Constructivism - a Pedagogical Approach for the 21st Century

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Abstract

The purpose of this essay is to emphasize the characteristics of the integration methods (theories) for the constructivist didactic interdisciplinary basic training of young professionals. The constructivist approach stimulates students to use active techniques (experiments, solving problems encountered every day) helping them to create new knowledge. It encourages knowledge of individual at first in a subjective manner by exploring the direct and mental processing of information, then through collaboration, it leads to negotiation and generalization of ideas. The constructivist approach plays an active role in building student's understanding of information. It seeks to solve some of student learning problems, to carry forward human knowledge and to identify ways to improve school practice.

Key words: constructivism, teaching, active techniques, thought flexibility
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1. Introduction

Human learning, as a fundamental activity, involves sustained effort and substantial energy consumption. School learning, as an anticipated, designed, organized, developed, evaluated and regulated approach, all the more presupposes active involvement, sustained motivation, a positive psychic tone.

Learning activities, carried out according to constructivist models, involve the coordination of all personality structures (cognitive, affective, motivational, volitional, attitudinal, aptitudinal), in order to overcome obstacles, limits, difficulties in solving tasks (research, investigation, experimentation, solving exercises or problem situations etc.).

Being a student-centred approach, those involved may encounter difficulties in the constructivist learning activities, cognitive blockages (or other forms, for example, affective, motivational ones), sometimes by overworking or misjudgements due to subjective qualitative interpretations. The realization of the learning activity can also be obstructed by its external factors, conjunctural, circumstantial, of a certain mental structure of the society, of the type of experience of the students, but also of the teachers who guide the learning activity.

2. Theoretical background

The complexity of the current context poses serious problems of reconception and realization in education, so that voices that speak of a "critical state of pedagogy" or of the "crisis of pedagogy" (Bîrzea, 1995) seem to be justified, and solutions are not long in coming.

One of these would be the constructivist approach to education, correlated with the postmodernist vision of pedagogy, as another paradigm that is gaining ground, not only in pedagogy (Wilson, 1997).

Even C. Bîrzea considers, after inventorying several opinions on this aspect, that pedagogy "jumped" over modernity, already entering postmodernism. The difficulties that fuel the critical state cannot be neglected: mastery of behaviourist practices in the curriculum, restrictions in the use of current information technologies, poor training of educators, relative formal-non-formal correlation, etc. Pedagogy is still the field of disputes between various orientations on education.

Compared to traditionalism and modernism, the increasingly present postmodernist current would be characterized (Beck) by: seeking and accepting teaching-learning and educational alternatives,

giving up the border between sciences, decentralization, tolerance, uncertainty, interculturality, globalism, individualism, humanization of technology, diversification of communication.

At the educational level, they would materialize in the promotion of new educations, in the curricular reform, in the managerial decentralization, in the personalized approach of the strategies, in the use of the alternative sources of information, in the plurality of training models.

This innovative approach of first importance in education, under the aegis of "student-centred learning", starts from the major constructivist perspectives represented by Jean Piaget and L.S. Vygotsky.

2.1. Cognitive Constructivism

Based on Jean Piaget's theory of cognitive development, according to which the individual must build his own knowledge through experience, it allows him to create mental schemas that change through two complementary processes: assimilation and accommodation. It is up to the educator to ensure an environmental context for the student's exploratory activity.

In the vision of Piagetian constructivism, cognitivist or psychological, learning is an individual approach: students come to the lesson with ideas, beliefs and opinions that must be modified, developed by the educator; To this end, the teacher formulates tasks and dilemma-problems. The construction of knowledge appears as a result of the activity submitted to solve these tasks. Characteristic practices include "learning by discovery", operation with objects, tasks that require operation with both existing concepts as well as Socratic dialogue techniques.

Implications: Learning is an active process; direct experience, errors, the search for solutions are vital for assimilation and accommodation.

Training: the student must be offered opportunities to build knowledge through his own experience. Knowledge cannot be "told" by the educator. Modern technologies offer a wide range of possibilities. To be used: data banks, simulators, microlum.

2.2. Social Constructivism

Criticizing the thesis of contemporary pedagogy on the independence of development from learning activity, Vygotsky promotes the thesis according to which rational built learning is at the forefront of development and pulls it behind it, broadening its possibilities and perspectives; "Development processes do not coincide with learning processes, ... development processes follow the learning processes that create the area of next development", "only that learning that pushes development forward is satisfactory".

For Vygotsky, mental development is inextricably linked to motivational development, in its affective terminology, which is why in his works he supports the principle of unity of "intellect and affect." The ideas promoted by Vygotsky were taken over, supported and developed by his collaborators and disciples, as well as by Western specialists.

Implications: the role of modern technologies is to connect students for collaboration. The role of the educator is not to provide the context for individualized learning, but to help the student approach the problem, to encourage him to work in groups to analyse solutions, as well as support him with advice when he needs it.

The way Vygotsky's vision is conducted varies greatly, but each activity follows the following principles:

- learning and development is a social, collaborative activity;
- the area of next development can serve as a guide for curricular planning and lessons;
- school learning must be done in a meaningful context and must not be separated from the learning and knowledge that students achieve in the real world;
- experiences must be related to the student's school experience

3. Research methodology

If the Piagetian and Vygotskian visions are the classical component of constructivism, in the last two decades, more and more researchers have turned their attention to the learning process; the focus on the student is only the flag that carries the openers of a path to which specialists trained at different schools of thought work, with theoretical representations, hypotheses and sometimes very distant objectives.

The research focused on the answers to the questions:

What is learning? What is the learning process? What is the role of the educator in the learning process? What can the teacher do to fulfil this role?

