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COGNITIVE AND META-COGNITIVE COMPETENCIES OF THE BEGINNING TEACHERS. INTERVENTION STRATEGIES FOR SOCIO-PROFESSIONAL INSERTION

Constanța DUMITRIU¹, Iulia-Cristina TIMOFTI², Gheorghe DUMITRIU³

Abstract

This study relies on the theoretical premises concerning the development of professional competencies of the beginning teachers. The starting point is the operational model that integrates seven categories of competencies: cognitive and meta-cognitive, methodological, communicational and relational, evaluative, psychosocial, career management, as well as ICT competencies. The goal of this study is to propose and validate a programme meant to improve the cognitive and meta-cognitive competencies of the beginning teachers. In order to run the research we have established the following objectives: development and pre-testing of the tools for the experimental model; initial evaluation of the cognitive and meta-cognitive competencies, design and course of a programme of formative activities that lead to the improvement of the cognitive and meta-cognitive competencies; final evaluation of the cognitive and meta-cognitive competencies. As research methods we used: the formative psycho-pedagogical experiment with repeated measurements (test – post test), analysis of the products of teachers' activities (projects, competencies portfolios), psycho-pedagogical observation, and statistical methods. Statistical facts obtained during the research show significant differences with respect to the results obtained by the beginning teachers

¹ Ph.D. Associate Professor, Department of Romanian Language and Literature and Communication Sciences, Faculty of Letters, Vasile Alecsandri University, Street Marasesti 157, Bacau, Bacau county, Romania, mobile 0040(0)741209549, e-mail: dumitriu constanta@yahoo.com

² Ph.D. Teaching Assistant, Department of Kinetotherapy and Occupational Therapies, Faculty of Sciences of Movement, Sports and Health, Vasile Alecsandri University, Street Marasesti 157, Bacau, Bacau county, Romania, mobile 0040(0)745364695, e-mail: iulia.timofti@ub.ro

³ Ph.D. Professor, Department of Mathematics, Informatics and Educational Sciences, Faculty of Sciences, Vasile Alecsandri University, Street Marasesti 157, Bacau, Bacau county, Romania, mobile 0040(0)234580050, e-mail: dumitriu@ub.ro

at the evaluation applied at the end of the formative stage, compared to those obtained at the initial evaluation. The results of this research will bring a contribution to the optimization of the initial training programmes of the beginning teachers, and support their psycho-pedagogical training for better socio-professional integration.

Keywords: Cognitive and meta-cognitive competencies; beginning teachers; formative experiment; operational model; training programme.

Introduction

The present study is based on the theoretical and methodological premises of the operational model we elaborated as part of the Exploratory Research Project: Operational Model to Develop Competencies at the Beginning Teachers (MODE COMP). The operational model we propose is based on the principles of constructivism, on the recent data provided by cognitive psychology and by the theory of the “reflexive practitioner” and it is aimed at the development of professional competencies in beginning teachers, for an optimal socio-professional insertion. Exploratory research as a whole takes place over three years (2009-2011), the main purpose being the development, testing and validation of the operational model focused on developing competencies to beginning teachers. Having started with professional standards and having adopted as criterion the functions and roles of beginning teachers, the following general professional competencies have been derived: cognitive and meta-cognitive, methodological, communicative and relational, student evaluation, psychosocial, informational and technological, career management competences.

The main objective of the present research is the evaluation of the efficiency of the training programme centred on the development of cognitive and meta-cognitive competencies in beginning teachers. We have started from the assumption that the application of the operational model based on the unitary coordination of objectives with the content of training and with the educational strategies contributes to the development of the structural components of the cognitive and meta-cognitive competence to beginning teachers. The option for ways to deepen research and development of cognitive and meta-cognitive competencies of beginning teachers is determined, on one hand, by the results of research conducted in recent decades in this field, as well as by data from the educational practice. All these highlight many difficulties faced by beginning teachers in the early years at work, the transition from the university to real teaching being complex, multifaceted, with major implications for further professional development of teachers (Urzua, 1999). Besides, the steps which have been taken during the last three decades regarding the professionalization of teaching

have pointed out that among the greatest challenges faced by the syllabuses for the initial training of future teachers one can identify the problem of ensuring an optimal balance between theory and practice in training (Allen, 2009, 647; Smith, 2000). Although the “abyss” separating beginning teachers’ theoretical training from their practical one has been noticed for a long time now, and it has constituted one of the greatest challenges addressed to beginning teachers, training teachers’ attempts to solve this problem have remained without solutions.

