Жамият ва инновациялар –
Общество и инновации –
Society and innovations
Journal home page:
https://inscience.uz/index.php/socinov/index

Modern technology for developing critical thinking skills in future teachers

Lola DJURAYEVA[1]

Bukhara State Pedagogical Institute

ARTICLE INFO

Article history:
Received May 2023
Received in revised form
15 June 2023
Accepted 25 June 2023
Available online
15 July 2023

Keywords:
critical thinking,
future teachers,
professional skills,
blended learning,
flipped classroom,
modified learning process,
active learning.

ABSTRACT

This article highlights the meaning and essence of the concept of critical thinking, and gives examples of the pedagogical and psychological views of representatives and researchers of the world education field on critical thinking. It is shown the specific advantages of thinking critically, and useful aspects of developing critical thinking in students, including future teachers. This article also describes organizing the educational process in higher education on the basis of "Blended –learning" technology and using one of its models "Flipped classroom" as well as its aspects in improving the quality and effectiveness of education.

2181-1415/© 2023 in Science LLC.
DOI: https://doi.org/10.47689/2181-1415-vol4-iss5/S-pp78-85

Kelajakdagi o‘qituvchilarda tanqidiy fikr ko‘nikmalarini rivojlantirishning zamonaviy texnologiyalari

Калит сўзлар:
tanqidiy fikr,
kelajakdagi o‘qituvchilar,
kasb-hunar ko‘nikmalari,
aralash ta’lim,
tekshirilgan sinf,
modifikatsiyalangan

АННОТАЦИЯ

Mazkur maqolada tanqidiy fikr tushunchasining ahamiyati va ma’naviyati yoritiladi, jahon ta’lim sohasi vakillari va tadqiqotchilarining tanqidiy fikr bilan bog‘liq pedagogik va psixologik qarashlari misollari keltiriladi. Tanqidiy fikrning o‘ziga xos afzalliklari va talabalar, shu jumladan, kelajak o‘qituvchilarda tanqidiy fikr rivojlantirishning foydali jihatlari ko‘rsatildi. Mazkur maqolada, shuningdek, oliy maktabdagi ta’lim jarayonini “Aralashgan ta’lim ” texnologiyasi asosida va uning“ To‘ntirilgan sinf ” modellaridan biridan foydalanishda tashkil etish, shuningdek, ta’lim sifati va samaradorligini oshirishdagi jiham ta’tiriladi.

[1] Teacher, Basic doctorate, Pedagogy Department, Bukhara State Pedagogical Institute.

Современные технологии развития навыков критического мышления у будущих учителей

Ключевые слова:
критическое мышление,
будущие учителя,
профессиональные навыки,
смешанное обучение,
перевернутый класс,
модифицированный учебный процесс,
активное обучение

АННОТАЦИЯ

В данной статье освещается значение и сущность понятия критического мышления, приводятся примеры педагогических и психологических взглядов представителей и исследователей мировой образовательной сферы на критическое мышление. Показаны специфические преимущества критического мышления и полезные аспекты развития критического мышления у студентов, в том числе у будущих учителей. В данной статье также описывается организация образовательного процесса в высшей школе на основе технологии «Смешанное обучение» и с использованием одной из ее моделей «Перевернутый класс», а также ее аспекты в повышении качества и эффективности образования.

INTRODUCTION

In this day and age of fierce competition and economic globalization, such issues as the quality of training of personnel studying in the higher education system, increasing their potential and competitiveness are acute. Ensuring the achievement of the goals of the socio-economic reforms implemented in our country, the fundamental reconstruction of the life of our society depends to a large extent on how effectively this task is solved. Because it is known from practice that the effectiveness of any social and economic changes in this regard directly depends on the professional maturity of the specialists mobilized to perform the set tasks.

It is no secret that nowadays in Uzbekistan, more than ever, much attention is paid to the development of the education sector, especially the field of teacher education, and the formation of a comprehensively developed generation.

THEORETICAL BASIS

In the 21st century, education is globally recognized as the main factor ensuring sustainable development, and the Incheon Declaration for Education 2030, “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” is defined as an urgent task. This has expanded access to modern information, communication, and distance learning technologies aimed at developing the creative and critical thinking of each person in the system of continuous education and throughout life.

