The 8th International Scientific Conference
eLearning and software for Education
Bucharest, April 26-27, 2012
10.5682/2066-026X-12-040

SCHOOL AND ACADEMIC LEARNING – NEW CONTROVERSIES, NEW HYPOTHESES, NEW RESEARCH DATA

Ioan NEACŞU
University of Bucharest, Faculty of Psychology and Sciences of Education
E-mail: neacsuioan2008@yahoo.com

Section: *Pedagogy and psycho pedagogy in new learning environments*

***Abstract**: The interest towards the quality of school and academic learning in the new formal and informal education environments has significantly increased, as well as that towards applying the modern research data from the psychology of education, education sciences, neuro epistemology etc. Such issues can consistently be found on the agenda of international organizations and of the decision factors responsible for the sustainable future of the new generations of pupils and young people. The introduction of the **forming of the learning competency, of efficient self management at EU level** paradigm cannot disregard curricular values, the use of interdisciplinary and cross curricular strategies approaches in education institutions. Hence, the need for examining the current context, the stage reached in the reference domain or by certain prestigious scientific research, whose impact is either direct, or indirect on the understanding, valorisation and optimization of pupils' and/or students' learning. The arguments invoked are connected with the nature of challenges waiting for answers, with the quality of certain working hypotheses or with the ecological validity of empirical research results.*

***Key words**: learning, strategy, neuro epistemology, self management in learning*

I. CONTEXT

The idea children, youths and adults learn in a wide variety of ways, using a large array of (learning) styles, is unanimously accepted. It is, nevertheless, difficult to penetrate the intimate mechanisms of learning, to understand the relationships between effort, motivation and success, to get a correct perception on the connexions between the strategies, methods and techniques used by a subject who studies and the values s/he attaches to personal success. Furthermore it is so when the above is studied in relation to a certain subject, a group of academic subjects or curricular areas.

Related to these issues is the open, systematic exploration on "how instruction, or, more specifically, teaching can be projected, organized and made in view of efficient, proficient, high-quality learning."

It is fundamentally admitted that there is no common consent with regard to learning and teaching, especially when the breach between educational theory/theories and practice is concerned.

I.L. Goldstein [1], an expert in the field, stated: "there is a huge gap between the theories of learning and what is truly necessary to enrich performance". And this is because we accept, without significant reticence, that learning (studying) at school- and university-age is increasingly becoming more complex and cannot be studied by mere observation or by descriptions of the learning person about their experiences. This explains the recourse to theories, models, schemata or even scenarios which streamlines reality in order to understand, control, and optimize the mechanisms and processes, even sometimes re-evaluate preconceptions, fixed experiences that have already become benchmarks in the learning behaviours.

Albert Einstein was right to say: " It is easier to disintegrate an atom than a preconception".

II. LEARNING – A POLYSEMANTIC CONCEPT IN THE EDUCATIONAL THEORIES

This approach does not rely especially on the great variety of definitions, but mainly on the heterogeneity of the present-day problems the learning poses on the educational staff and on fields such as educational psychology.

In total agreement with one of the French specialists, M. Crahay [3], among the practical problems related to the practice are recognized:

a) reading/ reading competence (decoding, understanding, commentaries, hermeneutics a.s.o.);
b) composition and text production;
c) manipulation of symbols, problem-solving, problem setting/finding, etc;
d) learning foreign languages;
e) oral communication;
f) IT learning;
g) applying learning to various scientific, inter- and cross-curricular contents, a.s.o..

The above statements lead to three conclusions and, at the same time, practical consequences in the process of formation of the understanding competence:

- the emergence of a psychology of school and academic learning;
- the emergence of creative discourse specific for the academic subjects;
- the need for relevant answers which can be applied in the missions promoted by the European Association for the Research of Learning and Instruction, as well as by the Association of The Education Researchers, in the USA.

The values of the features of the subjects involved in creating and assessing learning should also be added.

We are taking into consideration those aspects that further the processes of school and academic learning on the level of personality.

