# CHARACTERISTICS OF THE APPLICATION OF INNOVATIVE TECHNOLOGIES IN THE EDUCATIONAL PROCESS OF HIGHER EDUCATION INSTITUTIONS

# ХАРАКТЕРИСТИКИ ЗАСТОСУВАННЯ ІННОВАЦІЙНИХ ТЕХНОЛОГІЙ В ОСВІТНЬОМУ ПРОЦЕСІ ВИЩИХ НАВЧАЛЬНИХ ЗАКЛАДІВ

UDC 159.9
DOI https://doi.org/10.32782/2663-5208.2025.74.16


**Hagverdiyeva K.M.**
PhD in Psychology, Senior Lecturer
Azerbaijan University of Languages

*Today, numerous higher education institutions are progressing toward the integration of innovative technologies within the educational process. Innovative technologies introduce a range of transformations, including the stimulation of active learning, the facilitation of dynamic communication between teachers and students as well as among students themselves, the cultivation of students' independent thinking, and the promotion of diverse learning methodologies. This article investigates and analyzes theoretical materials concerning innovative technologies, grounded in Bloom's taxonomy. The fundamental objective of innovative technologies is to prepare individuals to secure their place within a rapidly evolving modern society, to comprehend advancements, and to conceptualize their roles within it. The article further examines and compares the traditional and revised versions of Bloom's taxonomy. A two-dimensional model of Bloom's revised taxonomy is proposed for examination. In addition, the study explores the relationship between critical thinking and Bloom's taxonomy within the context of teacher education. The similarities and distinctions between Bloom's taxonomy and the concept of "didactics" are elucidated. The article also underscores the challenges posed by changes in the contemporary education system, highlighting that such transformations had already been a focal point for progressive educators in earlier periods. Bloom's taxonomy represents a framework for the classification of educational objectives. From a pedagogical perspective, theoretical materials are reviewed in alignment with Bloom's taxonomy. The description and analysis of the evolution of Bloom's cognitive skills, as presented in this study, may prove significant in the formation of competent educators equipped with critical thinking abilities and the capacity to apply knowledge effectively within educational environments. The article examines how the application of Bloom's taxonomy can contribute to the enhancement of critical thinking among future teachers and the potential advantages it may yield in educational practice.*
**Key words:** *Human resources, generational theory, Bloom's taxonomy, interpersonal skills, cognitive knowledge, multiple intelligences.*

*Сьогодні численні вищі навчальні заклади просуваються до інтеграції інноваційних технологій в освітній процес. Інноваційні технології запроваджують низку трансформацій, включаючи стимулювання активного навчання, сприяння динамічному спілкуванню між викладачами та студентами, а також між самими студентами, розвиток самостійного мислення студентів та просування різноманітних методів навчання. У цій статті досліджуються та аналізуються теоретичні матеріали щодо інноваційних технологій, засновані на таксономії Блума. Фундаментальна мета інноваційних технологій полягає в тому, щоб підготувати людей до забезпечення свого місця в сучасному суспільстві, що швидко розвивається, до розуміння досягнень та концептуалізації своїх ролей у ньому. У статті далі розглядаються та порівнюються традиційна та переглянута версії таксономії Блума. Для дослідження пропонується двовимірна модель переглянутої таксономії Блума. Крім того, дослідження досліджує взаємозв'язок між критичним мисленням та таксономією Блума в контексті педагогічної освіти. З'ясовуються подібності та відмінності між таксономією Блума та концепцією «дидактики». У статті також підкреслюються виклики, що виникають через зміни в сучасній системі освіти, підкреслюючи, що такі трансформації вже були в центрі уваги прогресивних педагогів у попередні періоди. Таксономія Блума являє собою основу для класифікації освітніх цілей. З педагогічної точки зору, теоретичні матеріали розглядаються відповідно до таксономії Блума. Опис та аналіз еволюції когнітивних навичок Блума, представлені в цьому дослідженні, можуть виявитися значними у формуванні компетентних педагогів, оснащених здібностями критичного мислення та здатністю ефективно застосовувати знання в освітньому середовищі. У статті розглядається, як застосування таксономії Блума може сприяти розвитку критичного мислення серед майбутніх вчителів, та потенційні переваги, які це може дати в освітній практиці.*
**Ключові слова:** *людські ресурси, теорія поколінь, таксономія Блума, міжособистісні навички, когнітивні знання, множинний інтелект.*

**Introduction to the Problem.** In the contemporary era, often referred to as the "Age of Intelligence", the development of a new educational system constitutes a pressing concern. Every specialist engaged in this field fully comprehends the incompatibility between traditional education and emerging requirements.

