

## RESEARCHES REGARDING THE LEARNING DIFFICULTIES OF FIRST YEAR STUDENTS AT AGRONOMY. METACOGNITIVE COMPETENCE DEVELOPMENT

M. STANCIU<sup>1</sup>,  
Carmen-Olguta BREZULEANU<sup>1</sup>,  
Roxana MIHALACHE<sup>1</sup>, Elena PETREA<sup>1</sup>,  
E. BOGHITA<sup>1</sup>, Carmen MIHALACHE<sup>1</sup>

<sup>1</sup>University of Agricultural Sciences and Veterinary  
Medicine of Iași,  
e-mail: stanciuped@yahoo.fr

*The logic competences have invaded the educational field for almost two decades and it has been part of the critical movement of the conception where the education/ formation aim of transmitting the knowledge (J.-P. Bronckart & J. Dolz, 2002, In Dolz J., Ollagnier E., Éd.). The definition of the competences can also be realized in a metaphorical manner (transfer of knowledge or stimulation of the subject's resources at a given time) (Perrenoud Ph., 2002, In Dolz J., Ollagnier E., Éd.). The metaphor of mobilization emphasizes the subject's activity, which involves an assembly of complex mental operations, connected to some situations, rather transforming the knowledge, and it suggests a coordination of the multiple and heterogeneous subjects' resources, a continuous recombination of these resources (ib).*

*Our researches join the project approved by the National Centre of Programme Management 2008-2010 (Programme 4- Partnership in foreground domains, no. 92106). We appreciate that the educational work has to count on the profound knowledge of causes, conditions and favouring factors and especially of those that prevent the improving of university education quality. If we agree with the principle of centring the teaching – education process on the student, then the deciphering the individual mechanisms of the complex process of learning represents the basis of all researches of modernizing the teaching-learning process. Due to the instruments of psycho-pedagogical investigation, through qualitative and quantitative analyses, we will be able to offer the students, the teaching and leading staff that expertise that could lead to the improvement of education quality. Also, the students will gain abilities of different techniques of intellectual work, which are so useful during the university years, as well as to their preparing for the long term learning.*

**Key words:** competences, meta-cognition, learning, students, quality.

The postpiagetian era was especially characterized by cognitive psychology researches. Learning from cognitive perspective has some **features** [apud 6]:

- a) Awareness of the mental processes carried out by experts in solving a problem;
- b) the metacognition (by students and teachers);
- c) stack business expert and the novice in solving the problem;
- d) privileged learning group.

In a relatively recent paper [1] it is stressed that no other theoretical perspective has proposed many new concepts and has not caused so many new reflections as cognitive psychology did. Among the concepts of this guidance they remember the most important calculation, symbols and intelligent; cognitive architecture; conceptual map (Concept Mapping); metacognition.

The experimental research is part of a partnership project (in collaboration with “Stefan cel Mare” University from Suceava and University from Bacau) (PNII 2008-2010, nr. contract 92106, USAMV Iasi being coordinator).

## **MATERIAL AND METHOD**

### **I. Metacognition concept**

The term has been introduced relatively recently (1976) in the language of socio-human disciplines by J.H. Flavell. He defined metacognition as “the ability to understand and monitor one’s own thoughts and the assumptions and implications of one’s activities (1987). Brown (1987, 1978) described metacognition as the degree to which learners are engaged in thinking about themselves, the nature of learning tasks, and the social contexts. She also described metacognition as being comprised of activities for regulating and monitoring human learning.

Metacognition is considering as establishing “the process of adjustment, having a matter of human on its own cognitive activities, which means practically not only to know, to take note of the ongoing process (= act of conscience), but also to assess, the factorize behaviour depending on designed goal.[8:23]

Metacognition has in regard to our knowledge of its (meta-knowledge), on the one hand, and processes and strategies for the settlement of cognition, on the other hand [4:492]. Metacognition is trying to grasp the functioning of cognitive structures of individual [apud Cerghit, pp.219-220].

### **II. Development of metacognitive competences**

The metacognitive mechanisms are beginning to develop to children very early, gradually appears “a social function of mediation: in other words, they become their own mediator. He adjusts mentality, with it, the way, between intensity environment and its own reactions. With time and he learns how to monitor and review mechanisms of mental practice that bears the name of metacognitive process.”[Schwebel, and Cerghit, *op. cit.*, pp. 221-222].

Developing these capacities relates to the emergence of new types of *emotional reactions* (Kagan, 1984). The researches conducted by Fincham, Hokoda, Sanders (1989) showed that “the feeling of helplessness acquired (*learned helplessness*) do not manifest themselves in behavior than by primary studies, at the time the cognitive faculties of child development allows a conscience of its relatively stable itself.”