Dickson (2011) is referring to practitioner-based enquiry learning, in order to deliver life-long learning for teachers. This article presents a study of how practitioner-based enquiry was embedded in an initial teacher education programme, the reasons for this, and the purposes of the strategy, which raised the one-year postgraduate qualification to master levels. It looks at the reason for the change; the nature of the change, which included educating teachers intending to teach in primary schools together with those intending to teach in secondary; the introduction of practitioner-based inquiry; some early student reaction; and the structural, cultural and learning issue which have emerged.

Many approaches have been centred upon theoretical clarifying of the specific and resorts of initial and continuous training programmes, analysing the rules of profession during the beginning teachers training, the process form of the interactions between trainees and trainers (Méard, Bruno, 2009), negotiation with pupils of the teaching rules (Flavier, Bertone, Méard, Durand, 2002; Méard, Bertone, Flavier, 2008).

Certain researches (Maldereza, Hobsonb, Traceyb, Kerrc, 2007) underline the beginning teachers’ explanations regarding their motivation for starting the training courses, their expectations regarding teaching profession, and their initial experience as training teacher. Among basic characteristics of the lived experience as beginning and training teacher, we highlight those aiming the concepts of teacher’s identity, the role of relations, the pertinence and presence within emotional self control.

Other authors (Schön, 1994, 1996) underline the importance of a reflexive approach, today considered as one of the key activities in professional development. Research undertaken during the last two decades on efficient teaching indicates that actual practice should be linked to research, meditation on and continuation of professional development. And all the more so that educational practice has proven that meta-cognitive abilities involved in meditating on and learning from one’s own experience are poorly developed in beginning teachers. Under these circumstances, beginning teachers are suggested to meditate on their practice, in order to be able to develop professionally and to recognize the consonance between their own practice and that of successful practitioners (Killeavy and Maloney, 2010, pp. 1071).

The empirical research we have undertaken during the last two decades regarding initial and permanent training of Romanian teachers (Dumitriu, 1999; Dumitriu, 2003; Dumitriu, 2004; Dumitriu and Dumitriu, 2009), as well as our educational practice, systematically observed, together with the workshops we have organized for beginning teachers, have revealed a series of difficulties with which the latter are confronted during their first teaching years. The importance of the identified categories varies according to the complexity of the professional roles that are accomplished. Many of the difficulties faced by beginners aim the low capacity of correctly operating with scientific concepts in the field of specialty and of psycho-pedagogy, the lack of enabling the application of theories, models, theoretical knowledge acquired to design and implement the teaching-learning situations. Other difficulties relate to the achievement of actual teaching, processing and making accessible the taught contents, to select and use appropriate methods and procedures adequate for the taught theme and classroom level. Many teachers face the state of fear and uncertainty about classroom management, identifying and applying appropriate methods to solve the crisis, conflict, counseling of students with special needs. Under these circumstances, some beginners leave the education system, thus ending prematurely the career, with feelings of frustration, failure and incompatibility.

Among the strategies proposed in order to facilitate the integration of the beginning teachers, we mention methodical guides, curriculum models, the use of mentor teachers and of orientation teams (Roehrig, Bohn, Turner, and Pressley, 2008), and tutoring (Malderez and Bodoczky, 2009). In this context, we plead for the necessity of an organized and complete training offered by mentors, as an efficient way to integrate beginning teachers in the educational system. Successful beginning teachers, helped by efficient mentors, are more willing to continue their teaching and are likely to become future mentors for the teachers following them, as Gagen and Bowie (2005) argue. At the same time, it's necessary a careful monitoring and evaluation of various strategies implemented in order to facilitate the beginning teachers' adaptation to the new environment and to the new roles.