In the 21st century, human relations occupy a particularly prominent position among global challenges. An individual's mental health, productivity, and creative achievements are directly influenced by the socio-psychological characteristics of their "socium", encompassing the distinctive contradictions and concerns inherent in interpersonal relations. The global maladies of our era, metaphorically speaking, are "nourished by" human relations [1].

Although the Law "On Education", enacted on 19 June 2009, reflects contemporary standards, in certain areas the implementation of these innovations is accompanied by ambiguity [2].

As educators, we can state with conviction that the rich libraries, which played an invaluable role in our development, have now become relics of the past and should be preserved as archival materials representative of the previous century. Modern textbooks must be developed through a comprehensive understanding of the new generation, taking into account their

comprehension, interests, and expectations. Regrettably, it must be noted that certain educators remain unable to transcend the traditional lesson format.

**Degree of Problem Elaboration**

The founders of generational theory, American theorists N. Howe and W. Strauss, advanced the field by identifying fundamental archetypes as well as behavioral patterns and motivations, including values within the professional domain. Although the complete theory, articulated in their book *Generations*, primarily describes American society, this issue is of global relevance [3].

The essence of the theory lies in the assertion that individuals born approximately every 25 years, under the influence of specific social, cultural, and political factors, possess distinct characteristics and programming. Consequently, each new generation exhibits unique values, behaviors, and attitudes toward labor, which define the general features of that particular society.

The term "HR" (an abbreviation of the English phrase "human resources") first appeared in the scientific literature through the work of American economist John Commons (1862–1945), who introduced it in his 1893 book *Distribution of Wealth*. However, the scientific foundations of this term were later developed and advanced by Edward Wight (1903–1971), a professor of economics and sociology at Yale University, through his academic publications [4].

Frederick Winslow Taylor (1856–1915) is considered one of the earliest human resources specialists and the founder of the theory of "Digital Taylorism". The term "human resources" was subsequently used again by Peter Drucker in his 1954 publication *The Practice of Management* [17 5].

The categorization of employees by age (generations) assists HR professionals. As changes in the labor market occur frequently and rapidly, the need for adaptable and professional workers continues to grow.

Thus, the new era has introduced new demands, which have also impacted education. Whether in teacher professionalism or in student education, the primary goal of shaping socio-economic competencies is closely aligned with socially oriented scientific and technological progress. The traditional forms of education and upbringing have shifted focus toward cultivating the younger generation in a new spirit.

Bloom's taxonomy is a hierarchical system of educational objectives, classified from the simplest to the most complex. In practice, it is intended to assist teachers and methodologists in easily structuring both individual lessons and entire curricula, as well as in identifying appropriate tasks and assessment methods for each stage of learning.

The period from 1930 to 1970 holds particular significance in the history of educational psychology as a distinct phase dedicated to the development of taxonomies. The taxonomy of educational objectives has been explored by various scholars as a research subject, leading to the creation of conceptual models reflecting the structure of cognitive processes and intellect. Taxonomies in the cognitive, affective, and psychomotor (cognitive, emotional, involuntary) domains were developed by researchers such as R.V. Tyler (1930), B. Bloom (1956), G. Guilford (1967), Wilson (1967), Bruner (1979), among others. Other researchers have also investigated these matters within the framework of these taxonomies. The academic literature notes that the first successful taxonomy in the field of education was created by psychologist Benjamin Bloom in the mid-20th century [6, p. 8].

Although Bloom's taxonomy is one of the most frequently cited models in education and is used worldwide by educators and methodologists, it is, in fact, not as widely understood as assumed. Furthermore, there are critics who believe that this approach causes more harm than benefit. A simple example is provided by Rob Berger, a former practical teacher and head of EL Education curriculum development programs, who claimed that the sequence itself does not function properly within the taxonomy: "Over the years of working with thousands of teachers, I have come to the conclusion that Bloom's taxonomy does more harm than good. It encourages us to organize learning in ways that are actually contrary to how learning truly occurs in the classroom. If we accept that understanding is often constructed through application and creation, we should provide students with opportunities to create things (and analyze this creativity). Through creating and analyzing, students will acquire knowledge and understanding. They can begin making things from the very start of instruction. In the creative process, they can actively engage their minds and hands, constantly analyzing their understanding both individually and collaboratively" [7].

