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Аренова А.Х.[1], Жунусбекова А.[2], Калбергенова Ш.Б.[3]*

[1,2,3]Abai university,
(Алматы, Казахстан)

КОНЦЕНЦИЯ И ПСИХОЛОГИЧЕСКИЕ ОСНОВАНИЯ ОРГАНИЗАЦИИ ГИБРИДНОГО ОБУЧЕНИЯ (HYFLEX ТЕХНОЛОГИИ) В ПОДГОТОВКЕ ПЕДАГОГИЧЕСКИХ КАДРОВ В ВУЗЕ

Аннотация

Несмотря на то, что широко распространено мнение о важности и необходимости качественного профессионального развития и подготовки педагогических кадров, реальность такова, что этого не происходит в тех масштабах, которые необходимы для успеха. Подготовка педагогов требует инвестиций и новых технологий, что, несомненно, гарантирует качество высшего образования в целом. В статье рассматриваются теоретико-концептуальные психологические аспекты подготовки педагогических кадров через организацию гибридного обучения. Помимо анализа определений, данных понятий гибридное обучение, HyFlex технология, авторы изучили дальнейшие перспективы организации гибридного обучения в подготовке педагогических кадров.

В результате в предлагаемую концепцию вошли и были проанализированы цели и задачи Концепции, проблемы технологий в высшем образования и мировые тенденции развития, направления развития Hyflex технологии в учебном процессе высших учебных заведений и ожидаемые результаты концепции Hyflex технологии в учебном процессе высших учебных заведений.

Ключевые слова: гибридное обучение, подготовка педагогических кадров, педагоги, будущие педагоги, HyFlex технология, образовательные технологии, психологические основания.

Аренова А.Х. [1], Жунусбекова А.[2], Калбергенова Ш.Б.[3]*
[1,2,3]Abai university
(Алматы, Казахстан)

УНИВЕРСИТЕТТЕ ОҚЫТУШЫЛАР ҚҰРАМЫН ДАЯРЛАУДА ГИБРИДТІ ОҚЫТУДЫ (HYFLEX TECHNOLOGY) ҰЙЫМДАСТЫРУДЫҢ ПСИХОЛОГИЯЛЫҚ НЕГІЗДЕРІ ЖӘНЕ КОНЦЕПЦИЯСЫ

Аңдатпа

Сапалы кәсіби даму мен педагогикалық кадрларды даярлаудың маңыздылығы мен қажеттілігі туралы кең таралған пікірге қарамастан, шындық - бұл табысқа жету үшін қажет масштабта болмайды. Педагогтерді даярлау инвестициялар мен жаңа технологияларды қажет етеді, бұл жалпы жоғары білім сапасына кепілдік береді. Мақалада гибридті оқытуды ұйымдастыру арқылы педагогикалық кадрларды даярлаудың теориялық және тұжырымдамалық психологиялық аспектілері қарастырылады. Анықтамаларды, осы ұғымдарды талдаудан басқа гибридті оқыту, HyFlex технологиясы, авторлар педагогикалық кадрларды даярлауда гибридті оқытуды ұйымдастырудың одан әрі перспективаларын зерттеді.

Нәтижесінде ұсынылған тұжырымдамаға тұжырымдаманың мақсаттары мен міндеттері, жоғары білім берудегі технологиялар мәселелері және әлемдік даму тенденциялары, жоғары оқу орындарының оқу процесінде Hyflex технологиясының даму бағыттары және жоғары

оқу орындарының оқу процесінде Hyflex технологиясының тұжырымдамасының күтілетін нәтижелері енгізілді және талданды.

Түйін сөздер: гибридті оқыту, педагогикалық кадрларды даярлау, педагогтар, будушие педагогтар, HyFlex технологиясы, білім беру технологиялары, психологиялық негіздері.

