DIDACTIC PRINCIPLES OF USING MOBILE APPLICATIONS IN THE EDUCATIONAL PROCESS

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Tayanch so'zlar: mobil ta'lim, FRAME, qurilma aspekti, o'quvchi aspekti, ijtimoiy jihat.
Ключевые слова: мобильное образование, FRAME, аспект устройства, аспект учащегося, социальный аспект.
Key words: mobile education, FRAME, device aspect, learner aspect, social aspect.

Резюме:
Maqolada o'quv jarayonida mobil ilovalardan foydalanishning didaktik jihatlari o'rganilgan. Kasbiy va pedagogik faoliyat asoslarini hisobga olgan holda ta'lim jarayonining klassik tarkibiy qismlari ajratiladi. Shu bilan birga, mobil ilovalar yordamida tashkil etilgan o‘quv jarayonining didaktik mohiyati va uning bosqich va jihatlari haqida so‘z yuritildi.
Резюме:
В статье рассматриваются дидактические аспекты использования мобильных приложений в образовательном процессе. С учетом основ профессионально-педагогической деятельности выделяют классические компоненты образовательного процесса. При этом обсуждалась дидактическая природа образовательного процесса, организованного с помощью мобильных приложений, его этапы и аспекты.
Summary:
The article examines the didactic aspects of using mobile applications in the educational process. Taking into account the basics of professional and pedagogical activity, the classical components of the educational process are distinguished. At the same time, the didactic nature of the educational process organized with the help of mobile applications and its stages and aspects were discussed.

Introduction. A review of the didactic foundations of the use of educational mobile applications in the higher education system requires the identification, generalization, and systematization of important features related to the mobile learning process [1]. Currently, in the Republic of Uzbekistan, mobile applications are being developed for use outside of classes to further interest students and help them spend their free time meaningfully in higher education institutions. I have also developed a mobile application in my scientific work, and in this article, experimental tests are being conducted for students in the field of transport engineering, and I have also cited the results obtained [2,3].

Literature Analysis and Methodology. Many researchers [4] consider the pedagogical and didactic process as a dynamic pedagogical, didactic system, as a specially organized, targeted interaction of teachers and students aimed at solving developmental and educational tasks. They consider the pedagogical and didactic task to be the main unit of the didactic process. These authors consider the pedagogical, didactic task as an educational situation characterized by the interaction of specific goals of the teacher and students and emphasize four interrelated stages of problem-solving:

a) analysis of the situation and formulation of the didactic task;

b) designing solutions and choosing the optimal solution for given conditions;

c) implementation of a problem-solving plan in practice, including the organization of mutual cooperation, regulation, and correction of the didactic process; d) analysis of solution results [5].

Researcher describing the effectiveness of the didactic process, points to its integrity, complementing it with interacting education, training, teaching, and developing sub-systems and components. A. V. Khutorskoy considers the educational process as a pedagogically reasonable, consistent, and continuous change of the state of learning subjects in a specially organized environment to achieve educational results [6].

The pedagogical process is one of the most important fundamental categories of pedagogy. For example, according to I.P. Podlasiy, "the didactic process is a developing interaction of pedagogues and educators aimed at achieving a set goal and leading to a pre-planned change in the situation, a change in the characteristics and qualities of educators" [7].

Any process is characterized by movement, change, etc. In our study, the pedagogical process with the participation of educational mobile applications is aimed at solving the problems of personal education and general development and is considered a developing interaction between students. Such features are characteristic of interaction in any activity, are purposeful, meaningful, organizational, analytical, and production components of the didactic process, and correspond to the didactic process of mobile education [8].

Materials and Methods. We consider the comprehensive development of students as the main goal of the didactic process of mobile education. The direction of the educational process determines more specific goals and tasks for the training and development of students, as well as its content. Purpose and content are the most important content-purpose components of the didactic process of mobile education. The goals of the didactic process of mobile education are presented by us in the form of a hierarchy (Fig. 2), including: the goals of the lesson in the framework of mobile education; teaching and learning goals for a

particular subject (course) implemented through mobile education; the purpose of the mobile learning system; and a state goal in the form of a public order corresponding to the standard of education.

