UNIVERSAL DESIGN FOR LEARNING (UDL)

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Abstract. Inclusive education is a concept that entails quality education for a wide range of students with different interests, skills, and potential. To achieve this goal, there is a need for approaches that include all the nuances of quality education and fully systematize them. Having a research-based approach is also important in terms of quality assurance. Universal Design for Learning (UDL) has the potential to provide all of these. Developed based on modern scientific research on the brain, UDL offers guidelines for the teaching and learning process which enables students to take full advantage of learning. As a result, students become knowledgeable, motivated learners who can think strategically and purposefully. The article deals with UDL which offers multiple means of representation, action, and engagement.
Keywords: inclusive education, research, skills, universal design for learning, curriculum, practical tools.

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Annotasiya. İnklüziv təhsil maraq, bacarıq və potensial etibarilə geniş spektrdən olan şagirdlərin keyfiyyətli təhsil almasını ehtiva edən konsepsiyadır. Buna nail olmaq üçün isə keyfiyyətli təlimin bütün nüanslarını özündə ehtiva edən və onları dolğun şəkildə sistemləşdirən yanaşmalara ehtiyac var. Bu yanaşmaların elmi əsaslı olması keyfiyyəti təmin etmək baxımından da önəmlidir. Universal Öyrənmə Dizaynı (UÖD) bütün bunları təmin etmək potensialına malikdir. Beyin haqqında müasir elmi tədqiqatlara istinadən formalaşdırılmış bu yanaşma şagirdlərin təlimdən dolğun şəkildə faydalanması üçün istiqamətverici tövsiyələr ehtiva edir. Nəticə etibarilə təlim bilikli, strategiyalarla məqsədyönlü şəkildə düşünə bilən, motivasiyalı təhsilalanlar yetişdirir. Məqalədə təlim metodları, özünüifadə və təlimə cəlbolunma imkanlarına dair çoxsaylı tövsiyələr verən UÖD-nin mahiyyəti və prinsipləri izah edilir.
Açar sözlər: inklüziv təhsil, tədqiqat, universal öyrənmə dizaynı, kurikulum, praktiki vasitələr, bacarıqlar.

Introduction

There's a wide range of interests, backgrounds, and skills in any class. To cope with these various needs teachers must approach the lesson in several ways. Of course, it demands creativity and enthusiasm to set each lesson on a colorful base so all students benefit from it. It is not all about just providing better teaching techniques, it is also about how actively students contribute to the classroom process. Because knowledge is much stronger and more sustainable when constructed by students themselves. Thus there needs to be a unique approach that entails all these aspects.

This is exactly the point that universal design for learning (UDL) is to be applied. UDL is an educational framework consisting of three principles based on the learning sciences. These principles function as a guideline to develop a curriculum meeting needs of all students. The UDL principles are established on three groups of brain networks (recognition, strategic, and affective networks) that play a primary role in learning [Rose & Gravel., 2010].

UDL principles

These are the three UDL principles [Rose & Meyer., 2002]:
1. To support recognition learning, provide multiple means of representation – that is, offer flexible ways to present *what* we teach and learn.
2. To support strategic learning, provide multiple means of action and expression – that is, flexible options for *how* we learn and express what we know.
3. To support effective learning, provide multiple means of engagement – that is, flexible options for generating and sustaining motivation, the *why* of learning.

Main part

Advanced research in education and neuroscience over a half-century have changed our viewpoint of the brain in terms of several issues as well as education. One of the groundbreaking findings of these researches is that there is not a "regular student" in a classroom. More precisely, the learning style of every student is unique as fingerprints. Categorizing students according to their abilities is a primitive classification that is contradictory to reality. Such categorization misleads us due to which we lose important skills. Researches clearly indicate that individual abilities are not static, rather, they are dynamic

inclined to develop under favourable circumstances. Contact between students and the classroom environment is a decisive factor for learning achievement. There is huge variability among students in terms of how they learn and interact within a classroom. So variability is an inevitable norm in a classroom. Even students sharing similar skills and characteristics like age, culture, etc. are notable differ from each other.

This fact reshapes our fixed mind about "average" learners who can be taught through a standard curriculum in a certain "average" method. Now we are well aware of the fact that variability is certain, both within a student and among students, and it should be noted that this variability is not random at all, rather, it is systematic.

Modern researches reveal that there are many brain networks, however, researches highlight three sets of brain networks that explain functionality in an education setting. These networks enable us to build successful teaching and learning.

The three groups of networks are as follows [Harris and Graham., 2012]:

"Recognition networks" are specialized to sense and assign meaning to patterns we see; they enable us to identify and understand information, ideas, and concepts. This is the "what" of learning.

"Strategic networks" relate primarily to the executive functions and are specialized to generate and oversee mental and motor patterns. They enable us to plan, execute, and monitor actions and skills. This is the "how" of learning.

«Affective networks» are specialized to evaluate patterns and assign them emotional significance; they enable us to engage with tasks and learning and with the world around us. This is the «why» of learning.

These sets of networks closely collaborate to process and coordinate information. Being conscious of these networks their cooperation helps us welcome every difference and appreciate it. Since the traditional curriculum works only for certain students, there is a notion of «disability». The traditional curriculum is full of barriers that are built at the very beginning, thus at the curriculum development process. Consequently, students with special educational needs are prone to encounter these barriers. But many students without disabilities find the curriculum inaccessible as well.

