The contemporary theories of learning. A pedagogic perspective

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Abstract

The psychological theories of learning have a descriptive character. Their valorizing in pedagogic plan demand their transformation into instruction models with normative and prescriptive character (Bruner, 1970). The contemporary theories of learning developed during the last decades promote such pedagogically productive models. Among them must be underlined especially The psychological theory of learning based on the culture of education, elaborated by J.S. Bruner.

This theory of Bruner analyzes: a) the relation between the pedagogy of learning / computational instruction – the pedagogy of learning / instruction accomplished on a cultural basis; b) the process of elaborating a „theory of mind which is pedagogically relevant". The curricular projection of instruction valorizes especially the pedagogy based on culture which promotes a hermeneutically formative model, contributing to the elaboration of a „theory of mind" pedagogically efficient in opened contexts.

Key words*: theories of learning, pedagogical models, context*

The theories of learning promoted by *psychology* have a descriptive character. This is why they cannot be applied directly in the educational process. As J.S. Bruner asserted, the psychological theories of learning must be transformed into *models of instruction* which have *normative* and *prescriptive* character. *The general theory of instruction*, as fundamental science of education, has to transform the cognitive structures described psychologically into pedagogic structures specific to the *curricular projection* expressed in terms of objectives, contents, methodology, evaluation.

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In the case of Bruner's theory, based on *psychological resources of learning through action, image, concepts, curricular projection of instruction,* involves: a) *objectives* – which have to „indicate experiences" necessary for the pupil for an efficient learning; b) *fundamental contents*, established in accordance with the objectives – which have to be essentialized, correlated, to be applied in multiple contexts and on medium and long term; c) *methodology* – which offer „a succession of learning" which favors all the pupils' success; d) *evaluation* – which ensures „the knowledge of the results" reached in different stages of learning which allows the correction and permanent perfection of the instruction activity (Jerome S. Bruner, 1970).

All the psychological theories of learning, very numerous, must be appreciated in accordance with their capacity to „convert" into efficient models of instruction (Ioan Neacșu, 1999). In this context, there must be valorized the classifications operated into the specialty literature, which underlines: a) the theories stimulus-answer; b) cognitive theories; c) theories centered on the motivation and personality (Ernst R.Hilgard; Gordon W.Bower, trad.1974, pp.535-545). We are also referring to a „re-classification of the theories of learning" treated as „potential models of instruction": a) theories based on *conditioning* (E.L. Thorndicke; B.F. Skinner; R.M. Gagne); b) theories based on the construction of learning cognitive structures at level: structural-genetic (Piaget), sociocultural (Vîgotski, Galperin, Bruner), of "complete learning" methodological resources (B.S. Bloom, J.Carrol) or *complex learning*, by *reception and discovery* (D.PAusubel), of multiple inteligences (H.Gardner) etc. (see Sorin Cristea, 2005, pp. 13-15; 187-189).

The contemporary theories of learning, developed during the last decades can be integrated in the aforementioned classifications or integrated within some new taxonomies. Nevertheless it remains important the thesis of their approach as potential pedagogic models, favorable for *curricular projection* of instruction at all the levels of the educational process. The author of an anthology of *the contemporary theories of learning* confirms the utility of some

older analysis criteria (theories based on: the classic behavioral conception, on problem solving etc.) or newer (experiential learning, systemic learning; learning which valorizes „the modern researches on brain", transformational learning, continuous learning as a technique of the self, etc.) (see Knud Illersis, coord., trans., 2014, pp. 5-6; 15-18).

A special problematic which we will treat during the present paper is the one which aims „the interactional dimension of learning" analyzed by different theories in the predominant context: a) *cultural* (J.Bruner); b) postmodernist (R.Usher); c) special social / „learning for youth" (Th.Ziehe); d) general social (E.Wenger; D. Wildemeerschh; V. Stroobants).

The psychological theory of learning based on *the culture of education*, elaborated by J. S. Bruner, develops the studies which became classic in the „cognitive science". The author synthetizes in the book published at the age of 82, „*The Culture of Education*" his „vast capacity of understanding learning and education as cultural processes". On this pattern are developed two themes of crucial importance for promoting instruction models which are necessary in the postmodern society and pedagogy: I) The relation between „computationalism and culturalism"; II) The elaboration of a „theory of the mind pedagogically relevant" (see J.S. Bruner, in Knud Illersis, coord., op.cit., pp.286-305).

