

BLOOM'S TAXONOMY IN THE PROCESS OF INTRODUCING INNOVATIVE TECHNOLOGIES IN THE EDUCATION SYSTEM

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Abstract

The article deals with the role of Bloom's taxonomy in determining the goals and educational objectives using innovative technologies in the education system. The article emphasizes that modern education in Kazakhstan, as well as in the whole world should proceed from innovative technologies to which special attention is paid by the UNESCO Institute for Information Technologies in Education. In the system of university education, an orientation towards an innovative type of education is becoming more widespread. At the same time, Bloom's taxonomy, without losing its relevance is applied in new innovative models which allows one to act freely in innovative educational situations.

Keywords

Bloom's taxonomy, classification, innovative technology, educational programs, teaching aids.

Peculiarities of using Bloom's taxonomy in the process of introducing innovative technologies

Humanity must be ready to live in the new conditions of the modern world, when knowledge and intelligence are becoming the leading factor in the existence of modern world civilization. The main factor here is education based on innovative technologies developed and applied around the world. UNESCO pays great attention to this issue as evidenced by the "Recommendations for working with open educational resources in higher education" prepared by the UNESCO Institute for Information Technologies in Education. They emphasize that the modern global economy is based on knowledge, therefore, higher education systems play an important role in social development and the growth of competitiveness of national economies. Therefore, educational institutions must integrate information and communication technologies (ICT) in management and administrative activities, as well as in their educational programs, to make training more cost-effective and efficient in order to prepare graduates for professional activities in the real world. And in these conditions, along with ensuring high quality and accessibility of education, it is important to adapt pedagogical approaches and teaching materials to modern teaching aids. Moreover, it is the scientific and pedagogical staff that directly affects the quality of the educational and methodological environment.

University teachers and researchers play a central role in both teaching and learning of students. Their professional competencies come to the fore, consisting of knowledge, competencies and skills that allow them to use modern methods and technologies in their work. These include professional skills in the development of programs, courses and materials, as well as the professional level of technical skills. The development of professional skills in the development of programs, courses and materials, for example, implies that educators should pay special attention to the full development of the potential of resource-based and student-centered learning approaches. Have the skills to accurately identify target audiences, expected learning outcomes, subject content for programs, selection of suitable combinations for teaching methods and independent work of students that will contribute to the achievement of the intended learning outcomes, developing adequate and effective assessment strategies, the use of the most appropriate interactive equipment and technologies to help achieve the desired learning outcomes.

Among such recognized technologies is the taxonomy of the American scientist B. Bloom who divided all the goals of education into such spheres as cognitive, affective and psychomotor. It should be noted that created by the American scientist B. Bloom in 1956, this taxonomy was subsequently developed and updated. Among them are the versions of D. Crotwell, L. Anderson. The taxonomy is based on the classification of educational goals developed by B. Bloom. As the authors write: "This scheme is based on the classical classification of educational goals developed by B. Bloom, as it orients the teacher (teacher, trainer, teacher) in relation to qualitatively different educational outcomes of learners (pupils, listeners, students) - competencies. It contains aspects of activities and indications of the levels of student competency formations, understood as mastered ways of activity. We see our task in "equipping" this holistic idea at the applied level using the category of "action verbs" with the help of which it is possible to create exercises focused on the development of the ability to achieve certain educational goals. This collection can be useful for teachers, trainers, methodologists and heads of secondary schools ". This taxonomy is actively used in the Kazakhstani education system contributing to the improvement of the professional competence of teachers and

students. As for instance the collection prepared by A.E. Murzagalieva and B.M. Utegenova in which Bloom's taxonomy is presented in great detail at the applied level. The collection examines the system for identifying educational goals in accordance with the process of mastering educational material, presents educational tasks on Bloom's taxonomy. In particular, when developing a morphological map of educational tasks of a certain level of the educational goal, the authors highlight such parameters as: "Definition, meaning", "Operands" information that requires processing and its transfer to achieve the expected result, "Field of action", "Type of task", "Requested action", "Expected result", "Technique, technique of the trainee".

