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**THE IMPORTANCE OF MASTERING PEDAGOGY
KNOWLEDGE IN INITIAL TEACHER TRAINING**

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Abstract

In the context of this article we present some experiential learning paths that we have done in our department. We organized several workshops with different themes, attended by students from the Preschool and Primary Education specialization. Workshops were held under the paradigm of project based learning and were focused just on practical topics from the kindergarten and primary school curriculum: exercises on communication, intercultural education methods, how we calculate the age of a tree (without cutting it), team building games, vocal improvisation, techniques of drawing, creative writing exercises and exercises for personal development. The workshops were focused on student learning goals and achievement of professional and transversal competencies (critical thinking, problem solving, collaboration, and self-management). The projects proposed for students, future teachers, were authentic, detached from the world of school. Participants received clear tasks and appropriate tools of work. The projects had an impact on students because they presented situations of personal and professional interest. Students' voice and decisions were listened during the workshops. Students who are preparing to become teachers for preschool and young school children reflected on their learning, on the obstacles encountered and how they could be overcome. The article tries to demonstrate that by mastering knowledge of pedagogy the teachers acquire their professional identity. By purchasing pedagogical knowledge during the initial training, teachers are transformed into genuine intellectuals. Thus, teachers can launch interdisciplinary researches which will legitimize and will validate the future educational practices.

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1. Introduction

All attempts to reform the education system will fail unless envisages training key actors of this system: the teachers. How they are recruited, selected, guided during initial training and at the onset of



their career, depends the quality of teaching. Teachers are the driving force of the changes that may influence the quality of education. The personality type of the teacher, the pedagogical conception and the didactic competencies of the teacher are the trinomial that can provide a pertinent answer to the problems of teaching. What underlies the teacher's profession and ensure the meaning and its significance is the knowledge of pedagogy. There are several ways in which teachers acquire their knowledge of pedagogy.

By that teachers have the strong knowledge in pedagogy, them ensuring their professional identity. The impression that anyone can make education is false. Each specialist assumes his field of skills. So the teacher, whatever is the subject to be taught, he must ensure the pedagogical foundation of the teaching profession. By purchasing thorough pedagogical knowledge during the initial training, teachers become genuine intellectuals. Thus, the teachers can launch later in the disciplinary or interdisciplinary researches, which will legitimize and validate their educational practices.

2. The Need for Pedagogical Knowledge in the Teaching Profession

Mastering the knowledge of pedagogy is the ideal training for future teachers. There are discrepancies between what a teacher knows and what he does in the classroom. This discrepancy has a major influence on how students learn. When I refer to pedagogical knowledge needed by a teacher in the classroom, I consider that special combination between content expertise and pedagogical theory. This combination represents a particular form of understanding the matter of taught. For teaching any content (philological, mathematical, biological, artistic, etc.) there is necessary a deeply rooted knowledge of pedagogy in a teacher's personality. The teaching includes both pedagogical theory taught during initial training, as well the experience accumulated in daily teaching activities.

Mastering the knowledge of pedagogy illustrates how the teacher transforms the subject of a scholar discipline in an accessible form of communication with students. To teach content, teachers must understand the subject deeply and flexible. Only in this way will help students to create their own semantic map, to move from one idea to another or to link a topic with another. These are the constituent elements of pedagogical content knowledge (PCK) or "craft knowledge" (Shulman, 1987; Harr, 2015).

To understand this approach, is required a brief overview of the concept of knowledge. The notion of knowledge is part of a conceptual hierarchy. Underlying this hierarchy is the notion of data, followed by the notion of information. On the third level of the hierarchy is the notion of knowledge, and above it is the notion of wisdom. This hierarchy or pyramid of knowledge is known by the acronym DIKW – "Data, Information, Knowledge & Wisdom" (Ackoff, 1989; Sharma, 2005; Baškarada & Koronios, 2013). The data are digit, numbers, symbols, observations, measurable facts. Out of context, the data have no meaning, but when they can be brought together, make sense and become information. Hence the expressions: databases, data stream, combinations of data, data transmission etc. If the data is useful to a person they become information, namely, information involves understanding the relationships between data. Information is processed data and provides answers to factual questions: "who", "what", "where" and "when". Information refers to descriptions, classifications, definitions and perspectives.

