the reflective dimension, which supports critical appraisal of one’s own progress. At the operational level, these five dimensions are integrated

into three complementary components—cognitive, metacognitive and reflective—while the affective-motivational and social dimensions have a transversal character and are monitored through indicators of motivation, perseverance, self-efficacy, collaboration and communication. Operationalising the LTL Competence Profile enabled the general descriptors of the competence to be transformed into observable operational indicators at primary-school level and provides a framework for designing teaching activities, constructing assessment tools and guiding pedagogical interventions towards the development of learning autonomy.

The experimental assessment showed that planning, monitoring, checking and self-assessment require systematic teaching support in the sample analysed. The data do not demonstrate an identical need for all pupils, but indicate areas in which teacher intervention may be useful.

Data obtained from teachers indicate training needs related to metacognitive strategies and reflective pedagogy. The teacher's role is analysed through task design, the creation of contexts for reflection, the provision of feedback and support for transferring learning strategies.

Within the sample, differences were identified in preparation for metacognitive instruction, the use of practices centred on information transmission, the limited time allocated to reflection and insufficient operationalisation of self-regulation strategies. These findings support the development of training resources adapted to pupils' age, without allowing automatic generalisation to all teachers.

Following implementation of the Training Programme, teachers' scores for the application of the principles for developing LTL competence increased. The differences support the usefulness of the programme in the context investigated; determining its effectiveness in other contexts requires replication of the study.

The five principles analysed—alternating focused and diffuse attention, dividing content, summarising, reviewing and checking—provided the structure for the formative activities. UDL was used as a complementary reference point for making learning situations accessible. The research data support this use in the context analysed, without permitting general claims about all educational styles or needs.

Among pupils, scores relating to teaching practices and five of the six components of self-perception increased significantly. The results suggest an association between participation in the activities and changes in self-perception, but academic performance was not measured directly.

The praxiological value of the research lies in the possibility of using the Training Programme, the operational LTL competence profile and the assessment tools to design activities involving metacognitive instruction, feedback, self-

assessment, cooperation and transfer. They should be adapted according to the school subject, pupils' age and the classroom context.

Within the limitations of the research, the results support the intentional and gradual development of LTL competence through teacher training and teaching strategies oriented towards reflection, cooperation and pupil responsibility. The maintenance and generalisation of the effects remain directions for further research.

The scientific problem solved by the research consists in establishing the pedagogical foundations for developing LTL competence in primary school pupils by defining and operationalising the competence profile, identifying its cognitive, metacognitive, affective-motivational, social and reflective dimensions, and experimentally validating the Continuing Professional Development Programme, with a view to fostering pupils' cognitive autonomy.

RECOMMENDATIONS

For primary school teachers:

- Systematically integrate planning, monitoring, reviewing, checking and self-assessment strategies into regular learning activities.

For trainers involved in the continuing professional development of primary school teachers:

- Use the Continuing Professional Development Programme for Teachers for developing learning-to-learn competence in primary school pupils as a flexible reference point for designing practical workshops focused on LTL competence and on adapting interventions to pupils' characteristics.

For managers of educational institutions:

- Support methodological activities devoted to metacognition, self-regulation and Universal Design for Learning through communities of practice and exchanges of experience among teachers.

For curriculum developers and education decision-makers:

- Explicitly include observable indicators of LTL competence in curriculum documents, assessment standards and methodological resources for primary education.

For researchers in educational sciences:

- Extend research on LTL competence through longitudinal studies and by applying the proposed model in diverse educational contexts.

BIBLIOGRAPHY

1. AFANAS, A. Teoria și praxiologia formării profesionale continue a cadrelor didactice. Rezumatul tezei de doctor habilitat. Chișinău, 2022.
2. BERCU, N.; CĂPIȚĂ, L. E. Despre a învăța elevul să învețe. Revista de Pedagogie, 2010, 58, p. 3-7.
3. BEȚIVU, A. Educația incluzivă - dimensiune instrumentală a schimbării. Bălți: Universitatea de Stat „Alecru Russo” din Bălți, 2016.