The paradigm of the competence approach

Referring to the competences approach in education, Boutin (2004) characterized it as a paradigmatic mixture. Indeed, the term competence is polysemantic, with meanings that vary depending on the subject and the context in which it is used. With the expanding use of the term competence in areas such as psychology, psycholinguistics, cognitive psychology, sociology, pedagogy, etc., its meanings have varied, sometimes entering the competition or overlap with other meanings of terms that designate learning outcomes such as skills, abilities, knowledge, performance. After most of the authors, the original version of the model /

approach with current skills is rooted in the world of work, business and moved to “school world” through initial and continuing training (Rey et al, 2010:12).

Currently, jurisdiction is one of the key concepts of the European Qualifications Framework, are described in terms of responsibility and autonomy. Two categories are listed, namely professional competencies (general and specific) and transversal competencies (such as cross-disciplinary capabilities). French-speaking countries use the terms “*savoir*”, “*savoir - faire*”, “*savoir - être*” to describe the gradual transition from “*knowing*” to “*know how to do*” and “*know to be*”. Therefore, the idea of competence means a switch of emphasis in training, from informative (“what?”, “how much?”) to formative (“*how to do*?”). This approach requires longer periods of time for training and development. In specialised literature (Perrenoud, 1996, 1997; Dolz and Ollagnier, 2002; Molina and Gervais, 2008; Lafortune, Daniel, Doudin, Pons, & Albanese, 2005; Lafortune, 2010), competencies are defined as integrative units of knowledge, habits, motivations and attitudes that mediate professional behaviour and guarantee expert action in specific activity fields and contexts.

From the cognitivist point of view, a competence simultaneously implies declarative knowledge, procedural knowledge and attitudes. In fact, recent research in cognitive psychology has shown that unlike other concepts (e.g., the performance), the term competence better reflects learning outcomes and may be a valid benchmark for defining learning objectives. In a broader sense, Perrenoud (1996) defines professional competencies as a diversified unit of knowledge, professional abilities, action schemes and attitudes that are involved in the exercising of the profession. According to Tardif (2003:37), competence corresponds to a complex capacity of action which is based on the activation and effective use of a variety of resources. Competence requires knowledge and operating verbal information (declarative) and procedural knowledge and affective components, motivational, meta-cognitive control in completing tasks.

Many anthropological works tint described “teacher knowledge” and in particular “knowledge from experience”, “practical knowledge” (Altet, 1996). In other words, the knowledge developed by the educator himself, based on experiences he has lived. Wolfs (1998) makes the distinction between product-competencies or final, terminal competencies and process-competencies or methodological, instrumental, strategic competencies. Many authors operate differences between transversal competencies and professional competencies, between integration competencies and specific competencies. Starting from the hierarchical model of aptitudes, Aubret and Gilbert (2003: 22-23) distinguish three levels of competence building, from the level that is the most abstract as related to the contexts of action-taking, to the level that is the closest to the particularities of each situation, respectively: general competencies, operational competencies, situational competencies.

Out of these definitions, we can infer the fundamental characteristics of competence: (1) the purpose of a competence is the solving of problems, tasks, projects; (2) the structure of a competence includes elements of a cognitive, affective, volitional and practice-educational nature; (4) the process of competence building is focused on the optimal integration of knowledge, habits, abilities which subsequently make possible the adaptation to or transfer in various situations.

From the point of view of its internal structure, competence is an integrative functional system which consists of three components: (1) *knowledge*: declarative, procedural, conditional, meta-knowledge also adds here; (2) *abilities*: cognitive, psychomotor, reactive, interactive, reproductive, productive; (3) *attitudes* as three-dimensional integrative structures which include cognitive, affective and behavioural elements.

The external factors of competence are dependent upon the circumstances in which the competent action is performed and they refer to the task, the situation and the context.

Individuals actively and continually construct the knowledge required for their working lives. The relationship between personal factors and social contribution is interdependent because neither the social nor personal contributions alone are sufficient. The social experience is important for articulating and providing access to work performance requirements. However, personal factors such as individuals' capacities, subjectivities and agency shape how workers interpret and engage with what they experience and, consequently, how they learn and remake practice throughout their working life (Billett, 2008).