In conditions when the main goal of creating the foundations of the third Renaissance in our country is set, it is important to solve urgent problems, such as modernizing the higher education system and training competitive, independent, and critically thinking specialists who meet the requirements of educational standards of developed countries in all respects. In particular, the “Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030” emphasizes the reform of the higher education system based on modern requirements, and this document “Coverage by higher education” is defined as a strategic goal “to raise the level, prepare highly qualified, creative and critically thinking personnel capable of making

independent decisions based on international standards, and create the necessary conditions for them to manifest their intellectual abilities and develop as spiritually mature individuals". The individualization of educational processes is of great importance based on digital technologies, the development of distance education services, the widespread introduction of webinar technologies, online, "blended learning", "flipped classroom", and scientific, theoretical, and integrated research. At the same time, it is necessary to use actively the research approach in the educational process, while it is possible for students to develop the skills of scientific research and the formation of their creative abilities and especially critical thinking.

On the issues of developing the professional competence of future teachers and the formation of independent and critical thinking skills in students conducted scientific researches by local scholars and researchers such as N.N. Azizkhodjayeva, B.R. Adizov, S. Bazarova, Sh.A. Abdullayeva, U.Sh. Begimkulov, O. Musurmonova, N.A. Muslimov, U.Q. Tolipov, R.H. Djurayev, Sh.Q. Mardonov, J.G. Yoldoshev, O. Rozikov, M.H. Mahmudov, R. Safarova and others.

Among the scientists of the republics of the Commonwealth of Independent States in the research of V.A. Bolotov, A.V. Korjuev, G.B. Sorina, A.I. Lipkina, L.A. Rybak, A.S. Bayramov, A.V. Butenko, D.M. Shakirova, L.I. Shragina, S.I. Zair-Bek, I.O. Zagashev, V.V. Mariko, E. Grudzinskaya are reflected the process of professional training of future specialists, the problems of developing critical thinking skills in them. The idea and principles of problem-based teaching from the point of view of the psychology of thinking developed by scholars such as S. L. Rubinstein, M.I. Makhmutov, V. Okon, I.Ya. Lerner.

From foreign experience, the names J. Dewey, E. de Bono, R. Ennis, M. Lipmann, D. Halpern, D. Cluster, R.H. Johnson, P. Freire, J. Steele, D. Spiro, C. Meredith, C. Temple are most frequently associated with critical thinking, from a philosophical, psychological and pedagogical point of view, who studied the structure, importance, and goals of this skill and researched the problem of organizing the educational process based on the development of thinking critically.

Initially, before discussing the ways and pedagogical models of improving the critical thinking of future specialists especially teachers, let's define the notion of critical thinking itself. So, what is critical thinking? Philosopher and educator John Dewey, who is considered the founder of modern critical thinking, defines critical thinking as follows: "Active, persistent, careful consideration of a belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends". The first key component of Dewey's definition is that critical thinking is active. In his book "How We Think" (1910) critical thinking was adopted by the progressive education movement as a core instructional goal that offered a dynamic modern alternative to traditional educational methods such as rote memorization. As Fahim & Eslamdoost believe the early definition of critical thinking was proposed by Bloom as critical thinking is the mastery of a set of skills such as knowledge, comprehension, application, analysis, synthesis, evaluation, and applying the best when faced with a novel situation in which three higher levels, i.e. analysis, synthesis, and evaluation, are frequently reported to reflect critical thinking.

A very well-known speaker in education Barry K. Beyer, the author of the idea of "Thinking-based education", critical thinking means "making clear, reasoned judgments". American psychologist Diane F. Halpern believes that critical thinking is the use of cognitive

methods that are controlled, rational and purposeful, which increase the probability of achieving the desired final result. These techniques are used in problem-solving, inference, probability estimation, and decision-making and require skills that are valid and effective for the specific situation and type of issue being solved. He states that critical thinking is characterized by drawing logical conclusions, creating mutually consistent logical models, and making informed decisions about rejecting, agreeing with, or temporarily postponing any judgment. All these definitions imply mental activity that should be aimed at solving a specific cognitive task. A comprehensive, concise operating definition was given by Michael Scriven and Richard Paul (2003): "Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action."

Overall, critical thinking is the ability to think clearly and rationally, understanding the logical connection between ideas. Critical thinking has been the subject of much debate and reflection since the days of early Greek philosophers such as Plato and Socrates and continues to be a subject of discussion in the modern era, such as the ability to recognize fake news. Therefore, from the definitions given above, it is clear that the development of critical thinking in future teachers plays an important role in improving their professional skills.