4. BOROZAN, M.; ȚURCAN-BALȚAT, L. Considerații teoretice privind axiologia formării profesionale a cadrelor didactice. În: Managementul educațional: realizări și perspective de dezvoltare. Chișinău, 2022, p. 294-301.
5. CRISTEA, S. Teoria generală a educației. București: Didactica Publishing House, 2022.
6. FRANȚUZAN, L. Formarea competenței-cheie de a învăța să înveți în contextul noilor provocări societale. Chișinău: Fundația Soros Moldova, 2021.
7. GUȚU, V.; ȘEVCIUC, M. Metodologia proiectării competențelor specifice disciplinei școlare: concept și instrumentar. În: Dezvoltarea continuă și ciclică a curriculumului educațional. Chișinău, 2025, p. 165-183.
8. JOIȚA, E. Educația cognitivă. Fundamente. Metodologie. Iași: Polirom, 2002.
9. PAPUC, L.; BALABAN, L. M. Dezvoltarea competenței „a învăța să înveți” la treapta de liceu. În: Cultura Cercetării Pedagogice: Provocări și Tendințe Contemporane, vol. 4, Chișinău, 2021, p. 212-225.
10. ȘOVA, T.; RUSOV, V.; COTOȘ, L. Managementul inovațiilor în educație: ghid metodic pentru cadrele manageriale și didactice. Bălți, 2019.
11. CAENA, F.; PUNIE, Y. Developing a European Framework for the Personal, Social & Learning to Learn Key Competence (LifeComp). Luxembourg: Publications Office of the European Union, 2019.
12. CAENA, F.; STRINGHER, C. Towards a new conceptualization of Learning to Learn. *Aula Abierta*, 2020, 49(3), p. 199-216.
13. DEAKIN CRICK, R.; BROADFOOT, P.; CLAXTON, G. Developing an Effective Lifelong Learning Inventory: The ELLI Project. *Assessment in Education*, 2006, 11(3), p. 248-272.
14. FLAVELL, J. H. Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 1979, 34(10), p. 906-911.
15. HATTIE, J. Învățarea vizibilă. Ghid pentru profesori. București: Editura Trei, 2014.
16. OAKLEY, B. A Mind for Numbers: How to Excel at Math and Science. Los Angeles: TarcherPerigee, 2014.
17. OAKLEY, B.; SEJNOWSKI, T.; MCCONVILLE, A. Învăță să înveți. Cum să ai rezultate la școală în mod eficient. București: Curtea Veche Publishing, 2022.
18. PINTRICH, P. R.; DE GROOT, E. V. Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 1990, 82(1), p. 33-40.
19. ROEDIGER, H. L.; BUTLER, A. C. The critical role of retrieval practice in long-term retention. *Trends in Cognitive Sciences*, 2011, 15(1), p. 20-27.
20. SALA, A.; PUNIE, Y.; GARKOV, V.; CABRERA GIRALDEZ, M. LifeComp: The European Framework for Personal, Social and Learning to Learn Key Competence. Luxembourg: Publications Office of the European Union, 2020.
21. STRINGHER, C. et al. Learning to learn and assessment: Complementary concepts or different worlds. *Educational Research*, 2021, 63(1), p. 26-42.

22. VYGOTSKY, L. S. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge: Harvard University Press, 1978.
23. ZIMMERMAN, B. J. *Becoming a self-regulated learner: An overview*. *Theory Into Practice*, 2002, 41(2), p. 64-70.
24. CADRUL de referință al Curriculumului Național. Chișinău: Editura Lyceum, 2017.
25. CONSILIUL EUROPEAN. *Recomandarea privind competențele-cheie din perspectiva învățării pe tot parcursul vieții*. Bruxelles, 2018.
26. ROMÂNIA. *Legea învățământului preuniversitar nr. 198/2023*. Monitorul Oficial al României, Partea I, nr. 613/5 iulie 2023.
27. MECC. *Curriculum național pentru învățământul primar*. Chișinău: Ministerul Educației, Culturii și Cercetării, 2018.
28. MINISTERUL EDUCAȚIEI. *Ordinul nr. 6.731/28.11.2023 privind aprobarea Profilului de formare al absolventului*. Monitorul Oficial al României, nr. 1099/6.12.2023.
29. MINISTERUL EDUCAȚIEI ȘI CERCETĂRII. *Cadrul de Referință al Curriculumului Național din România*. Aprobare prin Ordinul nr. 4.137/16.06.2026.
30. *Repere pentru proiectarea, actualizarea și evaluarea Curriculumului național*. Cadrul de referință al Curriculumului național. București: Ministerul Educației, 2021.
31. IBM Corp. *IBM SPSS Statistics for Windows, Version 24.0*. Armonk, NY: IBM Corp., 2016.