We have come to an operational definition according to which (the teacher's) professional competencies represent an integrated and functional unit of knowledge, habits, capacities and attitudes efficiently used for the successful achievement of professional roles. Professional competence is proven through the capacity to select, combine and adequately use knowledge, abilities and other acquisitions (values and attitudes) for the optimal solving of a working or learning situation/task and also for personal or professional development in conditions of efficiency.

Frowe (2005) argues that trust is an essential component of what it means to be a „professional”. The central argument is that the exercise of judgement through the possession of ‘discretionary powers’ is central to being a professional, but that judgement itself resists reduction to propositional formulation because it is essentially tacit and individual.

In the information society meta-cognitive competencies are essential. Based on some activities from the Enrichment Instrumental Program elaborated by Professor Reuven Feuerstein, Mara (2010) has designed a program for developing

the students' capacities of selfcontrol, selfknowing and intelectual learning strategies. A web based application has been developed in order to enable students to self-evaluate their meta-cognitive competencies and to acquire self-regulatory abilities.

Lin, Schwartz, and Hatano (2005) compare conventional uses of meta-cognition with the kinds of meta-cognition required by the teaching profession. They discovered that many of problems and tasks used in successful meta-cognitive interventions tend to be reasonably well-defined problems of limited duration, with known solutions. Teaching has unique qualities that differentiate it from many of the tasks and environments that meta-cognitive interventions have supported. Teachers often confront highly variable situations. This led them to believe that successful teaching can benefit from adaptive meta-cognition, which involves change to oneself and to one's environment, in response to a wide range of classroom social and instructional variability.

Research design

The objective of our research is the evaluation of the efficiency of the training programme centred on the operational model of cognitive and meta-cognitive competencies development in beginning teachers.

The hypotheses of the research

General hypothesis. The use of the operational model structured on the unitary conjunction of content with types of activities and strategies of educational intervention contributes to the development of cognitive and meta-cognitive competencies of the beginning teachers.

Specific hypothesis 1. There are significant differences between the results obtained by the participants before and after the training programme regarding the capacity to adequately apply the concepts and theories in the field of psychopedagogy and specialty in various situations.

Specific hypothesis 2. There are significant differences between the results obtained by the participants before and after the training programme regarding the capacity to apply the knowledge in the field of psychology, educational sciences and specialty didactics in designing and solving learning situations.

Specific hypothesis 3. There are significant differences between the results obtained by the participants before and after the training programme regarding the competence to build learning situations and tasks, based on the previous cognitive experience of the pupils.

Specific hypothesis 4. There are significant differences between the results obtained by the participants before and after the training programme regarding the capacity to understand the functionality of the cognitive activity (of their own and of the pupils), to know and apply the mechanisms of cognitive control during the educational process.

Specific hypothesis 5. There are significant differences between the results obtained by the participants before and after the training programme regarding the competence to evaluate objectively the events and situations, to argue logically the ideas, to formulate rigorously the hypotheses and the conclusions.

Variables and operationalization

The dependent variable – the level of development for cognitive and meta-cognitive competencies – is operationalized in more subcategories (specific competences - CS). In its turn, every specific competence has been operationalized into three level descriptors for the structural elements of the competence, which are presented below:

CS 1 - the capacity to use the concepts and theories in the field of psycho-pedagogy and specialty, in different contexts: (1) the participants' ability to use proper scientific research techniques in speciality fields and psycho-pedagogy; (2) the ability to organize and adequately use the delivered scientific concepts; (3) the ability to activate and apply the valid knowledge in problem-solving;

CS 2 - the capacity to apply knowledge from the field of psychology, education sciences and speciality didactics in planning and solving learning contexts: (1) the participants' capacity to select and organize learning contents according to didactic principles; (2) the competence to establish the cognitive capacity categories that will be developed in students, on the basis of one's knowledge and experience; (3) the ability to get the students familiar with techniques of intellectual work, reflection and development of critical thinking;