DISCUSSION

The analysis of research conducted in our country in recent years to determine effective methods of developing students' critical thinking shows that, despite the great theoretical and practical importance of modern teaching methods, they do not adequately reflect the aspects of the problem. One of the current conditions and existing problems of the higher education system, as defined in the concept of development of the higher education system of the Republic of Uzbekistan until 2030, is "the lack of formation of critical thinking, searching information independently and analysis skills in students".

So, what methods, tools, or technologies can develop critical thinking in students, especially future teachers, which improve their professional skills? One of the effective ways to develop critical thinking is "Blended learning", mentioned in the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030. As Wikipedia offers the following definition: "Blended learning, also known as hybrid learning, is an approach to education that combines online educational materials and opportunities for interaction online with traditional place-based classroom methods."

It is worth noting that the most popular model of blended learning is the "Flipped Classroom". Students are taught content at home and then practice using it in the classroom with the support of teachers and peers. This allows you to "reverse" the traditional roles in each space.

This technology is a fairly new phenomenon in education, however, is of considerable interest and is reflected in the works of both Russian and foreign scientists such as Basalgina T.Yu., Kurvits M., Remizova O., Baker Celia, Bergmann J. Sams A., Berrett D., Driscoll Tom, Gorman M., and others.

Let's talk about who founded this technology. Various information about the founders of "flipped learning" can be found in many literary and electronic sources. For example, according to en.wikipedia.org, one of the first to write about this technology is

Alison King. In 1993 she published “From Sage on the Stage to Guide on the Side,” in which she focuses on the importance of the use of class time for the construction of meaning rather than information transmission. While not directly illustrating the concept of “flipping” a classroom, King’s work is often cited as an impetus for an inversion to allow for the educational space for active learning. Salman Khan can also be considered one of the supporters and founders of this approach. He has created short video lectures on various subjects that can be used by schoolchildren and students around the world. The principle of remote viewing of a short lecture, which is the basis of Khan’s idea, lies in the “flipped learning” technology.

“Most teachers spend their time explaining the material and transferring knowledge and little time is spent teaching analysis, assessment, and creativity. The “flipped-flipped model” of education tries to bring knowledge into the personal space of the student, and more time is spent on practical skills,” explains Jonathan Bergman, one of the founders of the “flipped classroom” idea

There are 4 main components of the “Flipped Classroom” technology – “the Four Pillars of F**-L-I-P**” [Flipped Learning Network]:

- Flexible working conditions ***(F-Flexible Environment)***

The technology allows you to use a variety of modes of operation. This principle lies not only in the physical manifestation of the flexibility of the regime but also in the flexibility of approaches, that is, the individualization of the educational process, and the selection of techniques and materials for special groups of students.

- Source of information ***(L-Learning Culture)***

In the traditional model of the lesson, the teacher has a leading role, that is, he is a source of information and is automatically endowed with the sole organizer and leader of the process. Within the framework of the “Flipped Classroom” technology, the student himself selects and analyzes information, while the teacher acts as a support, entering the process when the student needs to be shown the best path problem solving, to direct his activities in the right direction.

- Intentional distribution of material ***(I – Intentional Content)***

The teacher clearly separates information and materials for its development which will come from him and those the student will seek and perform independently. This principle is that the teacher is necessary to maximize the activity of the student in the process, and the intensity of his work both in a team and individually.

- Teacher-master ***(P – Professional Educator)***

For a teacher who aims to work within the framework of the “Flipped Class” technology, special skills and mastery are required. During classroom work, the educator oversees student work, providing feedback, assessment, and guidance when they need it. The teacher conducts constant reflection of his activities, shares experience, and accepts constructive criticism, he never stops the transformation of materials and works to optimize the educational process. Despite the apparent “invisibility” of the teacher in the educational process work in this technology, it is an integral part of training, a binding element on which the entire educational process rests.

RESULTS

From the above, it follows that the Flipped Classroom technology meets the requirements of modernity, including the basics of the classroom system, and expands the possibilities of information and communication technologies. This allows not only to

diversify the educational process but also to take a fresh look at the education system and logistics. This technology is currently effective for both students and teachers in their learning, deepening the study of problematic issues and improving the quality of short but powerful educational materials. Video lessons provide an opportunity to improve the quality of the learning material through interesting articles and interactive exercises to test your understanding of the information.

