

THE ROLE OF ADAPTIVE LEARNING IN THE EDUCATION SYSTEM

Feruza Sunnatovna Kasymova

Senior Lecturer, Department of Russian Language and Literature A. Kadyri State Pedagogical University

Abstract

This article examines adaptive learning. It defines and explains the reasons for adapting learning to the student. It also describes in detail the use of adaptive learning in the educational system, its implementation, and the results.

Keywords: adaptation, implementation, education, effectiveness, program, individuality, resources, motivation, individuality.

Introduction

Аннотация

В данной статье рассматриваются вопросы адаптивного обучения. Дано определение и раскрыты причины адаптирования обучения под ученика. Подробно дано описание использования адаптивного обучения в образовательной системе её реализация и результаты использования.

Ключевые слова: адаптация, реализация, образование, эффективность, программа, индивидуальность, ресурсы, мотивация, индивидуальность.

Annotatsiya

Ushbu maqolada adaptiv ta'lim masalalari ko'rib chiqiladi. Ta'limning o'quvchiga moslashtirilishiga ta'rif berildi va sabablari ochib berildi. Adaptiv ta'limdan ta'lim tizimida foydalanish tavsifi, uni amalga oshirish va foydalanish natijalari batafsil berilgan.

Tayanch iboralar: moslashuv, amalga oshirish, ta'lim, samaradorlik, dastur, individuallik, resurslar, motivatsiya, individuallik.

Adaptive learning is not simply “explaining things differently.” It is an approach in which the curriculum, materials, and pace of learning are tailored to the individual student. Adaptive learning is a teaching methodology designed to provide personalized learning, with the goal of ensuring effective, efficient, and individualized learning paths to engage every student in the educational process [3, 56].

It is based on one simple principle: all children are different. Some grasp things on the first try. This is an approach in which the curriculum, materials, and pace of learning are tailored to the specific student. It is based on a simple principle: every student is unique. Some understand



right away, while others need a second explanation. Some absorb information through listening, while others through practice. And if everyone is taught the same way, some will always fall behind.

Adaptive learning always takes a different approach. It assesses a student's strengths and weaknesses and offers content and exercises tailored specifically to their current level. With this approach, students don't just listen; they follow a personalized learning path. This can take the form of a digital platform, a live instructor, or often a combination of both [1, 16].

Adaptive learning can take many forms. It can involve tests with automatically adjusted difficulty levels or assignments tailored to the student's responses. The most important thing is not "how," but "why": to ensure the student understands the material, rather than merely hearing about it. This represents a fundamental shift in education—from delivery to comprehension [8, 28].

Today, the learning process is closely linked to the digital educational environment, where educational programs are delivered through e-learning and distance learning technologies. The use of digital technologies, in turn, is closely linked to the approach of personalized learning. Digitalization and the personalization of education are interrelated and complement each other. It is no coincidence that the personalization of education is viewed as the "core" of the digital transformation of education [12, 62].

Personalized learning is understood as an educational technology that takes into account learners' individual educational needs, personal goals, cognitive interests, and individual characteristics [5, 13]. Research on personalization has been conducted by L.V. Baiborodova, Yu.V. Krupnov, A. Kondratenko, V.V. Grachev, and others. Researchers studying personalization identify the following approaches that contribute to the personalization of the educational process: increasing learner autonomy, differentiated instruction, self-directed learning, and adaptive learning. The works of P. Brusilovsky, I.P. Norenkov, A.Yu. Uvarov, G.V. Rybin, and L.A. Rastrigina form the basis of contemporary research on adaptive learning. [14, 66].

Adaptive learning is understood as a form of personalized learning in which adaptive technologies play a significant role; these technologies constitute a set of resources that include platforms, applications, and others. Adaptive technologies imply a flexible system for organizing the educational process that takes into account the individual characteristics and needs of learners, with the central focus placed on the learner, their activities, and their personal qualities [6]. Taking psychological characteristics into account plays an important role in adaptive learning. The characteristics of memory, thinking, and attention specific to a particular age period must be considered in adaptive learning. Often, the most common type of memory is the mixed type, which is a combination [16, 54].

It should be noted that the education of schoolchildren must involve active thinking, since when working with an adult audience, we are dealing with a developed intellect. When stimulating students' additional knowledge, it is first and foremost important to remove the obstacles that hinder their learning—namely, low receptivity (for example, through participation in role-playing games and the use of situational masks in class). Next, we should "enhance" what students lack, namely emotionality, which is suppressed due to their age. Meanwhile, emotions



play an important role in the learning process. All the factors mentioned above—namely, the characteristics of thought processes, attention, memory function, and suggestibility—significantly influence the entire learning process, and to achieve maximum effectiveness, especially in foreign language acquisition, they must be taken into account when organizing instruction. It should be noted that effective learning can only be ensured by a teacher with a high level of professional competence, to whom students can entrust part of their future [10, 21].

It depends entirely on the teacher whether they can reinforce a student's self-confidence and awaken their hidden potential. The teacher must spark interest in the subject being taught and ensure the principles of personalized learning and novelty. Adaptive technologies will help with this. Technologies that incorporate the principles of adaptive learning employ a data-driven approach to modify the [13,57].

When a student makes a mistake, adaptive learning tools provide feedback based on the student's specific errors and misunderstandings, offering additional materials on the topic. They also focus on individual skills and break them down into smaller parts based on the student's responses, without altering the overall sequence of skills. Adaptive content tools have two components: reviewing the student's specific response and providing feedback with unique hints and resources on a specific topic. So what makes content adaptive? There are many criteria necessary for creating well-designed and effective learning content for students [13, 69].

Student engagement and motivation are among the key factors for a successful learning process. Content that is visually appealing and interactive is more likely to capture students' attention. Additionally, content that offers students a degree of control—allowing them to choose their type of work and set their own pace—is more likely to lead to high levels of motivation and achievement. Adaptive assessment. This tool works by changing the questions a student sees based on their answer to the previous question. The difficulty of the questions increases as the student answers them correctly. If the student struggles, the questions become easier [7, 17].

What makes an assessment adaptive? Assessments are typically designed in two ways: as fixed-form or adaptive. A fixed-form assessment is one in which the questions are selected in advance, and every student takes the same set of questions (for example, a final exam). In adaptive assessment, the material changes depending on how individual students answer each question. This change is often a result of the material's level of difficulty. For example, if a student answers a simple question correctly, the next task they receive will be slightly more difficult, and so on. Thus, we conclude that adaptive learning, which takes into account students' individual educational needs and personal characteristics, can serve as a significant complement to traditional university education, as student engagement and motivation are significantly enhanced in this form of learning. The key components of adaptive learning are adaptive content, adaptive assessment, and adaptive sequencing. [9, 62]. This field is currently being actively studied and developed, as the advancement of personalized learning in an electronic environment will help unlock the personal potential of each learner and thereby ensure an improvement in the quality of training for future professionals.



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