The term «Universal Design for Learning» (UDL) reflects an architectural concept which originated as "Universal Design" and means the design of products, environments, programs, and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design [UNCRPD., 2006]. UDL has a common aim UD which considers the needs of all. Surely there are specific peculiarities of UDL since it is not building material

objects, rather, forming a process. [Rose & Meyer., 2002, 2005].

As a rule, the curriculum has three basic components – goals, assessments, and materials and methods. Each of these should be designed to accommodate the needs of all students [Rose & Meyer., 2002]. Goals should be plainly set so not a single learner faces barriers. Assessments, both formative and summative, need to be flexible enough to gather sufficient and accurate information on learners' achievements and the way how they learn better. Instructional methods and materials should enable full access and support for all achieve academic goals through the ways that facilitate their learning.

The UDL Guidelines enable teachers to tailor instruction for each student by incorporating appropriate supports, adjustable scaffolds, and challenges as well. Keeping a balance between challenge and support is an important integral part of UDL. Here the aim is not to make learning much easier at all. The aim is to facilitate the learning process to enable students to cope with «desirable difficulties» [Bjork & Bjork., 2011].

UDL Principles

I Principle: provide multiple means of representation

The first principle of UDL is the «what» of learning by which it is meant how information is perceived. Students understand the information in various ways. There is not a unique means of meeting all kinds of needs. As students have unique comprehension and individual characteristics, there is no way to make them understand a point through a «one-size-fits-all» approach. Therefore curriculum should provide students with a wide range of opportunities and multiple means of representation to access the content.

II Principle: provide multiple means of action and expression

Learning is not limited to simply the acquisition of knowledge. Learning is an activity. In other words, in education it is not all about results, it is also about the process. Throughout the learning process, students demonstrate and develop skills in strategy, communication and organization. And this is a process of self-expression. Here again, students manifest their skills through expressing themselves and therefore it is crucial to provide them with multiple means of action and expression. So the second principle means "how" of learning.

III Principle: provide multiple means of engagement

The question "what motivates students to insist on learning even the tasks are challenging?" is vital for productive learning achievements. Because keeping students motivated is important, otherwise, there is no point in continuing teaching

since students are not willing to take full advantage of it without motivation. So the third principle covers the "why" of learning. The following table displays the three principles and their sub-principles in a precise way [Rose & Gravel., 2010].

UDL Guidelines Principles and Guidelines

UDL Principle I. *Provide Multiple Means of Representation*	UDL Principle II. *Provide Multiple Means of Action and Expression*	UDL Principle III. *Provide Multiple Means of Engagement*
Guideline 1: Provide options for perception	**Guideline 4:** Provide options for physical action	**Guideline 7:** Provide options for recruiting interest
Guideline 2: Provide options for language, mathematical expressions, and symbols	**Guideline 5:** Provide options for expression and communication	**Guideline 8:** Provide options for sustaining effort and persistence
Guideline 3: Provide options for comprehension	**Guideline 6:** Provide options for executive functions	**Guideline 9:** Provide options for self-regulation
↓	↓	↓
Resourceful, knowledgeable learners	*Strategic, goal-directed learners*	*Purposeful, motivated learners*

Conclusion

The ultimate aim of UDL is to transform students into «expert learners» who are motivated and purposeful, resourceful and knowledgable, strategic and goal-directed. UDL is considered an effective approach because it enables teachers to anticipate learning of all and plan accordingly. UDLensures that students from a wide range of skills will have full access to better teaching and benefit from it through active engagement.

The scientific novelty of the topic

While inclusive education is gradually expanding in our country, the application of innovative pedagogical ideas and teaching approaches ensuring the effectiveness of inclusion should be encouraged. Universal learning design (UDL) which is widely applied around the world yielding positive results, is one of the new approaches that support the provision of quality education for all. The article reveals the essence of ULD, which is a completely new notion for the national educational setting, and explains its principles.

The practical importance of the topic

Inclusive education means quality education for students with various skills and needs in a classroom. But this requires a systematic approach underpinned by research-based findings UDL provides scientifically reinforced theoretical approaches and practical tools for providing quality inclusive education based on modern research on the brain.

Relevance of the topic

Along with being envisaged in laws related to education, the number of inclusive schools involved in pilot projects is growing. This requires extensive research and the application of effective learning approaches to inclusive education. From this point of view, UDL can be considered relevant and important for the local community engaged in education.

References

1. Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In M. A. Gernsbacher, R. W. Pew, L. M.

2. Hough, & J. R. Pomerantz (Eds.), Psychology and the real world: Essays illustrating fundamental contributions to society. New York: Worth, pp. 56-64.

3. Tracey E. Hall, Anne Meyer və David H. (2012) Universal Design for Learning in the Classroom GUILFORD PRESS New York London

4. Rose, D. H., & Gravel, J. W. (2010). Universal Design for Learning. In P. Peterson, E. Baker, & B. McGraw (Eds.), International encyclopedia of education. Oxford, UK: Elsevier, pp. 119-124.

5. Rose, D. H., & Meyer, A. (2002). Teaching every student in the digital age: Universal Design for Learning. Alexandria, VA: Association for Supervision and Curriculum Development.

6. Rose, D. H., & Meyer, A. (Eds.). (2005). A practical reader in Universal Design for Learning. Cambridge, MA: Harvard Education Press.