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THE USE OF HYFLEX TECHNOLOGY IN TEACHING FOREIGN LANGUAGES TO STUDENTS OF PEDAGOGICAL SPECIALTIES UNDER MODERN CHALLENGES

Abstract. The article highlights the use of the HyFlex technology in teaching foreign languages to students of pedagogical specialties, in particular, 013 “Primary Education” and 012 “Preschool Education” under modern challenges. In accordance with the research target, the following tasks are defined as clarifying the essence of basic concepts; describing the HyFlex technology of teaching a foreign language; and determining the prospects of further research of the HyFlex technology of teaching a foreign language for future teachers of primary and preschool education. The method and procedure of an ascertaining stage of the pedagogical experiment is presented in this research which includes self-assessment surveys and diagnostic tools to evaluate students' readiness to learn foreign languages in the HyFlex model. Intuitive, reproductive, searching, and creative students' readiness levels are defined by the authors in terms of the HyFlex model. The results of the research suggest that most students exhibit a reproductive level of skills in this context. The article provides insights into the organization, principles, and structure of HyFlex foreign language teaching for students specializing in primary and preschool education, emphasizing the importance of technological and linguistic criteria. The authors present an array of educational tools and digital resources that enhance language learning within the HyFlex framework (Google Services (Google documents, presentation, sheets, forms, Jamboard), Quizlet and Anki, Mentimeter, Quizalize, WordWall, Flip, Canva, Vocaroo, Metaverse Studio Application). Future research is expected to focus on the formative stage of the pedagogical experiment, aiming to further develop students' abilities in foreign language learning within the HyFlex model.

Keywords: communicative competence; foreign language (English); HyFlex learning; HyFlex model; HyFlex technology; pedagogical specialties; teacher training

Introduction. Globalization processes in the world, intensive development of international cooperation, rethinking of value orientations in the higher education system, as well as the challenges of the present (pandemic, war, etc.) affect all spheres of life, and therefore higher education as well. Since the focus of our attention is on teaching a foreign language to students of pedagogical specialties, in particular, 013 “Primary Education” and 012 “Preschool Education”, we will search for new favorable conditions, efficient educational technologies, and toolkit for the effective mastery of a foreign language by higher education students under modern challenges.

The search for efficient ways to teach a foreign language to primary and preschool teachers has received significant attention in recent Ukrainian and international studies in this area (Yuzkiv et al., 2020; Udovychenko et al., 2022). Researchers believe that blended learning, for instance, is a good way to structure the educational process and gives all students freedom in terms of time, place, pace, and other aspects of learning and mastering content (Bozkurt, Sharma, 2022).

In particular, this technology helps to allocate time for studying disciplines optimally and minimize the loss of professionally relevant content for students due to the redistribution of classroom hours. Therefore, the technology of blended learning is actively implemented into the educational process of Borys Grinchenko Kyiv University (Kotenko, 2016, p. 46).

The search, testing, and implementation of new technologies by a foreign language teacher in the educational process, creating conditions for their effective functioning certainly has an effective impact on the process of teaching a foreign language to higher education students. The end result will be proficiency in a foreign language, particularly in professional communication (Kosharna, 2020). This will equip aspiring primary and preschool teachers with the skills necessary to succeed in an increasingly globalized world. These skills include teamwork, communication, information exchange, and application in both personal and professional contexts, as well as the ability to accurately analyze, evaluate, and create new information using emerging technologies (Petryk, 2019).

The urgency of the problem, the importance of taking into account modern challenges, and the need to create a harmonious and balanced educational space encourage the search, selection, and application of effective teaching technologies that would provide flexibility in organizing the educational trajectory of students with the highest possible learning outcomes. HyFlex learning is one of such technologies, which will be studied by the authors in the context of organizing foreign language teaching for students majoring in 013 “Primary Education” and 012 “Preschool Education”.

Literature review. The effectiveness of training future primary and preschool teachers, including those teaching foreign languages, is dependent upon how well innovative methods and technologies are implemented during the higher education student's training process, according to a review of scientific works by Ukrainian and foreign researchers (Hepp et al., 2015; Schina et al., 2021; Kosharna, 2021; Kosharna, Petryk, 2021; Rudnik, 2022; Sanz et al., 2023).

Since learning in the context of the COVID-19 pandemic has been the subject of several recent studies in the field of foreign language teaching methods, it is necessary to systematize these studies in the following areas, in particular: determining the best conditions for the educational process to operate in; creating new, effective teaching technologies; projecting expected outcomes; simulating the educational process; encouraging student feedback; and guaranteeing the safety of all participants in the educational process (Lohmann, Randolph, Ji Hyun Oh, 2021). To properly implement HyFlex, specific technical and pedagogical training components as well as support for digital education are equally important (Detyna et al., 2023).