**The objective of the present inquiry** is to analyze the current state of teaching and learning characteristics within the modern education system, including the examination of both traditional and newly applied technologies.

**The methodology** entails the analysis of existing theoretical literature, as well as the examination and evaluation of technologies implemented in the educational process whose effectiveness has been empirically established.

**Main Section**

**The Place and Role of Bloom's Taxonomy in Education**

Bloom's taxonomy consists of three hierarchical models used to classify educational objectives according to levels of complexity and specificity. The three lists encompass learning objectives in the cognitive, affective, and psychomotor domains. The models were named in honor of Benjamin Bloom, who led the committee of educators that developed the taxonomy in 1956. He also edited the first volume of the standard text, *Taxonomy of Educational Objectives: The Classification of Educational Goals* [8; 9].

**The Second Issue**: In the original version of the taxonomy, knowledge formed the foundation of the entire hierarchy. In practice, this caused several problems, as many educators realized that scholars re-

ferred to various categories of knowledge. In 1956, there were three categories, but one more was later added, making it four:

1. Factual knowledge
2. Conceptual knowledge
3. Procedural knowledge
4. Metacognitive knowledge

As a result, when cognitive processes and knowledge are combined, a taxonomy matrix (Taxonomy Table) emerges. This helps to define (and distribute) educational goals and tasks equitably and accurately. It should be noted that this refers to the outcomes that result from tasks, not the tasks themselves. The term "taxonomy" is simply a synonym for classification, and Bloom insisted on its use because he believed it was the most effective [9].

The taxonomy represents a system of concepts that reflect a chain-like, hierarchical progression from the simplest to the most complex. The structured advancement of subcategories is called a hierarchical system in classification [10].

The newly introduced Bloom's taxonomy, or the system presented as new, does not radically alter education in a certain sense. It essentially parallels the didactics instilled in the previous educational system. According to Y.A. Comenius, didactics is the art of teaching everything to everyone. He laid the foundation for determining the principles and rules of instruction and organizing the teaching process [11].

The Swedish educator Johann Heinrich Pestalozzi proposed a significant goal: the methods and forms of instruction should be such that even a peasant mother could teach her children using them. The first answers to the core didactic questions of "What should be taught?" and "How should it be taught?" can be found in examples of oral folk creativity [12].

The modern didactic system constitutes both sides of the teaching and learning process. The core of modern didactic concepts is based on programming, problem-based learning, developmental education (P. Galperin, L. Zinkov, V. Davidov, M. Mehdizadeh), humanistic pedagogy (C. Rogers), cognitive psychology (J. Bruner), pedagogical technology, and cooperative pedagogy. In such modern approaches, the objectives of teaching not only consider the formation of knowledge but also ensure the overall development of students, including their intellectual, labor, and artistic skills, as well as meeting their moral and cognitive needs" [1, p. 41].

Now, let us present the similarities between both systems (traditional and modern).

**Bloom's Taxonomy** – has identified three main types of learning activities:

1. **Cognitive learning** – sensory cognition skills. **What is learned – knowledge** (sensory perception ability: at this stage, material is sensed, perceived, and reinforced in memory – in simple terms, memorization).

2. **Affective learning** – development in the emotional and affective domains towards logic; intellectual operation skills. **How it is learned – understanding – ability** (cognitive operations: analysis, synthesis, comparison, generalization, concretization, abstraction) – Y.A. Comenius.

3. **Psychomotor learning** – physical or practical skills. **The ability to apply knowledge in practice** – possesses it, owns it, is competent. Through what method? (the degree of confirmation in practice) – I.H. Pestalozzi.

The difference in content is expressed only in the fact that the teacher does not teach, but rather provides direction, i.e., announces the topic, emphasizes what they will primarily focus on, and offers the option of how to present it. If the student presents the topic poorly, the teacher addresses them with guiding questions. If no answer is provided, they ask the classmates for assistance. A student unable to recall information confirms that they have memorized it mechanically, i.e., they have memorized the text without understanding it. Sometimes, after a peer's response, the student is able to repeat that section more broadly and is directed towards further clarification. This marks the transition to an intermediate level. If a student selects various tools and presents the topic, answering questions from both the teacher and peers, it will be assessed as a high-level preparation.