I) The relation between „computationalism and culturalism" is a problem which appears after the „cognitive revolution" as a new challenge provoked by the expansion of the informational society. It is expressed in two hypothesis in seeming contradiction; a) „the mind might be conceived as a computational device"; b) „the mind is culturally constructed". Education, instruction, learning may thus evolve differently in accordance with the *computational or cultural vision*, asserted in the projection and accomplishment of specific activities of the educational system and process. We may identify, elaborate, construct, perfect: a) a *pedagogy of learning / computational instruction*; b) a *pedagogy of learning / instruction based on a cultural foundation*.

A) *The pedagogy of computational learning / instruction*. It has as a general objective the „processing of information". Its methodology of projecting and accomplishing the activities of instruction depends on the „manner in which the finished, coded, precise information about the world are inscribed, stored, coded, extracted and administrated by a calculation device". At the level of the didactical practice it is aimed „the formal correctness" acquired, directed, self-directed by processing information „in relation with a preexisting code submitted to some rules" and principles of projection accomplishment of the instruction activity, adapted to the specific of each learning discipline and stage. It is a position assumed didactically explicitly, normatively and prescriptively, pedagogically necessary given the conditions that „the process of knowledge is often disarticulated and loaded with ambiguity".

Instruction based on "guided education" by valorizing *computational science* which cultivate in an obvious manner the unlimited trust in the „efficient programing" of knowledge. In a normative plan it is obvious the fact that „a computer may offer to the one who learns a strong support for handling the contents of knowledge, especially if that knowledge is well defined".

The advantages of such an instruction model refer to the special capacity to process and solve the tasks which are exposed linearly of concentrically in short time, a clear manner and „less changing". The fundamental problem appears at the level of philosophy and general methodology of education and educator. This happens because a computer may facilitate the teacher's work (sometimes the student's work) but only at the level of some routine operations, not at the level of instruction activities in its ensemble.

At the psychological level of education / instruction, Bruner observes the existence of a problem formulated in a *subtle question* – „a computational vision of the mind offers or not a sufficiently adequate vision upon the manner in which the mind functions in order to guide us in the attempt to educate it" ?... Bruner's answer, metaphorically expressed, confirms the necessity to achieve the jump over the instruction based on conditioning, necessary for the initial,

repetitive, reproductive learning, to the instruction based on the construction / self-construction of the cognitive structures of the efficient, sustainable, innovative, strategic learning. Bruner refers to the fact that „the manner in which the hand functions differs from when it is equipped with a screwdriver or with a laser weapon"; in the same manner „the mind of a historian functions differently from the mind of a storyteller, with his stock of combinable myths".

The recognition of the operational value of *computational pedagogy* involves the surpassing of any tendency of generalizing the cognitive and non-cognitive resources in conditions of complex, dynamic, innovative instruction. There must be normatively established and legislatively validated the fact that „the mere existence of the computational devices – undertaken by the computational psychological theories – *cannot* change the conception about how human mind functions" (ibidem, p.289).

B) *The pedagogy of learning / instruction accomplished on a cultural basis.* It has as general objective the promotion „of an approach of the nature of mind" named „culturalism". At the level of philosophy of education it is sustained by the thesis according to which „the mind – generally and especially of the one who learns, couldn't exist outside culture". *The content of instruction* involves the reception and valorization of a „symbolism shared by the members of a cultural community" specifically constructed at the level of art, philosophy, religion, science, technology, in a „techno-social way of life", historically determined.

The curricular projection of education / instruction cannot be subordinated to any computational type device. It depends on the „supra-organic culture", dynamic and integrative which „molds the minds of individuals, by creating significations" attributed to things, activities, situations of life, nature and society etc.

Culture ensures the sociologic foundations (and also psychological) of the *programs of education*/ instruction by the fact that in methodological plan and at the level of evaluation „it offers the instruments for organizing and

understanding our world in communicable ways" and qualitatively (not only quantitatively, computational) appreciable.

The pedagogy of learning / instruction accomplished on a cultural basis is typical for the paradigm, of curriculum. Its value consists in its capacity act efficiently in opened contexts, in permanent changing. It is what it fundamentally distinguishes it of the *computational* pedagogy of learning / instruction expressed in information / words which generate a code which is operable only in finite contexts, inoperable in opened contexts, objectively and subjectively inherent to any activity of education / instruction.

The adepts of *computational* learning / instruction contest *to the cultural based pedagogy* the fact that it doesn't sustain a procedural, finite, exact approach of the functional systems which ensures the circulation of information in different domains. From the perspective of the curricular projection which always acts in opened pedagogic and social context this „deficiency" is in fact an essential quality. It has as a premise the report to a complex, dynamic educational reality, in continuous changing, which cannot be normed restrictively, according to „computational rules or operations".