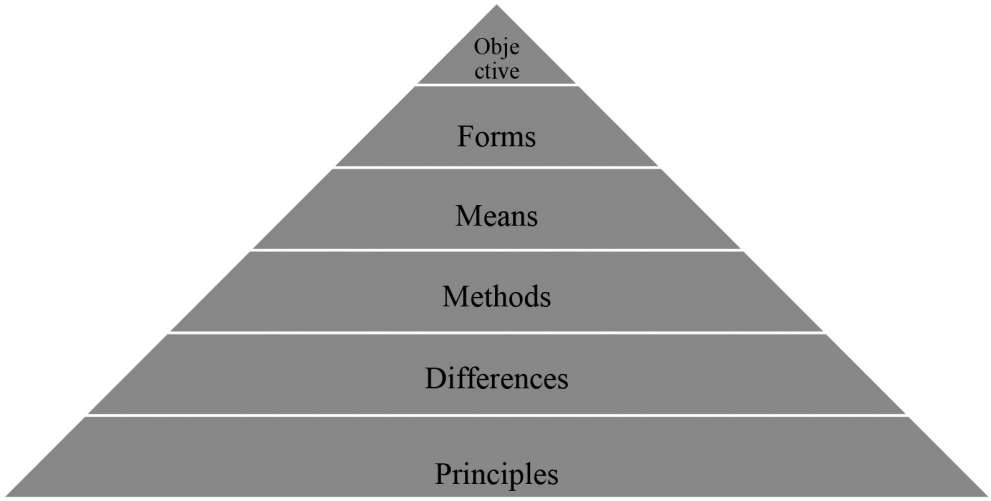

Figure 2.Hierarchy of mobile learning process components.

In our research, we show that the didactic process of education organized using mobile applications has a cyclical nature and can be divided into three stages: preparatory, main, and final. At the preparatory stage, in our opinion, the following tasks should be solved: a) setting goals; b) diagnosing conditions and forecasting achievements; c) developing and planning the didactic process of education with the help of mobile applications. At this stage, the necessary educational, material, spiritual, psychological, and aesthetic conditions are provided, and the available time is rationally distributed. The content of educational mobile applications and the forms and methods of education with their help are planned in educational and thematic plans. The main stage of organizing and implementing the didactic process of education with the help of mobile applications includes the following elements of interaction between participants: defining and explaining the goals and tasks of the activity; their acceptance by the pedagogical team; the implementation of selected methods, tools, and forms of organizing the pedagogical process of education with the participation of mobile applications; ensuring the interaction of all subjects; creating favorable conditions, including ensuring safety and environmental cleanliness; and the implementation of various activities to encourage student activity. At the main stage, pedagogical interaction, control, regulation of the process, and quick corrections to the content of the activities of educational subjects are carried out. In addition, the presence

of feedback in the pedagogical process and its implementation helps to solve educational problems. At the final stage, the results are analyzed. With the help of the mobile application, the teacher evaluates the level of solving the tasks, using the analysis of the performance of test tasks by students, reports on control and laboratory work, and discussion of learning results with the student. Previously, we determined that the pedagogical process is characterized by integrity, consistency, and continuity; therefore, we define the pedagogical process of education with the help of educational mobile applications as a specially organized, purposeful process that occurs in time and space for teachers and students. 'interaction' and we believe that there are pedagogically reasonable, consistent, continuous states of change and stages of development within it.

Such a process includes four mandatory components:

a) targeted (determines the goals of education and training);

b) meaningful (reveals the content of education);

c) procedural (describes the procedures of training, education, and the interaction of process participants);

d) evaluative and efficient (includes checking, evaluating, and analyzing the results and reasoning about the effectiveness of the process).