CS 3 - the competence to build the learning situations and tasks on the student's previous cognitive experience: (1) the participants' abilities to use efficient didactic methods and procedures for students to update previous knowledge; (2) the capacity to connect and integrate new information with previous acquisitions in order to facilitate comprehension and conscious learning; (3) the capacity to familiarize students with knowledge transfer techniques and the creative use of learning contents;

CS 4 - the capacity to know how the cognitive processes work (one's own and the students') and to apply cognitive control mechanisms in the learning process: (1) the participants' capacity to centre teaching-learning on the student, to raise awareness and positively influence the manner of processing information; (2) the ability to familiarize students with operative, efficient learning techniques in

order to form an efficient learning style; (3) the capacity to continuously monitor, reflect and control the mechanisms of information processing and problem-solving;

CS 5 - the competence of objective evaluation of events, situations, logical reasoning of ideas, rigorous formulation of premises and conclusions: (1) the participants' capacity to secure conditions for students to practise logical thinking and objective evaluation of events; (2) the ability to stimulate the students' active participation in decision making and problem-solving; (3) the capacity to valorize their cognitive, aptitude and attitude resources in learning and personal development;

The independent variable is represented by the temporal moment, with its two levels: before the intervention (the pre-test) and after the intervention (the post-test).

Participants

The research group is composed of 93 beginning teachers, having been established through stratified sampling. The participants are distributed as the following tables show.

Table 1. Distribution of the participants by gender (a) and residence (b)

Gender	Number	Percent
Male	9	9.7%
Female	84	90.3%

(a)

Residence	Number	Percent
Urban	29	31.2%
Rural	64	68.8%

(b)

Table 2. Distribution of the participants by age (a) and specialization (b)

Age interval	Number	Percent
22 to 25	68	73.1%
26 to 30	6	6.5%
>30	19	20.4%

(a)

Specialization	Number	Percent
Letters	29	31.2%
Sciences	8	8.6%
Technical Education	17	18.3%
Preschool and Primary School Education Pedagogy	20	21.5%
Social Studies and Humanities	14	15.1%
Sports and Physical Education	5	5.3%

(b)

Methods and instruments

The main method used is the formative type of psycho-pedagogical experiment with repeated measurements (test-post-test). In order to register, analyze and process the data, we used statistical methods and techniques. The data were processed via the SPSS programme, version 16.0 for Windows. Formative evaluation has been realized during all stages of the research, through psycho-pedagogical observation and the analysis of the products of teachers' activities (projects, competencies portfolios).

Procedure

The research was developed from July 2010 to August 2011 at Vasile Alecsandri University in Bacau and covered the following stages: (1) initial evaluation of the participants, in order to determine the level of their cognitive and meta-cognitive competencies development; (2) the development of professional training stages with beginning teachers, grouped according to speciality criteria; (3) final evaluation of the participants' cognitive and meta-cognitive competencies; (4) the presentation of a portfolio by every participant, with papers made during the training, within collective and individual activities; (5) the issuing of a graduation certificate for the training programme with 15 transferable credits.

The evaluation test is structured in 5 dimensions and 15 items which measure the level of the development of the 15 structural components of the cognitive and meta-cognitive competences, in the 2 experimental situations, pre-test and post-test. The answers are formulated on a scale with 5 degrees of intensity: "to a very little extent", "to a little extent", "to a moderate extent", "to a great extent", "to a very great extent". The minimal score for each item is 1, and the maximal score for each item is 5. Correspondingly, the minimal score for each dimension is 3, and the maximal score for each dimension is 15.

The items were generated after a rigorous analysis of theoretical models in national and international literature, as well as by determining the specialists' representations compared to the operational model of cognitive and meta-cognitive competencies at beginning teachers, which was already planned and experimented. The evaluation test was applied to the participants before the beginning of the professional training programme and at the end of it. The scores for each dimension (specific competence) were calculated by summing up the answers to the items corresponding to the three level descriptors, previously mentioned.