The knowledge are over the information in this pyramid. The information becomes knowledge, when the one that uses is able to understand the relationships that exist inside the information and between information, so it can be used immediately or in the future. Knowledge is information

internalized, processed personally by each person. The knowledge include approaches, strategies, practices, procedures or methods ("how"), absolutely individual. Proper collection of information is a process of cognition. The cognition is a relationship between subject and object in which are assimilated and reconstructed the information from the environment, in a personal mode. When someone memorizes information (especially when memorization is mechanical) it is said that the person has accumulated knowledge. Decoding the new information means understanding, acquiring knowledge with meaning that enables man to adapt to reality. When a person memorizes logic, learning occurs, that makes the transition from accumulation of knowledge to understanding. Process of understanding is one side of the thinking and consists of a synthesis of information and the knowledge, which leads to the development of useful actions. To the top of knowledge pyramid is wisdom, an extensive process that appeals to all previous levels. Wisdom requires the ability to choose between good and bad, between truth and false, and answer to the questions of opinion, investigation, confirmation, decision and justification etc.

3. The Context of Assimilating Knowledge of Pedagogy

The pyramid of knowledge helps us to understand how learning occurs, how to get the ideas and knowledge about the surrounding world, how to make the connections between them, how creative thinking can be stimulated, and how new ideas occur. Respecting the pyramid of knowledge we understand each other, we can communicate and we can make plans. Given the requirements and the relationships between components of the knowledge pyramid, teachers build the lessons and courses they teach students.

Learning is a human activity systematically carried out, in a socially organized framework, in order to assimilate information. Learning activity includes the development of assemblies and operations skills and capacities for understanding, interpretation and explanation of the phenomena of nature and society. The knowledge and skills are "the fund or the treasure of experience - theoretical and practical -, thanks to which a person can balance, optimum and efficient, the crowd of situations and external requests. Therefore, learning can be defined as the process of acquiring new experiences". (Nuthall, 1999; Huitt & Hummel, 2003; Golu, 2007)

To get to the mastery of knowledge, the psychologists recognize at least three forms of processing information: inductive processing, deductive processing and analogue processing. (Golu, 2007) In the process of knowledge acquisition, these three forms of information processing acts differently from individual to individual, at level of elaborating and operation.

Also, there are three levels of information processing: "the superficial level (physical appearance of the stimulus, for example, the word is capitalized; who or how many letters in a word are bold etc.); the phonological level (given word rhymes with ...); the semantic level (which is the content of the word; it resembles another word; it is pleasant or unpleasant etc.)". (Zlate, 2006) The recognition of verbal stimuli is made easier if they are part of a context: a letter in a word, a word in a sentence, etc. Most complex stimuli are redundant. We understand approximately 50% of a conversation, not because we recognition the linguistic stimuli, but because of our semantic and syntactic knowledge. The more processing takes place at a profound level, the information will be memorized much better and for a longer time.

Forms and levels of the processing information act integrated, with specific features for each individual. In initial teacher training are involved different forms and levels of information processing, so that they, in turn, can teach their students how to learn. There are several ways by which people acquire knowledge. The most effective way to master knowledge in any field, but especially in education is experiential learning (Kolb, 1984). This form of learning stimulates several ways by which the knowledge are stored, activated, experimented and expressed.

As trainers of teachers, we are always concerned about how our students acquire and process new information. It is important how teachers communicate information, but more important is how students process this information, so that they make sense for themselves. There is a whole literature on this topic, focusing on more psychological theories and training theories, in particular cognitivism and constructivism. The universal literature of speciality has consecrated name as: Egan, K. (1992); Brandt, R. 1998; Brooks & Brooks (1999); Berman, S. (2001); Sousa, D. (2005); Hattie, J. (2014); Merzano, R. (2015), so as we refer only to the past 20 years. Also, in pedagogical literature from Romania were consecrated personalities, who analyzed and implemented the cognitive and constructivist theories on learning, at different ages: Neacșu, I. (1999); Negreț-Dobridor, I. (2001); Jinga, I. & Negreț, I. (1999); Joița, E. (2006, 2008).

The common point of these studies and experiments focus on active involvement of students in processing new information. The process of teaching and learning means the triad: knowledge - teacher - student (Houssaye, 1988). On this route, the teacher is between knowledge and students, and the teacher has the role of mediator, facilitator of learning. The students can reach the significance of information received only on the basis of the teacher's interactions, with the new contents or with other students.