**Induction and Deduction Methods in the Teaching Process**

The teaching process is based on the induction and deduction methods. The taxonomy of these methods depends on the interpretation of teaching material in the lesson.

**Induction** – from the Latin *inductio* – explanation of facts, process descriptions based on specific examples, and task assignments that structure the learning process. The basis of induction is knowledge gained through observation and experiments. The inductive method should be complemented by the deductive method, with comparisons and general conclusions drawn.

Induction is widely used in school education. Many teaching materials and teacher interpretations are based on the induction method. The inductive method is particularly appropriate for conducting practical exercises and observation lessons.

**Deduction** – from the Latin *deductio* – the explanation and learning of the lesson by transitioning from general knowledge of the process to specific knowledge. Deduction plays a significant role in the formation of logical thinking. Major discoveries in science have been made using the deductive method.

In the construction of the teaching subject, the use of the deductive method implies the interpretation of the general principles, concepts, and skills of a specific knowledge area rather than describing individual facts. This method allows students to analyze all specific variations related to the learned processes. In studying theoretical material, the deductive method is more efficient. It enables students to master general and abstract knowledge beforehand, which allows them to draw conclusions about more specific and concrete knowledge from this general understanding.

This creates significant opportunities for reducing the volume of teaching material and the time required to assimilate it. However, this does not imply that all material should be taught through the deductive method. Rational ways to combine the inductive method should be found, as without the inductive approach, it is impossible to prepare students to solve more complex issues.

According to these concepts, there are forms of inductive and deductive thinking. In the teaching process, inductive and deductive methods are closely interconnected, and both induction and deduction processes can occur in one lesson and throughout the learning process.

Inductive and deductive teaching methods characterize the explanation of the material in one way or another and describe the logical progression of the teaching material. The use of inductive and deductive methods involves a logical explanation of a subject, moving either from the specific to the general or from the general to the specific. Ideas about inductive and deductive thinking were proposed by philosophers, naturalists-methodologists, and educators as early as the 19th century.

A.Y. Herdin, the translator of Darwin and Haeckel's works, in his selected pedagogical works published in 1953, notes that the new inductive teaching method was first suggested in the first half of the 19th century by the German naturalist Garnish. Garnish, after studying the flora, fauna, and minerals of his own country, proposed studying the nature of other countries and organizing teaching in a concentric manner.

To utilize Bloom's taxonomy in the teaching process, issues that condition the levels of comprehension will be applied. With certain principles in mind, six levels of cognitive domain teaching goals have been identified: knowledge, comprehension, application, analysis, synthesis, and evaluation. The analysis problem breaks down into parts: definition, subject, task, methods, types, functions, physiological foundations, types, forms, and so on.

Composition combines these parts based on a new basis to solve them. Through the operations of analysis and synthesis, thought moves from general ideas about the material to a deeper understanding. Through analysis, the main elements are identified, and through composition, the essential relationships of the whole are revealed.

Some students tend to analysis, focusing on precision and clarity, while others are distinguished by the breadth of their composition. Since analysis and composition do not fully express all aspects of thinking, other relations are revealed through abstraction and generalization.

Comparison is aimed at finding differences in similarities and similarities in differences. It requires uncovering deeper essential features, regularities, and internal relationships: for example, psyche and consciousness, activity and function, thinking and imagination, individual, personality, individuality, group differences, leadership and guidance, and so on. Above all, comparisons should be made on similar objects. For example, comparing a student with a cup is not valid. On the other hand, during comparison, the same feature should be taken for all objects being compared. For example, it is not valid to compare the discipline of one student with the academic success of another.

Abstraction, like other cognitive operations, originates in the action plan. Thought does not separate from the concrete but constantly and necessarily returns to it. The return to the concrete, to the event, goes through the abstract thought process. This process always ends with the enrichment of cognition. It is precisely abstract thinking that helps to analyze, classify, and systematize information, find correspondences between the general and the specific, evaluate and compare objects and events, and generalize various information.

The level of knowledge and skills that a student possesses in a specific subject, topic, section, or entire course (referred to as the achievement level) is determined by comparing their demonstrated learning outcomes with the established assessment standards.