Arenova A. Kh. [1*], *Zhunusbekova A.*[2], *Kalbergenova Sh.B.*[3]
[1,2,3]*Abai university*
(Almaty, Kazakhstan)

CONCEPTION AND PSYCHOLOGICAL BASES OF ORGANIZING HYBRID LEARNING (HYFLEX TECHNOLOGY) IN PREPARATION OF TEACHING STAFF AT UNIVERSITY

Abstract

Despite the fact that there is a widespread opinion about the importance and necessity of high-quality professional development and training of teaching staff, the reality is that this does not happen on the scale that is necessary for success. Teacher training requires investments and new technologies, which undoubtedly guarantees the quality of higher education in general. The article deals with theoretical and conceptual psychological aspects of teacher training through the organization of hybrid learning. In addition to analyzing definitions, these concepts of hybrid learning, HyFlex technology, the authors studied further prospects for the organization of hybrid learning in the training of teaching staff.

As a result, the proposed concept included and analyzed the goals and objectives of the Concept, the problems of technology in higher education and global development trends, the directions of development of Hyflex technology in the educational process of higher education institutions and the expected results of the concept of Hyflex technology in the educational process of higher education institutions.

Keywords: hybrid education, teacher training, teachers, future teachers, HyFlex technology, educational technologies, psychological reasons.

INTRODUCTION. Modern realities and requirements of society dictate the need to study and apply various kinds of educational technologies. This is especially true of higher educational institutions, since the training of competitive specialists is an important and responsible task.

All spheres of life of modern society are integrated into one single educational space, which imposes a special responsibility on higher education, in particular on university teachers, who need to master modern technologies themselves and prepare students for self-realization in the educational space, for the use of educational technologies in practical activities that await them after graduation from a higher educational institution. The modern world requires not only theoretical good training of future specialists, which will help with further employment, but also excellent information training, knowledge of digital technologies and the ability to apply them.

An actual and important point of the modern pedagogical process is the insufficient knowledge of teachers of various kinds of technologies, including digital technologies.

As an educational tool, all teachers should improve their professional education in the field of digital training. This is due to the fact that the gap between the teachers of the "old" school, who have a large "baggage" of knowledge, who are not confident enough in digital technologies, and teachers who actively use the digitalization of education, is quite large and constantly increasing, since the development of digital technologies is quite intensive.

HyFlex technology – this innovative system gives students the opportunity to choose their preferred learning model, which leads to a decrease in attendance rates [1]. By equipping each classroom with powerful microphones, cameras with a wide viewing angle and laptops, HyFlex technology allows teachers to ensure an unhindered learning process that overcomes physical barriers. Moreover, this learning model allows students to adhere to the principles of social

distancing, while receiving a high-quality education. The introduction of HyFlex provides educational institutions with the opportunity to cope with learning difficulties in difficult times, turning current obstacles into opportunities for growth and improvement. In addition, the HyFlex system provides the necessary flexibility to manage the ratio of students attending classes online and on campus, which allows you to adapt to the changing situation in the educational process and society. Due to its ability to ensure continuity of education and meet the needs for sanitary measures and physical distancing measures, HyFlex technology has become a vital tool for educational institutions around the world, especially in the context of various kinds of pandemics. As schools and universities continue to use this innovative learning model, it is important carefully consider the implementation and development of HyFlex technology to ensure that both full-time and online students receive equal attention and learning opportunities [2]. In this way, educational institutions can use the full potential of HyFlex technology and pave the way for a more digital and inclusive method of teaching and learning.

The goal of the study is to examine the potential for hybrid education organization as well as the advancement of the Hyflex technology concept in the teaching staff preparation programs at higher education institutions.

One of the main problems of various technologies in higher education is the unequal distribution of technological resources between students and educational institutions. Access to technology, such as computers and Internet connectivity, unevenly distributed, leading to inequality in educational opportunities. Despite advances in technology, the persistent problem of inequality in education highlighted. This inequality can hinder the learning and academic success of students who do not have access to the necessary technological resources [3]. It is extremely important for educational institutions and politicians to solve this problem and work to ensure equal access to technology for all students.