Based on the fact that professional competence also implies ICT competence, considerable attention should be paid to the criteria for selecting applications for education. Choosing an application for classes, we focus on the main tasks of learning: the development of competence, the ability to use the assimilated information in activities to solve specific problems. Obviously it is the pedagogical tasks to determine the choice of applications and web services. As for instance, SAMR Model - the four levels of this model: Substitution, Augmentation, Modification, Redefinition, created by Dr. Robin Puentudura helps teachers and educators integrate ICT into the learning and teaching process for effective independent student work. The SAMR model has found its application in applications for the iPad according to the four levels of SAMR replacement, amplification, modification, redefinition. A model known as "Pedagogical Wheel" by Alan Carrington complements the 4 levels of the SAMR model and Bloom's taxonomy. Bloom's digital taxonomy examines specific applications and web tools for each of the six levels of thought processes, such as remembering, understanding, applying, analyzing, evaluating, and creating. As we know, for the 'remember' level tasks related to verbs are suitable - remember, repeat, name, write, define, learn. The following activities are suitable for this level: working with text, commenting, searching, blogging, using social bookmarking, writing lists of abstracts. These types of memorization level activities are suitable for applications that contribute to the development of describing and defining terms and facts, finding and memorizing information, these include applications and web tools for iPad and Android: Pages, GoogleSearch, Twitter, PaperportNotes, iTunesU, Edmodo; GoogleKeep, Wunderlist, GoogleDrive, Diigo, AudioNote; Creately, Wordle, Lino, Quizlet.

The second level - 'understanding' is achieved through description, discussion, formulation, demonstration. Activities for the level of understanding - drawing up intelligence maps, playing back from memory, highlighting the main thing. At this level, applications and services are used to help better understand the ideas and concepts presented; to summarize the material, the following applications and web tools can be used: Socrative, Nearpod, Maps, Inspiration, StudyBlue, InspirationMaps; Weebly, Explain, LectureNotes; Edublogs, Prezi, Twitter, Thinglink.

To improve the level of 'application' of knowledge related to tasks the implementation is formulated using verbs - create, solve, explain, show, teach, use, demonstrate. Application-level activities - making a film, editing, creating selections, building diagrams, mapping, role-playing, maintaining an album, demonstration, are suitable applications that enable the acquisition of skills and the implementation of learned methods and procedures, they also focus on the ability to apply what has been learned in certain conditions - iMovie, Corkulous, PicCollage; ExplainEverything, Magisto; Animoto, Blabberize, Podomatic.

The ability to 'analyze' and 'synthesis' develops on the basis of tasks with key verbs - to research, compare, divide, interpret, contrast, analyze; combine, compose, invent, formulate.

Performing activities: questioning, polling, building diagrams and graphs, generalizing, summarizing, working with spreadsheets using applications that can be used at the level of analysis and synthesis, contributing to the development of skills to distinguish essential from non-essential, highlight the whole and parts, determine the relationship and structure of content - Evernote, GoogleDrive, Ubersense, Skype; ColorNoteNotepad, Skitch; GoogleDocs, GooglePlus, CollaborizeClassroom and others.

The 'assessment' level is aimed at independent intellectual activity which requires knowledge and skills to evaluate, approve, support, recommend, criticize and draw conclusions. Activities for the assessment level: hypothesis, modeling, self-assessment, exchange of opinions, recommendations, making judgments, for solving these problems can be successfully applied the following applications for assessing the quality, effectiveness of the content of the studied information, methods, based on criteria established independently or taken from other sources: BookCreator, WeVideo, Glogster, Educreations, YouTube and others. Most of these apps are available for download from the official iOS and Android app stores.

Conclusion

In the system of university education, an orientation towards an innovative type of education is becoming more widespread. Bloom's taxonomy does not lose its relevance, it is applied in new innovative models, which gives us the willingness to act freely in innovative educational situations. The innovative educational technologies can be presented as an inseparable part of educational system due to the current situation in a whole world. To be able to comprehend and implement properly the innovative technologies to our lives can be a step to a new future.

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