The use of HyFlex learning demonstrates its efficiency in the educational process as it gives students autonomy, flexibility, and openness to learning, as demonstrated by the analysis of scientific and pedagogical literature and the study of the practical experience of teachers from top foreign higher education institutions (Milman, Irvine, Kelly, Saichaie, 2020). For the HyFlex learning algorithm, for instance, a working group of educators from the University of Dayton (USA, Ohio) has created useful guidelines (Raman et al., 2021). The Purdue University team created the Interactive Synchronous HyFlex model, a unique approach to HyFlex learning that demonstrated favorable effects on fundamental psychological needs (Mentzer et al., 2023). The other study demonstrated how improving academic integrity and the quality of education could be achieved by designing HyFlex courses with students' ethical behavior in mind (Eshet

et al., 2023). The Hong Kong study adds to the body of research by revealing students' contentment with the lecture format and classroom environment in relation to the offered HyFlex mode (Shek et al., 2022).

The analysis of the aforementioned research highlighted the urgency of further investigations in terms of implementing the HyFlex model in higher educational establishments. Therefore, the aspect of future teachers' readiness to realize the HyFlex model in their professional activities is a significant issue.

Purpose of the article. This exact research analyzes the HyFlex concept in teaching foreign languages, defines the state of readiness of students of pedagogical specialties to master a foreign language in terms of HyFlex model via pedagogical experiment. The focus of the presented article is to describe the ascertaining stage as the initial stage of the aforementioned experiment that includes the development of diagnostic and educational toolkit for the research.

Research. Having analyzed the basic concepts of the study, the issues of the HyFlex model organization, the educational toolkit to be used within HyFlex teaching and learning foreign language in a higher education institution, it is time to ascertain if the students are ready to master a foreign language in the terms of the HyFlex model since it is the objective of the current study.

To achieve it, both theoretical and experimental methods were used. Synthesis, generalization, systematization for the theoretical justification of using HyFlex technology in teaching foreign languages to students of pedagogical specialties in terms of modern challenges; input diagnostic (self-evaluation survey) for conducting the ascertaining stage of the study. The scaling method was used to define the level of students' ability to master a foreign language in terms of the HyFlex model.

The presented study describes the preparatory and ascertaining stages of our pedagogical experiment. During the first preparatory stage, the theoretical aspects of the HyFlex model were studied; the methodology of conducting the experiment was developed; the particular diagnostic tools (criteria, indicators, and level description) were designed.

The ascertaining stage of the current puts an emphasis on technological criteria. It covers the following indicators: knowledge of basic concepts, sequence of actions within the HyFlex learning process, educational toolkit and its influence on linguistic skills development, netiquette rules, and abilities to use the digital tools manually in terms of the HyFlex model. To understand to what extent the students of pedagogical specialties are ready to master a foreign language in terms of the HyFlex model, we pointed out such levels as intuitive, reproductive, searching, creative which will be described in part of the result analyses of the input diagnostic.

The use of HyFlex technology in teaching foreign languages to students of pedagogical specialties under modern challenges requires theoretical knowledge and practical skills of educational process participants to act in terms of the HyFlex model. In the diagnostic toolkit we pointed out linguistic and technological criteria. The linguistic one indicates a foreign language's knowledge and abilities to use all types of written and oral speech (listening, reading, writing, speaking). The technological criterion indicates the knowledge about the HyFlex technology, the HyFlex model, and skills to operate the educational process in its terms. So we had to ascertain if the students are ready to master a foreign language in terms of the HyFlex model. Consequently, the pedagogical experiment was set up. It was held on the basis of the Faculty of Pedagogical Education, Borys Grinchenko Kyiv University. The participants of the experiment were the students of specialties - 012 "Preschool Education" and 013 "Primary Education", Bachelor's and Master's Degree Programmes. The total number of pedagogical experiment participants was 61. We present the results of three groups (Group 1 - 17 students of specialty 012 Preschool education, Bachelor's Degree; Group 2 - 25 students of specialty 013 Primary education, Bachelor's Degree; Group 3 - 19 students of specialty 013 Primary education, Master's Degree).

A complex self-assessment survey was used as an input diagnostic to ascertain the students' ability to master a foreign language in terms of the HyFlex model. Some tasks were deliberately confusing and had the wrong meaning in order to test the true understanding of the specified area. The survey consisted of 12 statements that students had to evaluate by means of a five-point scale to justify their accordance to respondents' knowledge and experience. Here is the clarification of points: 1 point means that the statement does not correspond, 2 points - rather does not correspond, 3 points - both corresponds and does not correspond, 4 points - corresponds rather than does not correspond, 5 points - the statement fully corresponds.

The following statements were offered: 1) I think that HyFlex is a shorten form of two words "Hygiene" and "Flexibility", 2) I think that live broadcasting of practical classes is allowed with Hangout Meet, 3) I know that Flip is a tool that helps to enhance speaking skills, 4) I know that learning management system Moodle offers the option of video answers in addition to the text ones, 5) I am familiar with the rules of netiquette and always follow them during educational process, 6) I know that a digital tool Anki may help me drill vocabulary, 7) I can use any digital tool with foreign interface easily, and it doesn't take me much time to start work with it, 8) If a Moodle voice recording fails to upload my answer, I can substitute it with such a digital tool as Mentimeter, 9) I am good at producing my own digital content in foreign language, 10) I can use Canva to create infographics, timeline or mind map to practice vocabulary or use it as a plan for oral speech, 11) I can create a poll in Quizalize or substitute it with the use of Vacaroo, 12) I can integrate the videos from YouTube while using Metaverse Studio Application.