Therefore, for the first dimension (CS1) - the capacity to use the concepts and theories in the field of psycho-pedagogy and specialty, in different contexts – the items assess the participants' ability to use proper scientific research techniques in speciality fields and psycho-pedagogy; the ability to organize and adequately use

the delivered scientific concepts; the ability to activate and apply the valid knowledge in problem-solving.

In order to evaluate the level of the competence to apply knowledge from the field of psychology, education sciences and speciality didactics in planning and solving learning contexts (CS2), the items aim at: the participants' capacity to select and organize learning contents according to didactic principles; the competence to establish the cognitive capacity categories that will be developed in students, on the basis of one's knowledge and experience; the ability to get the students familiar with techniques of intellectual work, reflection and development of critical thinking.

In order to evaluate the level of the competence to build the learning situations and tasks on the student's previous cognitive experience (CS3), the items assess: the participants' abilities to use efficient didactic methods and procedures for students to update previous knowledge; the capacity to connect and integrate new information with previous acquisitions in order to facilitate comprehension and conscious learning; the capacity to familiarize students with knowledge transfer techniques and the creative use of learning contents.

In order to evaluate the level of the competence to know how the cognitive processes work (one's own and the students') and to apply cognitive control mechanisms in the learning process (CS4), the items focused on: the participants' capacity to center teaching-learning on the student, to raise awareness and positively influence the manner of processing information; the ability to familiarize students with operative, efficient learning techniques in order to form an efficient learning style; the capacity to continuously monitor, reflect and control the mechanisms of information processing and problem-solving.

In order to evaluate the level of the competence to objectively evaluate events, situations, logical reasoning of ideas, rigorous formulation of premises and conclusions (CS5), the items focused on the participants' capacity to secure conditions for students to practise logical thinking and objective evaluation of events; the ability to stimulate the students' active participation in decision making and problem-solving; the capacity to valorize their cognitive, aptitude and attitude resources in learning and personal development.

Results and discussions

The general hypothesis is confirmed as the results obtained by the participants at the end of the training programme centred on the operational model are superior to those obtained before the programme.

Specific hypothesis 1 is confirmed as it could be observed that there were significant differences between the results obtained before and after the training

programme centred on the operational model, regarding the capacity to adequately apply the concepts and theories in the field of psycho-pedagogy and specialty in various situations, [$t(92) = 13.541, p < 0.01$].

Specific hypothesis 2 is confirmed as it could be observed that there were significant differences between the results obtained before and after the training programme centred on the operational model, regarding the capacity to apply the knowledge in the field of psychology, educational sciences and specialty didactics in designing and solving learning situations, [$t(92) = 9.463, p < 0.01$].

Specific hypothesis 3 is confirmed as it could be observed that there were significant differences between the results obtained before and after the training programme centred on the operational model, regarding the competence to build learning situations and tasks, based on the previous cognitive experience of the pupils, [$t(92) = 13.366, p < 0.01$].

Specific hypothesis 4 is confirmed as it could be observed that there were significant differences between the results obtained before and after the training programme centred on the operational model regarding the capacity to understand the functionality of the cognitive activity (of their own and of the pupils), to know and apply the mechanisms of cognitive control during the educational process, [$t(92) = 11.351, p < 0.01$].

Specific hypothesis 5 is confirmed as it could be observed that there were significant differences between the results obtained before and after the training programme centred on the operational model regarding the competence to evaluate objectively the events and situations, to argue logically the ideas, to formulate rigorously the hypotheses and the conclusions, [$t(92) = 6.933, p < 0.01$].

The obtained results emphasize the efficiency of the training programme centred on the development of the cognitive and meta-cognitive competencies of the beginning teachers. Therefore, the application of the operational model based on a coherent correlation of the objectives with the content of the formative programme and with the educational strategies contributed to the development of the structural components of the cognitive and meta-cognitive competencies of the beginning teachers. The workflow related to the implementation of the operational model centred on the competencies of the beginning teachers assumed the use of various intervention strategies, among which we mention:

Training stages for beginning teachers, grouped according to the specialization criterion (groups of 15 to 20 beginning teachers). Plenary activities and workshops were conceived for the development of each specific competence, by making use of interactive strategies meant to actively, directly, experientially and personally involve the participants. Within the framework of the activities organized in groups, but also individually, various “enactments” have been created in order to develop the capacity of the participants to use adequate techniques for scientific documentation in their field of expertise and in the field of psycho-pedagogy;