Financial constraints are another major challenge in integrating technology into higher education. The lack of funding affects both students and educational institutions. Many students face financial barriers that prevent them from acquiring or accessing the necessary technological devices and resources [4]. In addition, educational institutions often have difficulties allocating sufficient funds for the modernization and maintenance of technological infrastructure [5]. Davey's study in 2021 highlights the financial constraints faced by universities in various fields, including teaching and student support [6]. Adequate funding is essential to ensure the availability and relevance of technology in higher education institutions.

Inadequate technological infrastructure is another problem hindering the effective integration of technology into higher education. Many institutions lack the necessary infrastructure, such as a reliable Internet connection and a sufficient number of computer laboratories to meet the technological needs of students and teachers [7]. This may result in limited access to online resources, challenges facilitating online learning, and issues with collaboration and communication between teachers and students. Numerous papers and studies [8], [9] have stressed the value of funding and maintaining higher education's technical infrastructure. For higher education institutions to effectively use technology for teaching, learning, and research, several infrastructure issues must be resolved.

METHODOLOGY AND METHODS OF RESEARCH. The article studied the scientific literature on the research topic, regulatory documents and methodological materials. Research methods: theoretical methods - analysis, comparison, citation, generalization. The idea of using Hyflex technology in the teaching staff's training at higher education institutions is put forth.

In psychology, the contemporary progressive view of learning is implemented in two mutually complementary approaches: the activity approach and the phylogenetic approach.

The activity approach was initially constructed as a psychological and pedagogical concept focused on practical applications within the framework of the psychology of learning. The founder of the Activity Approach was L.S. Vygotsky. Assimilation takes place through the mechanism of internalization. Internalization is the formation of internal mental structures by external influences; scientists A.N. Leontiyev, A.V. Zaporozhets, P.Ya. Galperin, D.B. Elkonin, V.V. Davydov and

others took up L.S. Vygotsky's ideas. As a result, a typological framework of activity approaches was established.

The phylogenetic approach was formed within the framework of the general concept of studying the human psyche. The idea of levels and hierarchical structures of activities in the educational process revealed the essential mechanisms of mental change and made it possible to consider educational activities in their "internal," procedural aspects. In V.D. Shadrikov's concept, the level analysis most fully presented in the training framework. According to this author, in educational activities a number of hierarchically related levels are formed in the student that represent a system of educational activity. There are six such levels: individual-motivational, construct-goal, structure-functional, informational, psychophysiological, and individual-psychological.

Thus, the formation of the student's goals, methods of activity, conceptual model, and basis for orientation, and learning ability is guaranteed.

In the psychological justification of the presented concept, the particular student is central, and the analytical system provides for the study of abilities, interests, goals, characteristics of mental processes, and personality qualities. This approach has found special significance in the implementation of the principle of individualization of learning.

Crawford, C. et al. believe that HyFlex technology provides many academic advantages, including improving computer skills, writing and time management [10].

Esteron S. In his research, he notes that HyFlex technology allows students to choose the appropriate style and learning environment for themselves [11].

We examined the Scopus database and the Web of Science to determine the applicability of HyFlex technology in the field of education. HyFlex and Hybrid were used as keywords in the expanded search, and the results showed that 1453 papers were published between 1989 and 2021, or n = 1453.

304 publications, including books and journals, comprised the 1,453 results. 15.12 average citations were made per document, and 6.85 average years had passed since publication. There were 1,833 references received on average per document each year. The statistics also revealed that 1,250 papers (86.02%) were articles, 82 (5.64%) were review articles, and 46 (3.16%) were reviews.

Figure 1 demonstrates that despite the fact that this topic has been studied since 1989, interest in it has increased since 2008, peaking in 2012 and 2017. The year 2020 saw the most stories regarding HyFlex written as the Covid-19 epidemic broke out.

