The hypertext semantic synopsis as a tool to realize the activities approach in learning

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Abstract

The hypertext semantic synopsis is a computer model of the declarative subject knowledge represented with semantic facts. The hypertext character of its organization allows doing connections between the facts obvious.

From the point of view of modern didactics, the final aim of instruction is not gaining knowledge but forming the mode of actions to be realized via skills. It may be only done in the process of activities. Therefore learning has to be considered as activities, namely learning activities [1].

Any teaching technology must be considered, in the first place, from the point of view of its accordance to the activities theory, that is, the activities approach. In accordance with the activities theory, projecting a computer tutoring system means, first of all, projecting learning activities, but not knowledge. Knowledge is projected after actions. Only on determining actions, it is possible to pick out knowledge providing formation of these actions. Creative learning can be realized only in such a way.

One of the first steps on the way of organizing the orientating part of the mode of actions is creation of a semantic synopsis. The semantic synopsis is a full set of laconically represented thoughts of a domain [2].

As the "paper" version of the semantic synopsis appeared to be very effective in organizing of the orientating part of the student's mode of actions, its hypermedia computer version was worked out. Modern Hypermedia (HM) technology is a very powerful means for the knowledge structure presentation. The computer version is based on a textual version of the synopsis with its structural presentation of knowledge.

A hypertext knot contains an information portion – page. It can be graphic, textual, video or audio information, 3D-animation being presented on the screen to the user. Each knot is connected with other ones containing contiguous information by means of key words that are picked out on screen with color. As knots and connections between them are developed the hypertext net is formed. It is a semantic net of the pyramidal kind.

It often happens that students feel existence of connections between some notions, but do not know the direction of these connections or miss some parts of the chain. Therefore a heuristic connections search between notions is foreseen in the computer version of the semantic synopsis. The heuristic search is the determination process of the connections between two particular notions, probably related with each other.

For organization of learning activities with the help of the semantic synopsis computer version, we offer to use a schematic representation of the semantic nets based on the semantic synopsis. Such a representation is a set of geometrical figures located in certain order and connected by lines of diverse appearances. Inside each geometrical figure stands a number, which is the hyperlink with the proper statement of the semantic synopsis. This way, we've got a compactly represented semantic model of some part of an educational course. In the net, the hierarchical structure of the domain is preserved, the semantic facts types and connections character are represented graphically. The using such a net allows to organize students' learning activities, as it is an actions position-finding basis scheme.

The work with the semantic net can be organized in various ways depending on the user's aims and the level of his/her preparedness. The semantic synopsis hypertext version can be used for independent work on filling the blanks in the student's knowledge. For this the user finds a knot with the number of the fact in semantic net, that is difficult for his understanding and consistently studies all the facts included in its subset, that is, all the facts, that are related with the initial one and belong to the lower levels. Separately a full list of all of semantic facts hyperlinks is offered for more experienced users, which know exactly, what information they want to find.

As the system is a HTML one, it can easily be placed in Internet and linked not only with resources of the semantic synopsis electronic version, but with other resources on the domain, that considerably can broaden the amount of information accessible to the user.

This way, using hypertext version of semantic synopsis allows organizing students learning activities with the help of computer that is the necessary condition for successful teaching.

References