This classification is also encountered in psychology under the theme of thinking: "Cognitive processes are initiated depending on the presence of a problem situation, and their orientation towards solving a particular problem is characterized by the subject's representations through inadequate, random, and irrelevant features. A more adequate understanding of the issue at hand, when faced with a cognitive challenge, utilizes multiple operations to address the problem. These operations include analysis, composition, comparison, abstraction, generalization, and concretization" [4].

From this, it can be inferred that these two domains – psychology and pedagogy – must be taught in conjunction. Notably, in referencing this book to emphasize the inseparability of the sciences, we find further confirmation of this idea: "In this taxonomy, cognitive operations occupy a prominent role... In traditional teaching, some attention was devoted to the teaching of cognitive operations, whereas, in interactive teaching, the instruction of cognitive operations is regarded as an essential teaching objective" [3].

As previously mentioned, B. Blum and his research group did not offer any classification for psychomotor learning methods. The categories encompassing psychomotor learning divisions were introduced by Simpson in 1972. Additionally, two other widely recognized versions of the psychomotor learning taxonomy exist: the Dave version (1975) and the Harrow version (1972).

Lorin Anderson, a prominent student of B. Blum, revisited the cognitive learning method and implemented several modifications. The newly developed classification reflects a more dynamic form of cognitive processing and is more precise. Based on these modifications, key terms in the six categories were changed from nouns to verbs, the order of the categories was altered, and other adjustments were made.

Thus, "the fundamental essence of the taxonomy theory lies in the staged acquisition of knowledge – moving from the simple to the complex, from the known to the unknown – which forms the foundation of mastery" [4]. However, upon examining the revisions made to the taxonomy in 2001, one will observe a contradiction to the previously stated notion regarding the essence of the taxonomy.

In 2001, the taxonomy was revised by a new group of scholars. This group was led by David Kretvol (the principal scholar of the team that originally created the system) and Lorin Anderson (a former student of Blum). Kretvol and Anderson's revisions modernized the taxonomy and made it more accessible and user-friendly for teachers and methodologists.

The innovations introduced in this hierarchical model are as follows:

– **Creativity** – The application of acquired knowledge in novel experiences

– **Evaluation** – The assessment of the significance of material, the ability to draw conclusions, and formulate hypotheses

– **Analysis** – The understanding of the material's structure and the ability to break it into related parts

– **Application** – The use of acquired knowledge in new contexts

– **Comprehension** – The understanding of the core essence of the subject, and the ability to articulate and interpret it

– **Memory** – The retention and recall of subject matter

It is evident that this hierarchy mirrors the progression from simplicity to complexity, reversing the direction of the hierarchy mentioned earlier. This pattern of induction-deduction and deduction-induction can be substantiated by a historical fact from the development of psychology as a science: "In 1879, Wilhelm Wundt established the renowned experimental psychology laboratory in Leipzig... Shortly thereafter, the first Experimental Psychology Institute in the world was formed based on Wundt's laboratory. Thus, psychology evolved not only into an experimental science but also began to develop as an independent academic discipline" [8].

In this case, a shift from deduction to induction is implemented.

As indicated above, an innovation that is not grounded in a solid foundation will inevitably lead to numerous debates and changes. In other words, a creation based on an incorrect foundation is destined to return to its original state. Regarding abilities, according to the American psychologist Howard Gardner, when each student is motivated, supported, and given proper guidance, all eight abilities can be developed to the necessary level.

This theory suggests that human intelligence can be divided into the following modalities: visual-spatial, verbal-linguistic, musical-rhythmic, logical-mathematical, interpersonal, intrapersonal, and naturalistic. As Gardner points out, "the brain has evolved over millions of years to respond to various types of content in the world" [11]. Gardner initially proposed six types of intelligence, and today this list has expanded to nine types, as shown below. However, this theory has also been criticized by both psychologists and educators, with many believing that the various "intelligences" represent innate talents and abilities. Cognitive psychologists have since stated that there is no empirical evidence supporting the validity of this theory.

Although the formalization of student-centered education is reflected in the new educational system, for many years, innovative pedagogues and psychologists have continuously worked on this issue, even literally challenging the traditional system. Every teacher should assist in bringing out these abilities in their students. Let us not forget that a teacher's benevolent attitude toward students, respect for them, acceptance of them as they are, and belief in their abilities–all these contribute to increasing respect and trust, both for the students themselves and for the teacher. As seen, the teacher-student relationship is a delicate and complex issue. Therefore, if we organize our work correctly, we will ultimately educate students who stand out for their high intellect, scientific potential, and national and moral values, and who are courageous and patriotic.