In addition to the levels and forms learning mentioned above, researchers present a variety of types of learning. Also, learning is conditioned by many factors, internal and external, which influences the information processed by each student. In this framework we can include the researches of the cognitive psychologists on the role of "inputs determinant for learning" (Marzano, 2015), namely those experiences where students learn new concepts. Inputs have different impacts from one student to another. Inputs are different depending on the school subjects, especially the personality of the teacher, who teaches this discipline! Often adults report that they performed to a school subject or opted for a professional career because of a teacher who instilled their the passion for that field.

The learning experiences in the natural sciences and in the social sciences leave different "traces" in the pupils mentality based on their previous experiences and according to their learning style (genetic or cognitive). The information presented to the student can be structured differently and this belongs to the teacher's personality, of the motivation and creativity, of its level of expertise and the knowledge of pedagogy that has it. It is important for teachers to emphasize with those types of training that boost the students learning. It is important for teachers to emphasize those types of training that boost the students learning. It is estimated (Nuthall, 1999; Marzano, 2015) that the most effective types of training to assimilate new information are: verbal instruction, visual instruction and dramatized instruction. The latter, basically, incorporates the first two.

This is a model of training which, by school stories (read curriculum), students are drawn into the narrative space in which learning is natural, pleasant and efficient, alike. Stories offer an efficient structure to organize and store into the memory the information held in the curriculum. These have an easy accessible structure, containing a diversity of information and allowing connexions with personal

experiences. The stories have a great quality, being accepted at any age. Teaching at any level, from kindergarten to university level, knowing to relate a story to a child/youngster, is the "royal pathway" to determine him to learn something.

At these forms of training can be added the instruction based on non-linguistic representations or the combination between linguistic and non-linguistic representations: graphic representations (cognitive organizers - expository, narrative, etc.; illustrated diagrams - Ishikawa, Venn, tree, etc.), manufacturing of models, generating mental images, designs, pictograph, and kinaesthetic representations of some content. (Marzano, 2015)

A teacher secures the respect to his students, as far as he masters the pedagogical content that they teach. Acquiring knowledge of general pedagogy (fundamentals of pedagogy, curriculum theory, the theory training, evaluation theory, concepts of pedagogical research), as well as acquiring the fundamentals of didactics of each curriculum specialties from preschool and primary is the start of initial teacher. The knowledge of pedagogy are found in the mandatory fundamental disciplines and occupies over 20% of the total hours of study at the Pedagogical Primary and Preschool Education speciality. The knowledge of applied pedagogy or the didactics are studied in years 2 and 3 and occupies almost 30% of the curriculum.

4. Workshops of Optimizing Pedagogical Content and Knowledge

We are always concerned to find ways that would stimulate our students to learn to become good teachers. Teamwork, friendships, sharing experience, the desire to share with each other what you know or what you know to do the best represent the determinants of learning inputs.

Thus, we initiated in our department the student workshops, which conducted under a learning project (Dewey, 1972). In the frame of workshops the students learn new knowledge or real skills. Workshops are provocative, ad hoc teaching materials are made from inexpensive materials, recyclable and the products are presented at the end of each workshop, to the whole group. The inductive processing takes place every moment, taking into account the specifics of the specialization: teachers for preschool and primary education. The workshops are meant for direct contact with the trainer and other students. Each workshop was designed so that at the end of 90 minutes, each participant to leave with a product made on his own.

Let me illustrate some of this workshops. The scientific content of each workshop covers fundamental knowledge of pedagogy and didactic concepts of different disciplines. Participation in each workshop is followed by enlarging the perspective of students with new concepts, formation of connections between concepts or between theory and practice, as well as new skills and attitudes. In the following paragraphs are summarized the workshops' contents in relation to the experiential areas of preschool or primary education curriculum.

4.1. Experiential Field/ Language and Communication Curriculum Area

Workshop: *Language and Communication - Practical Experiences*, aroused the interest of the participants through the attractive games, dynamic and interactive, through the games of knowledge and cooperation, and the games for removing the psychological barriers in communication. For example, for a

game of self-presentation or rapid execution of entertaining tasks, of praise or interviewing, a clew of thread was used. The students were provoked, in the context of children's literature, to make more teamwork tasks. The students extracted the tickets with short texts from different fairy tales or tales known from the literature for children. The tasks were: the identification of the negative character from the given text; finding arguments for the character is a model to be followed; indicating the instructive-educative value of the literature art from which the presented fragment belongs. Each team has produced a poster. By presenting open posters and by reasoned answers of the colleagues' questions, the students demonstrate the creativity and communication skills in the group. The workshop ended with the fun tongue twisters, in pair, and the joy of reaching interpretative performances in speech.