The ambiguity of computational learning / instruction represents in pedagogic plan a formative resource with high conceptual, methodological and normative value. From this perspective, „the procedures of *culturalism* which are formally incorrect are rather „maximum" than completely mentionable rules". They reflect the specific of the research in the socio-humanist field and especially in the educational sciences, a research based on a learning / instruction which „has to do rather with a hermeneutic, an intellectual demarche which is less disciplined even though it manages to produce the very precise results of a computational exercise" (ibidem, p.294).

The hermeneutic model promoted and perfected as *formative model typical for a pedagogy projected on a cultural basis*, is methodologically and normatively centered on „the interpretation of texts" which stimulates the development of superior cognitive skills. We are considering those capacities

which lead to the identification of the signification of any learnt part in accordance with „a hypothesis about the significations of the whole whose signification is, at its turn, based on the person's judgment (n.n. the student who learns) about the significations of the parts which compose it" (idem)1.

In ***conclusion***, the curricular projection of learning as action subordinated to the activity of instruction considers the valorization of both formative models. Only in this manner can be constructed a pedagogical solution which is necessary to surpass the existing incommensurable opposition and often amplified „between the culturalism's creation of significations and computationalism's processing of information". This solution exercised in the *curricular projection* must aim the reconstruction of the connection between the two *pedagogies* (*cultural –computational*), „connection which is hard to ignore" given the fact that, in any instruction activity, „once the significations are established (n.n. cultural) their formalization in a system of categories formally correct ***can*** be accomplished by computational rules" (ibidem, p.295). The underlining of the verb ***can***, operated by Bruner, draws attention upon two normative conditions: a) the formalization cannot be accomplished correctly before establishing the significations acquired at the level of cultural pedagogy; b) the formalization can be accomplished through several categories of rules developed and perfected at the level of computational pedagogy.

II) The elaboration of a „theory of the mind pedagogically relevant" supposes the surpassing of the reductionist models „of the type all or nothing or once-and-for all which are not interesting from educational perspective". A *theory of the mind pedagogically relevant* is centered on the pedagogic resources, of different dimensions and natures „necessary for a mind to operate efficiently". These resources „do not include only instrumental resources" but imply „the settings or the necessary conditions for efficient operations": fundamental operations of thought, evaluative operations *feed-back* level; non-cognitive operations which support „the freeing of stress or of an excessive uniformity".

The centering oriented exclusively on the instrumental resources generate „a theory of the upturned mind", with a limited applicability in education". It is the forced case of the „computational approach of education" which tends to be a *theory of the upturned mind*". By contrast, the *culturalism* as formative model is a lot closer of the *right theory of the mind* in the measure in which „although it may contain specifications about mental operations, they are not as restrictive as, let's say, the formal demands of computability" (ibidem, p.297).

The computational approach of education, „connected to the restrictions of calculability" promotes three *different stiles* associated with three psychological theories of learning which influence the manner of projecting and accomplishing instruction: a) the style which is specific for behaviorist theories which promote learning by conditioning at the level of the relation stimulus – answer; b) the style of the theories which describe what happens in solving problems which promote „learning by re-describing what was observed in strictly computational terms"; c) the style of the theories which „are more interesting, based on *adaptive computational programs*" which promote learning by „reducing the previous complexities in order to obtain an increased adequation to an adaption criteria" (ibidem, pp.297-300).

The culturalist approach of education promotes a formative model „very different of the *computational* one". It has as normative and methodological premise the fact that „education is not an island, but a part of the continent of culture". The pedagogy of *learning / instruction based on a cultural basis* is projected at *macro and micro* levels. At *macro* level, the culture is situated at the base of the strategic purposes of instruction, which reflect „a system of values, rights, exchanges, obligations, opportunities and power". At *micro* level, culture is situated at the base of the general and specific objectives of instruction which reflect „the demands of a cultural system which affect all who should operate within it".

A special quality of culturalism consists in the fact that „although it is far from computationism and its constrictions, it doesn't have any reserves in

incorporating its observations". The pedagogy of learning / instruction based on culture promotes a formative model centered upon „inter-subjectivity", on researching the manner in which the teacher „gets to know the mind of the other" (n.n. of the student). In epistemological plan it supports the thesis according to which „the exterior or objective reality can be acknowledged only through the properties of the mind and of the systems of symbols on which the mind relies". This thesis does not exclude the role of the non-cognitive resources of learning of emotional and motivational nature. Their valorizing in the instruction activity involves, nevertheless, a report to the cognitive accumulations and implications previously acquired (ibidem, see pp.300-302).

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