Developing themetacognitive skills represents an important objective in the learning process, which aims to teach the student **how to learn**. "The metacognitive strategies do not appear spontaneously. " At first they must have a manifesto character, to be presented by the teacher and then gradually will be appropriated by the students. [I. Radu, *op. cit*, p. 55].

This metacognitive effort should be submitted not only by students but also by teachers. On various occasions of lifelong learning, teachers can achieve work metacognitive linked to the modernization process of teaching-learning.

III. **Experimental procedure** The hypothesis of the project is: if the students gain the learning techniques, then the results of the learning process will be a response to the postmodern society challenges. The university should offer to the students differentiated tasks according to their individual needs.

*General and specific objectives of the project:*

- a) the students' awareness towards the learning psychological mechanisms
- b) the students' enabling with the efficient learning techniques
- c) dissemination and generalization of the acquired experience

Our experimental research went to the implementation of a metacognitive questionnaire at the end first semester of 2008-2009 university year to a lot of 117 for students of the 1<sup>st</sup> year students that attend DPPD courses. Here is the summary of only a few results to emerge from this approach were experimental. The vast majority of students come from urban areas (60.6%) and female (70%).

## RESULTS AND DISCUSSIONS

Research of university pedagogy showed that each student builds his own conception about learning to universities [Philippe, Romainville et Bertrand Willocq, 1997.p.310 ]. Therefore, we are preoccupied by the rapid integration and efficiency of students in the 1<sup>st</sup> year students.

Older research [Stanciu M., Ignat A-A., 2006] and new ones have highlighted what are the difficulties they encounter in the process of efficient learning. First, (*tab. 1.*) there are :lack of efficient learning habitudes, lack of learning motivation. We consider significant that students have shoun as top three difficulties the inadequate style of teachers' teaching.

Also, they were asked to auto-evaluate the degree of development of learning capacities (*tab. 2*). The biggest difficulties they encounter in developing and supporting a project individually, scientific communications, and to develop a plan of learning. The development of all these capacities will have to represent coordinates of a modern education, with large training issues.

Table 1

**Difficulties of the learning process**

	Faculty of Agriculture		Faculty of Horticulture		Faculty of Animal Husbandry		Faculty of Veterinary Medicine	
a) lack of learning motivation	38,3 %	47,9 %	10,9 %	1,3 %	25 %	33,3 %	27,7 %	31,6 %
b) low equipment;							5,5 %	5 %
c) lack of learning habits;							18 %	35 %
d) financial difficulties ;	6,8 %	64,3 %	30,1 %	2,7 %	16,6 %	58,3 %	6,9 %	3,3 %
e) inadequate style of teaching;							26,3 %	21,6 %
f) other causes							15,2 %	3,3 %
								26 %

Table 2

**Development of learning capacities**

	Faculty of Agriculture				Faculty of Horticulture				Faculty of Animal Husbandry				Faculty of Veterinary Medicine			
	FB	B	S	I	FB	B	S	I	FB	B	S	I	FB	B	S	I
a) systematic notes at courses	31,5 %	57,5 %	10,9 %	1,3 %	33,3 %	41,6 %	12 %	16,6 %	10 %	70 %	10 %	10 %	9 %	63,6 %	22,7 %	4,5 %
b) planning and presenting an individual project	1,3 %	43,8 %	13,6 %	13,6 %	-	41,6 %	33,3 %	25 %	10 %	30 %	20 %	40 %	4,5 %	31,8 %	50 %	13,6 %
c) planning and presenting a group project	15 %	49,3 %	15 %	4,1 %	12 %	58,3 %	33,3 %	-	-	40 %	50 %	10 %	22,7 %	59 %	13,6 %	4,5 %
d) planning a learning system	28,7 %	58,9 %	12,3 %	-	25 %	33,3 %	41,6 %	-	20 %	30 %	40 %	10 %	22,7 %	59 %	4,5 %	13,6 %
e) following a learning system	19,1 %	60,2 %	19,1 %	1,3 %	12 %	50 %	41,6 %	-	10 %	40 %	40 %	10 %	-	68,1 %	27,2 %	4,5 %
f) assessing a learning system																
g) material structure	34,2 %	49,3 %	17,8 %	-	41,6 %	25 %	33,3 %	-	-	80 %	20 %	-	36,3 %	54,5 %	9 %	-

## CONCLUSIONS

a) University professors must be empowered with the modern teaching approaches in view of the higher value on the powers of oneself in the 21st century.

b) organization with students of "learning workshop" to improve their techniques of efficient learning.

c) Dissemination and generalization of the acquired experience:

- organization of a workshop for the students and teaching staff;
- organization of a symposium on the university pedagogy issue *The focus of the educational process on the students' needs and interests. Modernization directions of the teaching –learning –evaluation process within higher education*;
- elaboration and the publication of a guide about efficient learning;
- setting up a Regional Center of Pedagogical Pedagogy (RCUP) for the north-east developing region.

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