AUTHOR'S PUBLICATIONS ON THE THESIS TOPIC

Articles in specialised scientific journals

32. CHIVU, A. G.; BOROZAN, M. *Învățarea modului de a învăța îi poate ajuta pe copii să aibă o percepție de sine mai bună – Learning how to learn may help children have a better self-perception*. În: *Studia Doctoralia. Psychology and Educational Science*, 2024, vol. 15, nr. 2, p. 81-92. DOI: <https://doi.org/10.47040/sdpsych.v15i2.176>. Disponibil: <https://journals.unibuc.ro/index.php/sd/article/view/687>.
33. CHIVU, A. G. *Profilul competenței de a învăța să înveți la elevii din învățământul primar*. În: *Acta et Commentationes. Sciences of Education*, 2026, vol. 44, nr. 2, p. 106-113. Disponibil: https://revistaust.upsc.md/index.php/acta_educatie/article/view/1235/1207.
34. CHIVU, A. G. *Programul de formare profesională continuă a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți a elevilor din învățământul primar*. În: *Acta et Commentationes. Sciences of Education*, 2026, vol. 45, nr. 2.
35. CHIVU, A. G.; BOROZAN, M. *Learning how to learn and universal design for learning. A study about new teaching strategies*. In: *Review of Psychopedagogy*. 2024, vol. 13, nr. 1, p. 42-57. DOI: <https://doi.org/10.56663/rop.v13i1.73>. Disponibil: <https://psychopedagogy.unibuc.ro/index.php/RoP/article/view/73>.

Papers in the proceedings of national and international scientific conferences

36. CHIVU, A. G. Abordări conceptuale ale competenței de a învăța să înveți. În: Conferința „Cercetarea pedagogică: exigențe contemporane și perspective de dezvoltare”, Chișinău, Moldova, 3–4 noiembrie 2023, ediția a 1-a, p. 158-162. ISBN 978-9975-46-867-1 (PDF). Disponibil: <http://dir.upsc.md:8080/xmlui/bitstream/handle/123456789/6105/Conf-03-04-11-2023-p.158-162.pdf?sequence=1&isAllowed=y>.
37. CHIVU, A. G. Creativitatea - factor principal în dezvoltarea competenței de a învăța să înveți. În: „Materialele conferinței științifice studențești cu participare internațională”, ed. 70, vol. 2, Chișinău, Moldova, 28 aprilie 2021. Tipografia Universității de Stat din Tiraspol. p. 77-85. ISBN 978-9975-76-337-0. Disponibil: https://ibn.idsi.md/sites/default/files/imag_file/2p-77-85.pdf.
- Scientific and methodological contributions**
38. CHIVU, A. G. Dezvoltarea competenței de a învăța să înveți. Ghid Metodologic Multidisciplinar în revista „Nediscriminare și incluziune în sistemul educațional românesc”. Bufta, 2023, p. 1864-1866. ISBN 978-973-0-38752-0. Disponibil: <https://revistaeducatie.ro/wp-content/uploads/simple-file-list/NEDISCRIMINARE-SI-INCLUZIUNE-IN-SISTEMUL-EDUCATIONAL-ROMANESC.GHID-METODOLOGIC.pdf>.
39. CHIVU, A. G. A învăța să înveți: competență-cheie pentru învățarea pe tot parcursul vieții. În: Ghidul metodologic multidisciplinar „Fiecare copil este o comoară – inițiative pentru educație incluzivă”. Bufta, 2024, p. 1588-1591. ISBN 978-973-0-40449-4.
40. CHIVU, A. G. Învățarea pe tot parcursul vieții - cadrul conceptual-practic de abordare a Learn to learn. În: Revista națională „Provocări și soluții în educație”, nr. 7, vol. 3, în cadrul Proiectului Educațional internațional „Educație fără limite”. București, iulie 2024, p. 514-518. ISSN 2972-2012; ISSN-L 2972-2012. Disponibil: <https://eueducenter.ro/descarca/revista%20provocari%20si%20solutii%20in%20educatie%20editia%207%20vol%203.pdf>.
41. CHIVU, A. G. Model de Program de Formare Profesională pentru Profesori: Dezvoltarea Competenței de a Învăța să Înveți la Elevii Claselor Primare. În: Revista națională „Provocări și soluții în educație”, nr. 7, vol. 3, în cadrul Proiectului Educațional internațional „Educație fără limite”. București, iulie 2024, p. 508-513. ISSN 2972-2012; ISSN-L 2972-2012. Disponibil: <https://eueducenter.ro/descarca/revista%20provocari%20si%20solutii%20in%20educatie%20editia%207%20vol%203.pdf>.
42. CHIVU, A. G. Zece metode interactive pentru a dezvolta competența de a învăța să înveți la elevii claselor primare. În: Lucrările Proiectului Național „Educăm cu Bucurie”. Bufta, 2023, p. 5-9. ISBN 978-973-0-38310-2.