Learning: Knowledge is built by people and does not exist outside the human mind. Students build their understanding. They seek meaning and try to discover regularity and order even in the absence of complete information. Learning is an active process. Information can be imposed from the outside, but not understanding; it must come from within. Learning is determined by a complex interaction between the existing knowledge of the subjects, the social context and the problem to be solved. Training refers to providing subjects with a collaborative situation in which they have both the means and the opportunity to build a new understanding.

In this process, special attention is paid to the problem to be solved, the element of which is required to stimulate the exploration and reflection necessary for the construction of knowledge. It is considered that an appropriate problem should have the following attributes:

- to request the construction and testing of predictions;
- to be able to be solved without expensive equipment;
- to have a realistic complexity;
- to be relevant and interesting for the subjects.

The second characteristic of the learning process is the interaction between the subjects; working together to solve the problem gives everyone the opportunity to test and improve their understanding during the interaction.

The role of the educator: Constructivism needs a teacher to help students become active participants in learning. The educator must stimulate the development of subjects by giving them tasks that they can perform only with help, i.e. in the area of next development.

What the teacher can do: In a synthesis of the rich literature dedicated to this problem, the following attributes of the constructivist educator are mentioned:

- encourages and accepts the autonomy and initiative of students;
- uses a wide variety of materials, including raw data, primary sources, interactive materials and encourages students to use them;
- is interested in the students' knowledge of the concepts, before sharing his/her own knowledge;
- encourages students to engage in dialogue with the teacher or other colleagues;
- encourages the student's attempts to explore knowledge and ask questions to colleagues;
- Employs students in experiences that highlight contradictions with the initial information, then stimulates discussion;
- provides students time to build relationships and create metaphors;
- appreciates the level of knowledge through applications and results in "open" tasks.

In essence, the educator's task is to create and maintain a context in which students build their own knowledge, with him/her as a guide.

In the last decade there is an increasing approach of research to the key issues of the educational process, achieving a gradual approach between traditional, fundamental and applied research. The pressures in favour of such investigations are determined by the attention with which developed countries follow international comparative studies.

Some researchers do not consider constructivism as a pedagogical theory, but it can certainly be a useful reference for education.

One of the most promising ideas at this time for school practice in constructivist vision is that of the classroom-workshop, which H. Daniel characterizes as a pedagogical embodiment of constructivist theory: classes no longer represent the place where information is transmitted, but

become laboratories or studios where knowledge is generated, where students and teachers reinvent together the field of study in which they were engaged.

It goes without saying that the orientation towards a constructivist approach to education cannot and does not aim to solve all its problems. Research in this area seeks to advance human knowledge and suggest ways to improve school practice.

It is interesting to note that many research institutes have defined the position from which they will conduct their investigations in the first period of this century. Thus, the well-known Institute for Learning Technologies (Columbia University) states in a programmatic material - " Pedagogy for the 21st Century"- the starting points and the indicative milestones of the investigative approach that they will undertake in the coming years.

Specialists in the field converge on the idea that for the 21st century a small school, in which the educational activity can be structured in relation to the needs and interests of the students, will be more efficient and more competitive; students' activity must be oriented by projects in the defining of which they have participated in and involve them in a real intellectual experience, not in memorization exercises.

4. Findings

From antiquity until now, the case study has been widely used in education, imposing itself as one of the most active methods, with high heuristic value, but also an applicative one. The case study method capitalizes on learning a real situation, significant for a certain field and which needs to be analysed and solved. Unlike other traditional methods that offer "fictitious cases", imagined by the professor, suggested in textbooks and university courses, thus developed at the desk, in the office and, as a result, artificially created, the case study method mediates a direct confrontation with a situation from the real, authentic vine (Cerghit, 2006).

The case study method can be a support in inductive knowledge, in the sense that starting from particular premises one reaches general conclusions, as well as in deductive knowledge, by passing from general to particular, in the sense of making procedural transfers, elaboration of assumptions, application in similar or different contexts.

The interactions of the students in a real, authentic situation, taken as a typical example give the participants the possibility to educate the attitudes towards the others and towards the respective case, of the exercise of the organizational, evaluation and decision capacities.

The advantage of this method is also given by the fact that the situations that represent the case are identical if not similar to those in real life, so it offers the possibility that certain application situations can be solved as learning tasks.

The following steps are outlined in the use of the method:

- Choosing the case: the case can be chosen by the teacher or, capitalizing on the constructivist paradigm, the teacher, depending on the proposed objectives, can support students to report the data of situations that may become cases;
- Notifying the nuances of the case simultaneously with the understanding of the need to solve it by the participants (establishing the unclear aspects, formulating clarification questions);
- Individual solution of the case (documentation, notification and notation of solutions by each participant);
- Group debate on how to solve (achieving a confrontation of variants, their critical analysis);
- Formulation of optimal conclusions based on decisions taken in the previous stage; the teacher's role is to reinforce the students' conclusions;
- Qualitative evaluation of the way of solving the situation-case and evaluation of the degree of participation.

5. Conclusions

Constructivism remains an approach to current pedagogy, but it cannot be a panacea for education problems; at the same time, the limits are not lacking. Thus, it is difficult to carry out constructivist school activities, given that the evaluations are supported by "national" standards. The design and implementation of such an approach for an entire training cycle would require human resources with special training. Considerable material and financial resources are also needed to achieve the means by which the student can build his knowledge.

However, the lack of these conditions cannot stop the educator interested in the way in which learning takes place from using constructivist procedures; some characteristics of constructivism can make him think, can arouse his curiosity and can determine him to take the first difficult step on the path of professional development - that of a researcher.

6. References

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