Table 3. Results of paired-sampled test (pre-test and post-test) with 95% CI

	Variables	M_initial	SD_initial	M_final	SD_final	t(92)	p	LL	UL
Pair 1	Proper use of concepts and theories (initially) – Proper use of concepts and theories (finally)	6.3656	1.8637	7.4624	1.7039	13.541	.000	-1.25764	-.93591
Pair 2	Appropriate use of concepts and theories in the design and application of knowledge in solving training situations (initial) - Appropriate use of concepts and theories in the design and application of knowledge in solving training situations (final)	6.8710	1.5338	7.8065	1.5482	9.463	.000	-1.13182	-.73915
Pair 3	Building learning situations based on previous cognitive experience (initial) - Building learning situations based on previous cognitive experience (final)	7.3011	1.6204	9.6129	1.8299	13.366	.000	-2.65534	-1.96831
Pair 4	Knowledge of cognitive processes functioning, cognitive control (initial) - Knowledge of cognitive processes functioning, cognitive control (final)	5.9247	1.0133	6.5484	.9613	11.351	.000	-.73278	-.51454
Pair 5	Objective evaluation, logical reasoning, hypothesis formulation (initial) - Objective evaluation, logical reasoning, hypothesis formulation (final)	6.8495	1.6936	7.9462	1.7090	6.933	.000	-1.41097	-.78258

awakening techniques of previous knowledge and experiences; techniques to practice the fast and efficient reading; strategies meant to emphasize the sense, based on: discussions, arguments and debates, investigations and solving problem-situations. Many situations leading to professional development have been centred on offering to the participants the ability to practice reflexive techniques and critical thinking (Dulamă, 2009). Subsequently, the generalisation and

objectification of knowledge at the conceptual level is achieved through cooperation and collaboration with the others. For the development of each specific competence and of their structural elements we took benefit from the contributions of constructivist theory in the planning and experimentation of the various procedural instruments for the construction of understanding through the primary processing of information and mental image formation (the Metaphor, the Derivation Tree, the Identification and Representation Matrix etc.); through abstract processing of integration and adjustment (the Inventory List, the Personal Valorisation Block, the Explicative Lists, the Criterial Analysis Matrix, the Cognitive Map of a Classification etc.); through abstract processing of categorization, conceptualization (The Conceptual Map, Personal Definition etc.); through judgment and reasoning formulation (Argument Organization, the Diagram of Pedagogical Essay Elaboration, the Critical Inventory of Prejudices, Errors, etc.); through the solving of problems and situations (the Organizer Graph for a Problem-Situation, Explanation, Solution; the Situation Solving Matrix; Problem or Situation Correction etc.). The efficiency of using these strategies during the training programme has been validated through superior performances obtained by the participants at the final evaluation, when compared to those obtained before the intervention (CS1 - 7.462 against 6.365; CS2 – 7.806 against 6.871; CS3 – 9.612 against 7.301). The statistical results emphasize modest progresses recorded by the participants with respect to the development of meta-cognitive capabilities (CS4 – 6.548 against 5.924 ; CS5 – 7.946 against 6.849). The dialogue with them showed that, most of the time, metacognition is applied intuitively, empirically and does not represent – for the majority of the participants – an important goal of their initial or continuous professional training. Some cognitive approaches are realized, in their opinion, in certain phases of the didactic process, especially in the final stage, that of evaluation of the results of the pupils.