ADNOTARE

CHIVU Andreea Gabriela

„Fundamente pedagogice ale dezvoltării competenței de a învăța să înveți a elevilor din clasele primare”,

Teză de doctor în științele educației, Chișinău, 2026

Structura tezei: introducere, trei capitole, concluzii generale și recomandări, bibliografie din 297 de surse, adnotare (română, engleză), cuvinte-cheie (română, engleză), lista abrevierilor, 155 pagini text de bază, 32 tabele, 7 figuri, 10 anexe.

Publicații la tema tezei: 11 lucrări științifice.

Cuvinte-cheie: competența de a învăța să înveți (CÎI), elevi, cadre didactice pentru învățământul primar, dezvoltare, formare profesională, principii ale dezvoltării competenței de a învăța să înveți a elevilor, învățare autoreglată, autonomie cognitivă.

Domeniul de studiu: Teoria generală a educației.

Scopul investigației constă în configurarea fundamentelor pedagogice, elaborarea, implementarea și validarea experimentală a Programului de formare profesională continuă a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți la elevii din învățământul primar.

Obiectivele cercetării: determinarea reperelor teoretice privind competența de a învăța să înveți în contextul interpretării paradigmelor pedagogiei contemporane din perspectiva actualelor politici ale educației în învățământul primar; estimarea experimentală a specificului și dinamicii indicatorilor asociați dezvoltării competenței de a învăța să înveți la elevii din învățământul primar; studiul experimental al competențelor pedagogice necesare profesorilor pentru valorificarea principiilor dezvoltării competenței de a învăța să înveți; identificarea valorilor semnificative, elaborarea și descrierea Profilului operațional al competenței de a învăța să înveți la elevii din clasele primare; conceptualizarea și implementarea Programului de formare profesională continuă a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți la elevi; deducerea concluziilor științifice care reprezintă noi cunoștințe referitoare la dezvoltarea competenței de a învăța să înveți în învățământul primar.

Noutatea și originalitatea științifică a cercetării rezultă din conceptualizarea și operaționalizarea Profilului operațional al competenței de a învăța să înveți la elevii din învățământul primar, prin definirea indicatorilor și descriptorilor, în acord cu cerințele documentelor de politici ale educației; elaborarea și implementarea Programului de formare profesională continuă a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți la elevii din învățământul primar, din perspectiva provocărilor secolului al XXI-lea și a evoluțiilor paradigmatiche susținute de teoria curriculumului, afirmate în contexte pedagogice, psihologice și sociale. Prin aceste contribuții, cercetarea propune un cadru teoretico-metodologic și praxiologic coerent pentru dezvoltarea competenței de a învăța să înveți în ciclul primar.

Rezultatele științifice obținute, care au contribuit la soluționarea unei probleme științifice importante în domeniu, constau în reconsiderarea și actualizarea științifică a fundamentelor pedagogice ale dezvoltării competenței de a învăța să înveți prin conceptualizarea Profilului operațional al competenței de a învăța să înveți la elevii din clasele primare și formarea profesională continuă a cadrelor didactice pentru valorificarea praxiologică a principiilor dezvoltării competenței de a învăța să înveți a elevilor din învățământul primar.

Semnificația teoretică a cercetării este confirmată de: interpretarea științifică și reconsiderarea teoretică a paradigmelor pedagogiei, a teoriilor învățării autoreglate din care rezultă valorile transversale și transdisciplinare ale competenței de a învăța să înveți, definită prin *eficiență metacognitivă, autonomie cognitivă și autoreglarea învățării*; interpretarea nivelurilor și a specificului dezvoltării competenței de a învăța să înveți la elevilor, care determină optimizarea strategiilor didactice centrate pe elevi ca premisă a învățării permanente prin practici reflexive, indispensabile educației contemporane; interpretarea datelor experimentale și deducerea concluziilor științifice reprezentând noi cunoștințe referitoare la dezvoltarea competenței de a învăța să înveți în învățământul primar.

Valoarea praxiologică a cercetării constă în identificarea metodologiei de cercetare și studiul experimental al specificului și dinamicii indicatorilor asociați dezvoltării competenței de a învăța să înveți la elevii din învățământul primar; identificarea problemelor cognitive ale elevilor din clasele primare; studiul experimental al competențelor pedagogice necesare profesorilor pentru valorificarea principiilor dezvoltării competenței de a învăța să înveți; posibilitatea valorificării Profilului, a indicatorilor, a descriptorilor și a valorilor CÎI în proiectarea și implementarea Programului de formare a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți la elevii din învățământul primar.