4.2. Experiential Field / Man and Society Curriculum Area

Workshop: *The ethical Teacher, the Teacher that does not discriminate*, offered an interdisciplinary approach to specific issues of intercultural education and teaching of ethics and deontology. The workshop was conducted in a playful, analytical and creative manner. Analysis and deconstruction of stereotypes and prejudices revealed specific skills in intercultural education. The students participating talked in pairs and in small groups to clarify the concepts of the intercultural education and intercultural competence. Practical approach was based on viewing a few sequences documentary-film, in which intercultural education in Italy was presented. Here were derived and developed different ways of the intercultural training skills at little aged students. The particularly moment of this workshop was the presence, among the participating students, of an Italian student, during an Erasmus mobility at our university. Examples as "live", offered by this student, of native country, represented the learning inputs for the working group.

4.3. Experiential Field / Mathematics and Natural Sciences Curriculum Area

Workshop: *Integrated Approaches of the Sciences* was aimed at raising awareness of climate change and the role of forests in our lives. The workshop was structured on two parts: one theoretical and the other applied. The theoretical part of the workshop offered to the participants useful information about the forest and its functions in the context of climate change. The scientific and methodically discourse helped the group of students to be familiar with the new concepts, and created cognitive anchors through visual suggestive images. Switching at the applicative part achieved through a dramatization performed by students in the 3rd grade, they represented a short dramatization with the parts of a tree and related functions, using elements of theatrical pedagogy. They have prepared a very suggestive and extremely creative decor, anticipating elements of the workshop applied. Based on the story told by the narrator, in the dramatic group were approached in an interdisciplinary manner, various issues of STEM education (Science, Technology, Engineering and Mathematics). The actual applications made by each participant at the workshop were: achieving a "lung" of cheap or recyclable materials (plastic bottles, balloons, straws) to highlight our pulmonary capacity; calculating / estimating the age of a tree in two ways: by section and by its natural state; calculating / estimating the height of a tree, when sunny, using its shadow, and when is not sunny. The wood material from forest provides teachers a resource highly diversified for making teaching materials. At the end of the workshop the students were invited to create out of recyclable materials

"musical instruments" (tambourine, flute, castanets, xylophone, drums). This rational and pragmatic set opened new perspectives to understand and to explain the little ones the scientific phenomena, physical, biological, and other ways to use correctly mathematical concepts.

4.4. Experiential Field / Art. Physical Education, Sport and Health Curriculum Area

Another workshop that has gathered much interest from the students was the arts education workshop. Colour is one that "tells" how we are and how we can become. Emotions and feelings can be expressed through colour and can, if necessary, be corrected by the colour. Thus, concrete teaching practices have a crucial role in learning strategies. There are teachers who enter the classroom and teach theories about working methods. Too little teachers agree to teach pupils / students working techniques, to work, in their turn, with children during classes. In the workshop of fine arts, students created works of figurative art objects derived from real sources, and non-figurative works using a colour that would define them. The works made in pastel on white paper with textured surface were offered to students after the vernissage of the works. This step consists of spraying a fixative to protect the colour. Students have realized landscapes, still nature, abstract compositions. In this workshop the students have overcome the discomfort to draw, to paint, to interpret, to combine colours.

In the same context of training and awareness for the artistic workshop also took place a musical workshop. The participating students have learned to make rhythmic-melodic improvisations. The musical games proposed had the aim to valorize the creative-improviser instinct of children, by composing the polyphonic and monophonic music. This can be done by certain methodical processes that respect the basic principles of creation: replay, variation, dynamic and contrast. These principles are manifested strongly and clearly in the children folklore. The message sent through this workshop to the future teachers is that children's song must be easy to learn, and then possibly, recreated by them. The participants at this workshop learned that a children's song starts with a simple text, then overlap the rhythm, and finally the melody. The dissemination of the workshop's activity was done by showcasing the musical-methodise products in front of all participants at the time of summarizing the day, and was very successful.