Table 1.

Comparison of traditional and "flipped learning" technologies:

Educational process	**Traditional approach**	**"Flipped classroom" technology**
Preparation of teachers for lessons	Writing a lesson plan, preparing training and developmental tasks	View test answers, identify challenging questions from students, select activities, and design assignments.
Teaching technology	The teacher explains a new topic, students consolidate their knowledge.	The teacher guides students to solve difficult problems and work on practical skills.
Educational technology	The teacher explains the new material; the students reinforce the acquired skills. They do the tasks themselves at home.	Students independently watch videos and prepare questions. The teacher directs students' activities to solve difficult problems and practical skills.
Transfer of knowledge	Teaching material is passively delivered from the teacher to the student.	Knowledge is acquired independently with elements of interactive interaction.
Education styles and technologies	Interactive technologies.	Communication, cooperation and collaboration
Approaches	Differential	Individual
Information Communication Technology.	Multimedia and web technologies	Office 365, Google, Web 2, Moodle, and other latest IT services
Student Activities	**Passive**	**Active**
A student	Studies according to the activity scheme "Listen – remember -play", plays the role of mentor. Implements transfer and control of knowledge, and maintains discipline and order in the classroom.	Takes responsibility for his education. Interacts with all participants in the training process.
Teacher	Performs transmission and knowledge control and keeps discipline and order in the classroom.	Carries out construction learning activities, playing the role of a mentor.

Based on the table, we can conclude that "Flipped classroom" technology serves as a basis for the implementation of a personalized approach. Through this technology, conditions for active learning are created for students; the latest technologies and various tools are used; the educational process is organized taking into account the needs

of each student; conditions for teamwork are created; leadership qualities of students are developed within the framework of educational subjects; conditions are created for diagnosing the quality of knowledge with the help of computer technologies. In addition, parents will have the opportunity to participate in the educational process of their children.

CONCLUSION

To sum up, using “flipped classroom” technology, the teachers can work individually with each student, create an active learning process with student-prepared questions and projects, guide students towards self-directed learning, teach them to think critically, and communicate with parents in collaboration. This helps to organize the educational process and increase the effectiveness of learning.

REFERENCES:

1. Education 2030: Incheon Declaration and Framework for Action Towards Inclusive and equitable quality education and lifelong learning for all. http://uis.unesco.org/sites/default/files/documents/education-2030-incheonframework-for-action-implementation-of-sdg4-2016-en_2.pdf

2. O‘zbekiston Respublikasi Prezidentining “O‘zbekiston Respublikasi oliy ta’lim tizimini 2030 yilgacha rivojlantirish kontseptsiyasini tasdiqlash to‘g‘risida” 2019-yil 8-oktyabrdagi PF–5847-son Farmoni // O‘zbekiston Respublikasining qonun hujjatlari ma’lumotlari milliy bazasi. – T., 2019.

3. Beyer, "B. K. (1995) Critical thinking. Bloomington, IN: Phi Delta Kappa Educational Foundation. "

4. Copyright © 2023 – University of Louisville, Delphi Center

5. Djurayeva L.R. “The importance of critical thinking in improving the professional skills of future teachers “International scientific journal “Interpretation and researches” Volume 1 issue 3 | ISSN: 2181-4163 | UIF-2023: 8.2

6. Fahim, M., Eslamdoost, S. (2014). Critical thinking: Frameworks and models for teaching. English Language Teaching, 7(7), 141–151. https://doi.org/10.5539/elt.v7n7p141

7. Гладких, Д. С. (2018). Использование технологии Flipped Classroom при обучении иноязычной письменной речи в старшей школе. Проблемы романо-германской филологии, педагогики и методики преподавания иностранных языков, (14), 118-123.

8. Литвинова, С. Г. (2015). Технология «перевернутое обучение» в облачно ориентированной учебной среде как компонент развития медиаобразования в средней школе.

9. Халперн Д. Психология критического мышления. – СПб.: Питер, 2000. – 512с. – с.22. – ISBN 5-314-00122-5, ISBN 0-8058-0295-9

10. https://en.wikipedia.org/wiki/Flipped_classroom