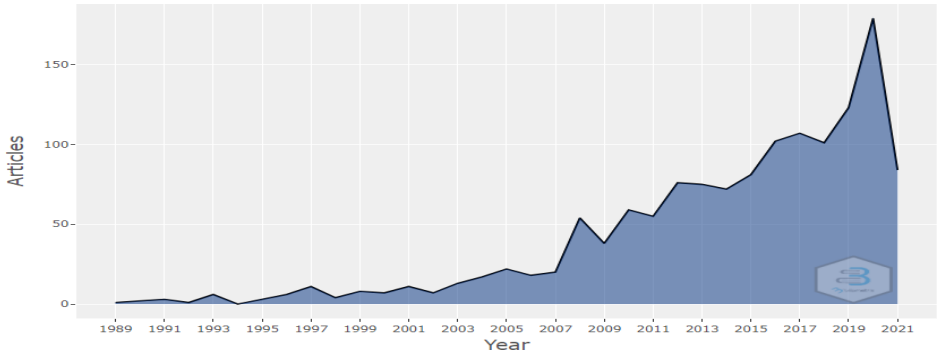

Figure 1 – Number of scientific articles on HyFlex technology in education in the Scopus and Web of Science database

As seen in Figure 2, the twenty top journals that have actively published on the subject of "HyFlex" A deeper shade of blue represents a larger sample size and increased importance of the research issue. The five most pertinent sources included the British Journal of Educational Technology (n = 29), the International Journal of Electrical Engineering Education (n = 33), the International Journal of Chemical Education (n = 56), Computers and Education (n = 46), and Studies in Higher Education (n = 26). The authors state that research on HyFlex has been done

throughout North America, Asia, Europe, South America, and Australia, with the United States and the United Kingdom receiving the most citations.

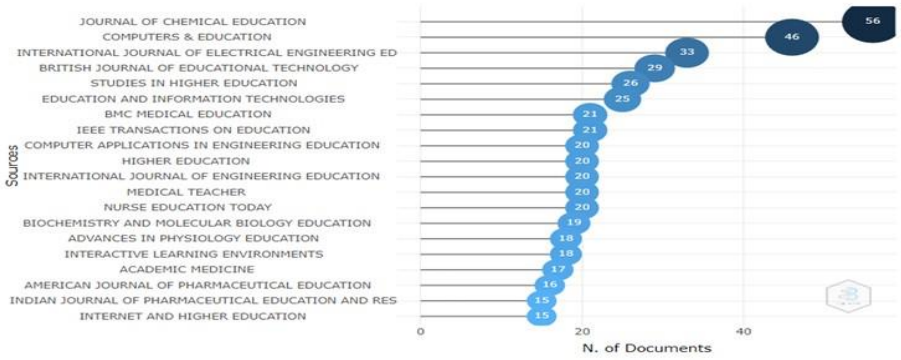

Figure 2 – Magazines that published the largest number of articles on HyFlex technology

Michigan State University (24 articles), the University of Sydney (19 articles), and the University of Minnesota (17 articles) are the top three universities in terms of the number of articles published.

«HyFlex technology» was the most popular topic in 2018, while the word «blended learning» became popular in 2012.

Based on this, we believe that the prospects for hybrid education are great, since it is this type of training that teaches students to be self-sufficient and autonomous, to learn to manage their own schedule. Over time, hybrid learning can encourage people of different cultures and ages to collaborate better with each other remotely. Students will also learn how to switch between asynchronous and synchronous learning, for example, by performing some pre-recorded modules, and then joining seminars to discuss the topic in more detail with their classmates. This skill is an important part of giving people the freedom to work the way they choose so that they can do their job in the best possible way. For the university management, this may be a good opportunity to attract international students, which may lead to an increase in profits, as well as an improvement in the university's digital technologies.

Expected results:

1. Creating a hybrid learning environment model (Hyflex technologies) as a new form of education at the university.
2. Development of electronic educational and methodological publications.
3. Creation and equipment of the Hyflex technology class
4. Informatization of educational process management.
5. Development of mobile learning applications
6. Development of digital educational content, including mobile e-education.

THE DISCUSSION OF THE RESULTS. The Concept aims to develop and create a model of a hybrid learning environment using Hyflex technology as a mechanism for future teachers' competitiveness. It also aims to develop digital, scientific, and methodological support for the organization of this technology's educational process.