Game and movement are two essential concepts in activities with preschool and primary school children. The experiential pedagogy workshop combined the two concepts through activities for personal development of children/students. By these games of move was realized a beneficial working atmosphere in classroom / group of students: developing self-confidence and confidence in others, the ability of communication and cooperation etc. Games like: "The Shipwreck" (game of cooperation and communication); "The Tunnel" (game of attention, concentration and confidence-building) or "The Blind Snake" (game of development and sense of responsibility) are focused on finding solutions to fictions problems (of the group / of the community membership). Applying these games it is offered the opportunity to choose the best solution in solving a problem, especially to negotiate the best way for its implementation. The stages of the workshop included: actual gaming experience; reflections on own experiences and facilitating the exchange of views.

These workshops will diversify in the future to cover all subjects in the preschool and primary curriculum. Their role is to complement the pedagogical practice hours and facilitate the transfer of

theoretical knowledge in the practical experiences. The strategies used supported the pedagogical content knowledge and provides learning opportunities.

5. Conclusions

Specialized studies show that pedagogical content knowledge has a greater impact on student achievement than specialist knowledge. Also, only improving the pedagogical content knowledge seems to have an impact on the quality of teaching. Teachers' pedagogical knowledge represents only a basic component of teacher professionalism. The pedagogical knowledge base must be constantly upgraded and adapted to the demands of the 21st century. The content of the workshops presented in this article are evidence of this concern to find new ways of diversifying the training of future teachers. Any subject of the curriculum must be viewed from several perspectives, through the eyes of new generations of children.

References

- Ackoff, R. (1989). From Data to Wisdom, *Journal of Applied Systems Analysis*, 16, 3-9.
- Başkarada, S., & Koronios A. (2013). Data, Information, Knowledge, Wisdom (DIKW): A Semiotic Theoretical and Empirical Exploration of the Hierarchy and its Quality Dimension. In *Australasian Journal of Information Systems*, 18 (1), 5-24.
- Berman, S. (2001). Thinking in Context: Teaching for Open-Mindedness and Critical Understanding. In A.L. Costa (Ed.), *Developing Minds: A resource book for teaching thinking* (pp. 11-17). Alexandria, VA: Association for Supervision and Curriculum Development.
- Brandt, R. (1998). *Powerfull learning*. Alexandria, VA: Association for Supervision and Curriculum Development
- Brooks, J.G., & Brooks, M.G. (1999). *In search of understanding: The case for the constructivist in classroom*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Dewey, J., (1972). *Democrație și educație*. București: Editura Didactică și Pedagogică.
- Egan, K. (1992). *Imagination in Teaching and Learning: The Middle School Years*. Chicago: University of Chicago.
- Egan, K. (2007). *Predarea ca o poveste*. București: Didactica Publishing House.
- Golu, M. (2007). *Fundamentele psihologiei*, vol. I, București: Editura România de Măine.
- Harr, N., Eichler, A., Renkl, A. (2015). Integrated learning: ways of fostering the applicability of teachers' pedagogical and psychological knowledge. *Front. Psychol.* 6:738. doi: 10.3389/fpsyg.2015.00738
- Hattie, J. (2014). *Învățarea vizibilă. Ghid pentru profesori*. București: Editura Trei.
- Houssaye, J. (1988). *Le triangle pédagogique. Théorie et pratiques de l'éducation scolaire*. Berna: Lang.
- Jinga, I., & Negreț, I. (1999). *Învățarea eficientă*. București: Editura Aldin.
- Joița, E. (2006). *Înstruirea constructivistă - o alternativă. Fundamente. Strategii*. București: Editura Aramis.
- Joița, E. (2008). *A deveni profesor constructivist*. București: Editura Didactică și Pedagogică
- Kolb, D. (1984). *Experiential Learning as the Science of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.
- Merzano, R. (2015). *Arta și știința predării*. București: Editura Trei.
- Neacșu, I. (1999). *Înstruire și învățare. Teorii, modele, strategii*. București: Editura Didactică și Pedagogică.
- Negreț-Dobridor, I. (2001). *Accelerarea psihogenezei. Puterea educației asupra naturii umane*. București: Editura Aramis.

- Nuthall, G. (1999). The Way Students Learn: Acquiring Knowledge from an Integrated Science and Social Studies Unit. *The Elementary School Journal*, 99 (4), 303-341
- Sharma, N. (2008). The Origin of the "Data Information Knowledge Wisdom" Hierarchy, Retrieved from http://www-personal.si.umich.edu/~nsharma/dikw_origin.htm.
- Shulman, L.S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15 (2), 4-14.
- Sousa, D. (2005). *How the Brain Learns*. New York: Corwin Press.
- Zlate, M. (2006). *Psihologia mecanismelor cognitive*, București: Editura Polirom.