Individual activities of self-training, the participants being instructed as to the concrete modalities of using the guides for the development of their professional competencies. Every participant received the “Beginning Teacher’s Portfolio” which contained several curriculum models and the two published guides: “Primii pași în carieră” (Career First Steps) and “Dezvoltarea competențelor profesionale ale cadrelor didactice debutante. Ghid de bune practici” (The Development of Professional Competencies in Beginning Teachers. The Good Practice Guide). The latter dedicates Chapter 2 to the cognitive and meta-cognitive competencies of the beginning teacher. This chapter includes: the map of the beginning teacher’s cognitive and meta-cognitive competencies (the five specific competencies presented above and the level descriptors for the structural elements of the competencies, that is, knowledge, capacities, aptitudes, and attitudes, respectively); the presentation of a synthesis of theoretical concepts and models, individual applications aimed at the development of the structural elements of the competence and the inclusion of these “cognitive constructions” within the

competence portfolio; group applications, centred on cooperation, collaboration, interactivity; the evaluation test for each category of competencies, the structural elements of the portfolio; selective bibliography.

The monitoring, counselling and formative evaluation of the participants in the process of the development of their professional competencies, via the internet.

Conclusions

The results of the research validated the efficiency of the training programme focused on the operational model for developing the cognitive and meta-cognitive competencies of the beginning teachers. At the end of the training programme, the participants have obtained superior results compared to those obtained before the intervention.

Being based on the socio-constructivism, cognitivism and “the reflexive practitioner” theory, we considered that the assimilation, formation and development of the new concepts, abilities, and capacities have been achieved in problem-situations which favoured the processes of individual and collective thought, of analysis and use of pedagogical experiences. Consequently, there were conceived activities for the development of each specific competence, by making use of interactive strategies, of the alternation between plenary and team work activities, of the optimal utilization of the beginning teachers’ cognitive and practical experience.

This putting into context during the training stages was followed by meditation, by the analysis of these actions, which was undergone with the help of a mediator (trainer).

In this context, Mooi (2010) aimed to find out the perceptions of teacher educators and pre-service teachers towards the effectiveness of teacher training programme and examined their views on what extent to which the teacher training curriculum could prepare teachers towards innovative thinking and global perspectives. The findings have raised the implication that the current teacher training programme for pre-service teachers is not meeting the aspired objectives. The curriculum seems to have little emphasis on globalisation, less flexible and less relevant to current changes and developments. These shortcomings may stand as obstacles in the policy makers’ dreams of establishing quality education through teacher training programmes.

We exemplify other efficient strategies for the practical achievement of psychosocial competencies: video-training, verbalization, the interview, the conceptual and methodological instruments included in the two guides, reflexive practice, meta-cognition, reflexive diaries.

The lower levels obtained by the participants during the final evaluation regarding the development of their meta-cognitive capacities are corresponding to some similar studies which draw attention upon the difficulties encountered by beginning teachers regarding: the awareness of psychological mechanisms involved in learning – professional development, the analysis of educational practice, for its training, its monitoring capacity, of controlling the mechanisms of information processing.

In order to clarify the value of these results within the context of initial and continue training of teachers, it's necessary to develop the present study, such as repetitive investigation, raising the importance of pedagogical practice within the initial training programme of teachers, the systematic practicing of the three components of the reflexive practice: reflecting upon the practice and its analyse; transferring the learning experiences from future actions and returning to lived experiences; developing the own model of educational practice (Lafortune, 2010, 70).

Reflection on practice is suggested as a tool for beginning teachers in developing and recognizing consonance between their own individual practices and those of successful practitioners (Calderhead, 1989; Schön, 1983).

In what follows we briefly present the difficulties we have met during the training programme: (1) The lack of receptivity on the part of some of the beginning teachers regarding the necessity of professional development; (2) Some of the teachers' deficiencies in terms of efficient learning and self-development techniques; (3) The inconsistency manifested by some of the participants regarding the engagement in and achievement of the assumed tasks in the training programme; (4) The lack of sincerity and the duplicity tendency manifested by some beginning teachers in the completion of some questionnaires and interview guides; (5) The limits of the evaluation test concerning the cognitive and meta-cognitive competencies, referring to the fact that the "enactment" of the participants is, actually, a fictional one, applied and realized in another context but that of the class. With this purpose, we need to correlate the obtained results with those that can be gathered through the direct observation of the activities rolled on by the beginning teachers in the frame of the real class, school, and community.

With all these limits, we can identify important elements of novelty and originality of the proposed model, which can be summarized as follows: innovative, integrative character, operational character, normative character, complex and formative character.

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