It is necessary to complete the following tasks in order to reach this goal:

1. Study of organizational, scientific, and methodological elements of hybrid learning technologies using Hyflex;
2. Identification of pedagogical conditions of scientific and methodological support of hybrid learning of Hyflex technology at the university;
3. Scientific and methodological support of the hybrid learning process with Hyflex technology.

Currently, the "HyFlex" technology used in many scientific and educational centers, higher educational institutions, as a model used in educational institutions. It is possible to establish the directions of development of this technology:

The main directions of using this technology for students: HyFlex technology allows students to choose a course by reference based on their preferences. For example, students can attend classes in classrooms, watching videos for the first time, as well as join online classes or remotely send any tasks [12].

Online learning platform: Students can access the online learning platform to view classes using HyFlex technology. Depending on the course type, these platforms enable students to take classes virtually without physically attending them.

Online tools and Materials: One of HyFlex's responsibilities is to give students access to the greatest online learning tools and materials available. Students can upload crucial resources at the same time to take part in assignments and videos.

Restoring communication skills. One of the HyFlex technologies is to improve communication between students and teachers. Students can participate in classes online, so they can receive answers to questionnaires created by teachers in the form of images and audio recordings.

Individual settings and grading. Thanks to HyFlex technology, students can customize lesson assignments and set grades according to their learning style. When students change one of their participation styles, the assignments and grades used will know according to their knowledge and level of education [13].

The development directions of HyFlex technology provide many opportunities for students of higher educational institutions in the field of creating images; audio and video, online learning platforms, support for online resources and communication aspects. With this technology, students can choose to study according to their educational success, which for the first time is unique on the path of future education. HyFlex technology is a learning process improvement system available to students at any time on multiple learning platforms. This technology is one of the best ways to develop students. In addition, the main goal is to adapt the educational process to the working capacity of different students, to meet their requirements, to provide an opportunity effectively use educational materials and texts HyFlex [14].

Directions of technology development to improve the learning process: HyFlex technology allows students to study successfully at any time. They have the opportunity to meet in any field of education through video conferences, such as Zoom and Microsoft Teams.

Responding to individual needs: HyFlex learning technology allows you to meet the individual needs of learners. They can access training materials and other resources through the meeting platform.

Ability to communicate and interact: students can communicate in the classroom. They can participate in the training and share interactive successes with teachers and other students during the training.

Creating educational materials with multimedia elements: with HyFlex technology, you can use educational materials with various kinds of images, videos, animations, interactive elements.

Also an important feature of this technology is the integration of several training formats.

Providing long-term training: Thanks to HyFlex technology, students can temporarily participate in training through a meeting platform and expand the learning process.

Effective use of technology: HyFlex technology allows teachers to develop and manage learning materials, communicate with students and use technical recommendations during training.

HyFlex technology allows students, teachers and business professionals to improve the learning process, improve individual results, open effective educational paths and develop with the help of technology.

The use of this technology will ensure that technological education is raised to a level that is appropriate for the nation's tasks in technological development and will support the growth of the educational system at all levels.

The incorporation of pertinent tasks in the creation of normative and methodological documents governing this field, in the ongoing operations of republican programs, and in the development programs of specific educational organizations is the mechanism anticipated for carrying out the Concept.

A fundamental improvement in the position of the subject of Hyflex technology in the educational process of higher educational institutions will be made as a result of this system package of actions.

CONCLUSIONS. In conclusion, we can conclude that the idea suggested above attempted to address the issue of effective teaching staff training. The concept of Hyflex technology idea enables teachers to guarantee an unimpeded learning process that overcomes physical limitations while giving students the option to select their preferred learning style. Additionally, this teaching method enables kids to follow the ideas of social exclusion while yet receiving a top-notch education.

A model for the organization of hybrid education in the training of teachers must be developed, taking into account new scientific research on the issue, its theoretical and practical findings, and ways to effectively utilize the potential of cutting-edge teaching technologies.

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