July 7, 2011, marks the date the **"Manifesto of Humanist Pedagogy"** was declared. This manifesto is of great importance to modern educators. The innovations reflected in the manifesto, under various headings, align completely with the personality-centered requirements set by the contemporary education system. For example, "Authoritarian Pedagogy vs. Humanitarian Pedagogy: Contrasting Aspects", "Pedagogy for Enlightened Children", "What Should We Direct Our Creative Energy Toward?" and so on [9].

Thus, the goal of teachers' tasks is primarily to uncover competence during the three stages of understanding: cognitive (mechanical memorization), affective (emotional approach), and psychomotor (creative orientation).

**Conclusions**

To achieve high results at any level, experience from other levels is also required. In other words, the purpose of Bloom's taxonomy is not merely to provide foundational education to students, but to motivate them at all three levels and to focus their attention. Some students gradually transition from knowledge to experience, while others demonstrate competence from experience to knowledge. Therefore, the teacher's role is not to explain the topic, but to focus the student's attention on the essential aspects of the subject. The student, in turn, will present the results of their competence as a result of their research. Creativity exists in every individual, but its discovery depends on time. In some people, it manifests immediately, while in others, it emerges gradually. For this, self-awareness, self-assessment, and self-regulation are essential for the student, the learner, and indeed for all individuals. Modern teaching simply creates a foundation for this in schools.

In the traditional education system, the teacher would deliver the content of the material to the student, either verbally or in written form. In lower grades, the teacher would emphasize: “Children, pay attention to what is written in black letters in the text, memorize it”. In the new teaching model, more space is given to student activity than to teachers. In modern times, the teacher’s task is to introduce the topic and highlight what should be focused on. In this case, the student or learner becomes an active researcher, and if they show passivity, gradually competence will arise, and they will develop. At this point, the teacher’s and peers’ questions and emphasis will assist them. This will also lead to the student’s self-realization within the social environment. The success of modern education is rooted in this: self-awareness and development to realize the unique program inherent within oneself, rather than conforming to collective consciousness and individualizing. Even though humans are social beings, everyone has a unique role in the social environment.

**BIBLIOGRAPHY:**

1. Əhmədov H.H., Zeynalova N.E. Pedaqoğika. Dərslik. Bakı: “Elm və təhsil”, 2019. 352 s.

2. Təhsil haqqında Azərbaycan Respublikasının Qanunu. URL: https://e-qanun.az/framework/18343

3. Howe N., Strauss W. Millennials Rising: The Next Great Generation. In R. J. Matson (Ed.), Cartoons. New York : Vintage Books. 2000. p. 8

4. The World Distribution of Household Wealth. James B. Davies, Susanna Sandstrom, Anthony Shorrocks, and Edward N. Wolff. December 5, 2006.

5. İnsan Resurslarının idarə edilməsi və İnsan. URL: https://hrclub.az/az/blog/93

6. Anderson L. W. Benjamin S Bloom: His life, his works, and his legacy. In B. J. Zimmerman & D. H. Schunk (Eds.), Educational psychology: A century of contributions. (pp. 367–389). Lawrence Erlbaum Associates Publishers. 2003.

7. Bloom, Benjamin S. The Role of Gifts and Markers in the Development of Talent. Exceptional Children. 1982, 48 (6): 510–522

8. Bloom, B.S. Taxonomy of educational objectives: The classification of educational goals / B.S. Bloom, M.D. Engelhart, E.J. Furst. David McKay Company, 1956. Vol. Handbook I: Cognitive domain.

9. Shane, Harold G. Significant writings that have influenced the curriculum: 1906–1981. Phi Delta Kappan. 1981, 62 (5). 311–314

10. Juan David Millán, Gonzalo Salas. Wundt’s work is merely an incident in one of the challenging scholarly careers on recent history: The media and academic reception of Völkerpsychologie, 2024, pp. 1900–1920

11. “Acta Comeniana”, Archiv pro bádání o životě a díle Jana Amose Komenského, t. 25, Praha, 1969, pp. 65

12. Pestalozzi, J.H. Çocuğunu nasıl eğitirsin. (B. Erdoğdu, Çeviri Ed.). 2018.

13. Howard Gardner, multiple intelligences and education. URL: https://infed.org/mobi/