(i) The method(s) recommended by the teacher to be used as explicit reference for the learning behaviour. The method is actually a plan, an actional credible, alternative model, a blueprint rich in creative algorithms [6]. The method is the tool that places the learner in an environment, in a context or state, which allows us to talk about "the effect of the context of learning" [7]. On such a level of the analysis, specialists speak about a specific encoding [8], a contextualization acting as a variable acting in the methodological processes/mechanisms of retrieval, integration and explanation of information processing in learning.

(ii) The strategy(strategies) for gratification (reinforcement) used by the teacher, following the assessment of the outcomes of learning. A component of the instructional environment, the strategy is geared towards rewarding succesful the actions, optimizing the efforts, the time and the motivation accompanying the events that took place.

(iii) The value of use and transfer of knowledge, abilities and values, which correlate with the relationships between behaviour, success and the intensiv, developing effect of effective knowledge.

(iv) The model and modelling used by the teacher in order to optimize the process of developing the competence for school/academic learning. The options the teacher, as well as the learner make, ensure the optimization of the learning direction by a likely scenario of the sustainable, positive evolution/development in a number of learning forms, through action, experiment, research-exploration, trial and error, that are generally typical for academic learning.

The teachers' mental models are, by no means, identical. There are significant differences between expert and novice teachers, as there are among the subjects taught: humanities, science, vocational.

III. FACTORS THAT IMPACT THE QUALITY OF LEARNING

The management experiences in the learning environment demonstrate the existence of a variety of patterns in the approach of the factors that accustom and influence the learning outcome/ success. Only the traditional approach, with its long-ranging history, the behavioural approach (after

1930), the structural approach (after 1950), the situational approach (after 1960), the integrative, holistic approach (after 1995), the alternative, management- and self-management – based approach (after 1990), along with the stylistic approach (after 2000) will be mentioned.

After integrating and unifying the data, a minimal list of categories is obtained [4]:

(1) the significant characteristics of the curriculum – for just one subject, inter-disciplinary, metadisciplinary, level of abstractization, applicability, usability, etc;

(2) the teacher's position and the value of the roles s/he assumes, especially the role of mediator for explicit knowledge, which implies the ability to process and simplify valuable experiences, to enable the learner's relationship with the competences, with the teaching staff, with the projects of (self-)development through learning;

(3) the learner's features – vocabulary, abilities, degree of maturity reached, experience, ability for self-management, organising and developing learning, etc;

(4) the specificity of learning – the way it takes place at present, at every age; the context and mechanisms (as processes), as formative tool (as product), a.s.o.;

(5) characteristics of the instructional environment seen in its formal, non-formal and informal settings, organized, controlled, directed and monitored to a higher or lower degree, etc;

(6) the quality of the mental processes involved in learning/studying: establishing connexions, ways of expressing and organizing one's thoughts, self-management, methods, tactics, self-questioning, extensions, analyses, comparisons, integration, a.s.o.;

(7) the quality of the outcome of learning (competences) – depth, stability, functional values, generalizability, transferability, a.s.o.;

IV. THE MAP OF "LEARN HOW TO LEARN" COMPETENCE

Besides the complex processes involved in any academic learning activity, the actions that occur as a result of the objectives associated or derived from the above-mentioned competence are equally important.

The following semantic values can be added to the above statements:

a) the building of standards, rules, guidelines, references, criteria and measurement units, used by the learner and/or assesor to evaluate the learning outcome and the level attained in the quality of knowledge, understanding and ability to use concepts, the methods and to properly communicate them;
b) the selection of the set of activities, actions, operations, processes, procedures, knowledge and abilities useful to explain and integrate the acquired information relevant for a particular domain;
c) the identification of the array of the characteristics typical for the psychological behaviour of the subjects involved in definite, typical and atypical problem- solving, which ensures the transfer and specific satisfaction to occur;
d) the creation of a model for the assessment of competences related to the standards of performance, of adequate fulfilment of accreditation, evaluation and limits of some processes and new situations;
e) the setting up of professional and personal projects which involve the use of creative, innovative methods and principles, specific for both individual and team work, as well as the professional development and the strategies for life-long training.