Results. If we present the internal structure of the learning process using educational mobile applications in graphic form (Fig. 3), with this approach, in our opinion, it is possible to understand the important features of the learning process as well as didactic approaches to its implementation. First of all, this kind of education is continuous in two ways. In the educational process, with the participation of mobile applications, close communication between the teacher and the student is ensured at each stage of educational and cognitive activity. Without such interaction, the process becomes uncontrollable and chaotic. Secondly, it is necessary to have an idea about its implementation when distinguishing the separate components of the structure of the educational process with the participation of educational mobile applications. In this case, the organization of the educational process includes the following: determining the goals and tasks of the students' educational activities; forming the audience's need for knowledge and stimulation of educational activities; determining the content of the educational material that should be mastered by the students; organizing the educational and cognitive activity of listeners; giving an emotional-volitional character to the students' educational activities; regulating and controlling the students' educational activities; and evaluating the results of the students' educational activities. Thirdly, it is necessary to take into account the need to activate educational and cognitive activities at all stages of the educational process with the participation of educational mobile applications. Fourth, it is

necessary to systematize the educational material and divide it into logically complete didactic units, blocks, and modules.

Determining the goals and objectives of students' educational activities	Formation of stimulation of students' needs for knowledge	Determining the content of the educational material to be mastered by students	Organization of educational and cognitive activities of students	To give an emotional and volitional character to the educational activities of students	Organizing students' educational activities	Evaluation of the results of students' educational activities
Educational activity of the teacher in the educational process with the participation of educational mobile applications						
Educational activity of the student in the educational process with the participation of the educational mobile application						
Awareness of the goals and tasks of students' educational and cognitive activities	Development of the needs and motivations of students' educational and cognitive activities	Understand the basic educational issues that need to be mastered and mastered	Understanding of educational materials, memorizing, applying knowledge to practice	Absence of positive attitude and positive action in the educational and cognitive activities of students	Self-control and correction of students' educational cognitive activity	Reflecting the results of students in their educational and cognitive activities

Figure 3. The internal structure of the didactic process using educational mobile applications

Discussion.

The FRAME (Framework for the Rational Analysis of Mobile Education) model was originally developed as a basis for evaluating the effectiveness of mobile devices for distance learning. The FRAME model is the first comprehensive theoretical model that describes mobile learning as a process resulting from the convergence of mobile technologies, human learning opportunities, and social interactions. It solves the modern pedagogical problems of comprehensive information loading, knowledge navigation, and collaborative learning. It is hoped that this model will help guide the development of future learning materials for mobile devices and mobile learning, as well as clarify teaching strategies for mobile learning. For the analysis of education with the participation of educational mobile applications, let's refer to the FRAME model, which considers the process of mobile education as a set of separate components and is widely used in scientific circle. FRAME takes into account the technical aspects of mobile devices used in the educational process, as well as the social aspect of education and the individual characteristics of students. Every aspect

can be adjusted to optimize the learning process with a mobile device and app. Several subspecies are distinguished by different variants of the interaction of the two main types:

Conclusion. In our case, three circles represent device, educational, and social aspects. The areas where the two circles intersect contain the attributes of both aspects. The attributes of device usability and social technology intersections describe the capabilities of mobile technologies. At the intersection labeled interactive learning, there are theories of teaching and learning with an emphasis on social constructivism. All three aspects overlap at the primary intersection in the center of the Venn diagram. In theory, the primary intersection, the convergence of all three aspects, defines the ideal mobile learning situation. The this model can be used to design more effective mobile learning experiences. Device aspect includes several criteria, namely: physical characteristics, characteristics of mobile device data input and output devices, memory characteristics, processor frequency, and number of errors. Physical characteristics, including screen size, weight, button placement, and overall device design, affect a user's ability to use a gadget. In the criteria related to the learner aspect, it is necessary to take into account the unique individual qualities of the student. These include basic knowledge, memory, information processing skills, the availability of the fact that knowledge is new, feelings, and motivation for learning. The basic knowledge criterion means the skills and knowledge directly acquired by a person before, which have a direct impact on the possibility and method of assimilation of new information. The social aspect includes two criteria: communication and interaction featuresCommunication characteristics take into account how to choose the method of communication, the number of people and the relationship between them, as well as time. Interaction refers to direct communication or information exchange that occurs through certain signs or their use.

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