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Use of Virtual Mind Mapping to Effectively Organise the Project Activities of Students at the University

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Abstract

It is extremely important to organise project activities of students in the process of electronic and distance learning. One of the tools to create the virtual environment for the students' effective teamwork and to achieve tangible project outcomes is to use mind maps as shared on-line services for step-by-step problem solving. The authors provide for the fundamentals and the necessary components of the project work, describe patterns of constructing mind maps, and outline opportunities and limitations of the existing Internet services in working with them. Justification is made for the ability to use mind maps in the process of on-line supervising of a graduation project.

1. Introduction

Modernisation of the educational system is connected with two distinct trends, namely: personalisation and intensification of educational process. Both of these tasks can be solved in the course of project-based learning.

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1.1. Problem

Implementation of project-based teaching methods is one of the most complex and at the same time significant methodological elements of the educational process, which are responsible for its efficiency. The purpose of project-based learning is to create educational environment and methodological tools for the students to use creative research, self-study of the necessary educational material, and teamwork in order to achieve the complex task set by the teacher. A number of organisational issues arise while working on-line, and, in particular, the issue of coordinating the efforts of all project participants. We believe that using mind maps can facilitate this coordination. The given text is aimed at revealing the potential of this tool.

1.2. Using Project-based Learning in Education

The project-based learning is not new; it has been used in education since the mid-19th century (Ecole Polytechnique in Paris, Bauhaus, the VKHUTEMAS (Higher Art and Technical Studios), MIT, etc.). John Dewey (1859-1952) and his philosophy of education played a crucial role in its scientific rationale. The American philosopher criticised both rationalism, which he considered as taking away from the reality, and empiricism to its purely materialistic ideas. J. Dewey sought to organise those practical activities for the students that helped them gain a variety of skills and abilities. However, he denied the need for studying different courses, which could lead to lowering the level of education. Another founder of the project-based learning is C.G. Jung (1875-1971), a Swiss psychologist, who had justified the fact that the project-based self-awareness can result in personal self-development.

The project-based learning partially overlaps with the ideas of developmental teaching (Vygotsky, 1996; Davydov, 1986; Jel`konin, 1978), action-oriented learning (Drysdale, Graham & Borup, 2014; Bogomolov, 2008), method of education through play (Leont`ev, 1959) and problem-based learning. It can be considered as the first step on the way from the traditionalist educational paradigm to the humanistic educational paradigm, because it implies a unity of learning, development, and socialisation of personality. Though it first emerged as a method of educating architects and designers (Jones, 1986; Kozlov, 1971; Rappaport, 1991; Teoreticheskie i metodologicheskie issledovanija v dizajne, 2004), by the end of the 20th-beginning of the 21st centuries the method of project-based learning had spread in all areas of education, since it is appropriate to the modern "design culture" (Kantor, 2001). Though it exists in new formats, it still remains relevant under the conditions of modernisation of education. The advantage of its implementation is the opportunity to overcome the Deweyesque pragmatism, as the project development requires mastering different types of knowledge. In this regard, the project-based learning fully complies with the idea of "four pillars" of education suggested by Jacques Delors. In his report to UNESCO of the International Commission on Education for the Twenty-first Century entitled "Learning: the treasure within" he identifies them as: "learning to know, learning to do, learning to live together and learning to be" (Delors, 1996).

Currently, the project-based teaching methods have proven to be extremely efficient and became widely spread in the educational practice at all levels of full-time education in Russia and abroad. The new conditions of its implementation bring about new tools of the project method, and especially in on-line courses (the concept of open education).

The purpose of this paper is to identify the opportunities of using mind maps as a basis for the shared on-line services. This provides for the step-by-step problem solving when working with students by means of using the project method.

1.3. Methodological Framework

Among the researchers engaged in the development of the project method with regard to education were some authors (Jones, 1986; Rappaport, 1991; Volzhanina, 2002; Bystrova, 2009). Their experience allows to distinguish such aspects of project-based learning as learning and educational, and educative and developmental. The authors emphasize a special role of the rational, logical side of project thinking. It is due to it that you not just learn some knowledge, norms and cultural values, but consciously work with them when creating new products.