We associate theses and some other guidelines and criteria that allow for more subtile assessment of the "know how to learn" competence. Among these, the following should be noted:

- concentrating on "know-how" processes;
- focusing on those models which produce "added value" ;
- ensuring that the premises/conditions for assessing the positive risk are present, along with those that highlight the limits of certainty and of accepting a type of "micropedagogy" of the synergy of various fields (arts, social sciences, humanities, vocational).

To conclude, learning and the associated competence, the mastery of creative language, of the "learn how to learn" strategy become issues of the educational soft, the efficient use of resources so as to be available in the long run; they also represent a means of strategic management of school and academic life.

V. NEURO-EPISTEMOLOGY AND THE MECHANISMS OF LEARNING – CONNOTATIONS FOR SELF-MANAGEMENT

The model of high-quality, efficient learning relies also on answering some of the questions on the processes involved in the formation of competences [4].

The two questions tackled here are just: How does learning occur? What neuro-epistemological mechanisms are involved (in learning)? How do we take action? What would happen if we had a wider knowledge on these.

These questions are an integral part in the self-management of learning on both academic and school level.

The specialist literature emphasizes the following epistemological, educational and psychological areas of interest:

(1) how does the student's autonomy in learning become real?
(2) What is the contribution of neuronal mechanisms in the differentiation of the learning styles?
(3) What neuronal-mental changes occur due to digital literacy in the "Net generation"?
(4) What values in neurosciences determine, condition and influence the quality of learning?

In answer to the final question above the answer relies on arguments like:

- the quality of learning depends on the set of perceptions, on the quality of predispositions, expectations and interpretations the actors involved assigns to them;
- the use of heuristic similarity leads to variability in the quality of learning;
- the reference to the 10 per cent of our brain which are used, not to the brain potential draws our attention on the need to re-examine the role of the neuronal networks as resources for the increase of the processing and the ability to generate efficient learning;
- the optimal psychological performance in learning requires different and not the synchronized activity of the two cerebral hemispheres, which implies that the brain works in an integrative way, through compensation, through the resonance/reverberation of the potential of processing and memorization mechanisms, through the values of complementary styles, through the connexions that accelerate learning and metacognition;
- learning: by the optimal use of the neuroplasticity mechanisms, changes in the functional structure of neurons involved in the reception, storage of the connections between neurons, the quality of the links between neurotransmitters (reinforcement, forgetting), of the web of combinations between neurons in the mirror, generating reconstructions of multiple intelligence ;
- the cerebral areas involved in complex learning involve functional extensions of what is generally called "colonisation", useful in ensuring retrieval, but also of glial cells, the number of which is more than 10 times larger than that of neurons, having a supporting role.

References

[1] Goldstein, H. (1993). Use of peers as communication intervention agents. Teaching Exceptional Children, 25(2), 37-40
[2] Beamn, P., Wach, G. (1997). Sparking the Thinking of Student Ages 10-14. Strategies for Teachers. N.Y. Sage Publishing Company.
[3] Crahay, M. (2010). Psychologie des apprentissages scolaires. Bruxelles: De Boeck Université.
[4] Neacsu, I. (2010). Introducere in psihologia invatarii si a dezvoltarii. Iasi: Polirom.
[5] Neacsu, I. (2006). Invatarea academica independenta. Ghid metodologic. Bucuresti: Editura Universitatii din Bucuresti.
[6] Neacsu, I. (1990). Metode si tehnici de invatare eficienta. Bucuresti: Editura Militara.
[7] Raynal F., Rieunier A., (1997) Pédagogie: dictionnaire des concepts clés. Paris, ESF,. Rochex J.-Y., Le sens de l'expérience scolaire, Paris: PUF.
[8] Scallon, G. (2004). L'évaluation des apprentissages dans un approche par competence. Bruxelles: De Boeck Université.
[9] Tulving, E. (1972). Episodic and semantic memory. In E. Tulving and W. Donaldson (Eds.), Organization of Memory. New York: Academic Press.