Implementarea rezultatelor științifice s-a realizat prin cercetări teoretice și demersuri experimentale, desfășurate cu profesorii și elevii care au participat la Programul de formare profesională continuă a cadrelor didactice pentru dezvoltarea competenței de a învăța să înveți la elevii din învățământul primar în cadrul școlilor gimnaziale nr. 195, nr. 200 și nr. 116 din București.

ANNOTATION
CHIVU Andreea Gabriela

“Pedagogical Foundations for the Development of Learning-to-Learn Competence in Primary School Pupils”, Doctoral thesis in Educational Sciences. Chişinău, 2026

Thesis structure: introduction, three chapters, general conclusions and recommendations, a bibliography comprising 297 sources, annotations in Romanian and English, keywords in Romanian and English, a list of abbreviations, 155 pages of main text, 32 tables, 7 figures and 10 annexes.

Publications on the thesis topic: 11 scientific papers.

Keywords: learning-to-learn competence, pupils, primary school teachers, development, professional training, principles for developing pupils' learning-to-learn competence, self-regulated learning, cognitive autonomy.

Field of study: General Theory of Education.

Purpose of the investigation: to establish the pedagogical foundations and to develop, implement and experimentally validate the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in primary school pupils.

Research objectives: to identify the theoretical reference points for learning-to-learn competence by interpreting contemporary pedagogical paradigms from the perspective of current education policies in primary education; to experimentally assess the specific characteristics and dynamics of indicators associated with the development of learning-to-learn competence in primary school pupils; to experimentally investigate the pedagogical competences required by teachers to apply the principles for developing learning-to-learn competence; to identify the relevant values and to develop and describe the Operational Profile of Learning-to-Learn Competence in Primary School Pupils; to conceptualise and implement the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in pupils; and to draw scientific conclusions representing new knowledge concerning the development of learning-to-learn competence in primary education.

Scientific novelty and originality of the research derive from the conceptualisation and operationalisation of the Operational Profile of Learning-to-Learn Competence in Primary School Pupils, through the definition of indicators and descriptors in accordance with the requirements of education policy documents; and from the development and implementation of the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in primary school pupils, in response to the challenges of the twenty-first century and to paradigmatic developments underpinned by curriculum theory and manifested in pedagogical, psychological and social contexts. Through these contributions, the research proposes a coherent theoretical, methodological and praxiological framework for developing learning-to-learn competence in primary education.

The scientific results that contributed to solving an important scientific problem in the field consist of the reconsideration and scientific updating of the pedagogical foundations for developing learning-to-learn competence through the conceptualisation of the Operational Profile of Learning-to-Learn Competence in Primary School Pupils and the continuing professional development of teachers for the praxiological application of the principles for developing pupils' learning-to-learn competence in primary education.

The theoretical significance of the research is confirmed by: the scientific interpretation and theoretical reconsideration of pedagogical paradigms and theories of self-regulated learning, from which the transversal and transdisciplinary values of learning-to-learn competence are derived, the competence being defined in terms of *metacognitive efficiency, cognitive autonomy and self-regulation of learning*; the interpretation of the levels and specific characteristics of the development of pupils' learning-to-learn competence, which underpins the optimisation of pupil-centred teaching strategies as a prerequisite for lifelong learning through reflective practices indispensable to contemporary education; and the interpretation of experimental data and the drawing of scientific conclusions representing new knowledge concerning the development of learning-to-learn competence in primary education.

The praxiological value of the research lies in the identification of the research methodology and the experimental study of the specific characteristics and dynamics of indicators associated with the development of learning-to-learn competence in primary school pupils; the identification of the cognitive difficulties of primary school pupils; the experimental study of the pedagogical competences required by teachers to apply the principles for developing learning-to-learn competence; and the possibility of using the Profile, indicators, descriptors and values of learning-to-learn competence in designing and implementing the Teacher Training Programme for the Development of Learning-to-Learn Competence in Primary School Pupils.

The implementation of the scientific results was achieved through theoretical research and experimental activities conducted with the teachers and pupils who participated in the Continuing Professional Development Programme for Primary School Teachers aimed at developing learning-to-learn competence in primary school pupils at Schools Nos. 195, 200 and 116 in Bucharest.

CHIVU ANDREEA GABRIELA

**“Pedagogical Foundations for the Development
of Learning-to-Learn Competence in Primary School Pupils”,**

Speciality 531.01 – General Theory of Education

SUMMARY

of the doctoral thesis in Educational Sciences

Chisinau, 2026

Approved for printing 24.08.2026

Paper size 60 x 84 1/16

Offset paper. Offset printing

Copies: 30 ex.

Pattern sheets: 2.0

UPSC Typography, I. Creanga street., 1
Chisinau, MD-2069