So, the minimum number of survey points is 12, and maximum number - 60 points. With the help of a scaling method, we determined the levels. Students who scored 12-24 points are those who have an intuitive level of abilities to learn a foreign language in terms of the HyFlex model, 25-36 points - reproductive level, 37-48 points - searching one, and 49-60 points - creative level.

So a complex self-assessment survey enabled an understanding the level of students' ability to master a foreign language in terms of the HyFlex model.

Results of the research. To clarify a key concept of the HyFlex, let's turn to the Cambridge English Dictionary, which defines the term *HyFlex* as a form of education in which one part of the students is present (physically) in the classroom, while the other part simultaneously joins the educational process, but remotely (online). Thus, *HyFlex* is an acronym for *Hybrid* and *Flexible*.

HyFlex learning provides students with expanded educational opportunities, improves learning outcomes, allows higher education students to be as mobile as possible, for example, combining study and work, etc. For example, it is worth considering the HyFlex learning model presented in the educational process at the University of South Carolina (USA, District of Columbia) (Norwood, 2020).

The analysis of scientific and pedagogical literature (Kotenko, 2016; Petryk, 2020; Kosharna, 2021; Brovko et al., 2022; Rudnik, 2023) and taking into account the specifics of foreign language teaching for students of pedagogical specialties 013 "Primary Education" and 012 "Preschool Education" allowed us to expand and present the HyFlex learning model in the structure shown in Table 1. The presented model allows to visualize the ways of students' learning: inside the classroom and outside the classroom (online synchronous and online asynchronous).

Table 1.

HyFlex model of teaching a foreign language to students of specialties 013 “Primary Education” and 012 “Preschool Education”

| Inside the classroom | Outside the classroom | | |
|---|---|--|---|
| | Online Synchronous | | Online Asynchronous |
| | Video Conference Connection | Online Livestream | |
| Students attend a foreign language class in the classroom. The practical lesson is recorded and broadcast live. | Students join the class via a video phone service or a video conferencing program | Students watch an online broadcast of a class that takes place in the classroom. | Students watch the video recording of the class at their convenience. |
| Students have the flexibility to vary between all three models in the HyFlex learning process if they wish. | | | |

Thus, understanding the concept of “HyFlex foreign language teaching” and its model gives us grounds to review the technology of organizing this type of teaching, namely the algorithm of the process of achieving foreign language learning outcomes based on the HyFlex model.

The definitions of the terms *organization* (“the way in which something is done or arranged”) and *to organize* (“to do or to arrange something according to a particular system”) became the basis for the definition of the concept “Organization of HyFlex foreign language teaching for students majoring in 013 “Primary Education” and 012 “Preschool Education” (Cambridge English Dictionary, 2022). In our study, we define this concept as a purposeful and well-organized interaction between an educator and students that is aimed at providing flexibility in terms of bidirectional educational services to meet the goals, set by the educational programs of foreign language teachers training of 013 “Primary Education” and 012 “Preschool Education” specialties.

The HyFlex *technology* of organizing foreign language teaching for students of specialties 013 “Primary Education” and 012 “Preschool Education” has its own goal, objectives, didactic requirements, learning outcomes, and structure.

The purpose of HyFlex foreign language teaching is to create favorable conditions for the teacher to effectively master foreign (English) language by students, taking into account the modern challenges (pandemic, war, etc.).

HyFlex foreign language teaching is based on the following didactic principles: scientific, systematic, and consistent, accessibility, connection of learning to life, consciousness and activity, visibility, strength, individual approach, emotional learning, unity of theoretical and practical training of students, innovation, and continuity of education. The strict adherence to these principles ensures the effectiveness of HyFlex's foreign language learning organization.

The HyFlex organization of foreign language teaching should implement the tasks of forming general and special (professional) competencies of students, which are defined in the Educational and professional programs of specialties 013 “Primary Education” and 012 “Preschool Education” of the first (bachelor's) and second (master's) levels of higher education, in particular, the ability to communicate in a foreign (English) language both orally and in writing; the ability to navigate the information space, use open resources, information, communication, and digital technologies, operate them in professional activities (Educational and professional programs of specialty 013.00.01 “Primary Education”, 2018, 2021, 2021; Educational and professional programs of specialty 012.00.01 “Preschool Education”, 2020, 2022, 2022).

HyFlex foreign language learning ensures effective mastering by students of the following learning outcomes: communicate within professional discourse using foreign language in oral and written forms; to practically apply in the future pedagogical activities methods of enriching the oral and written speech of younger schoolchildren / oral speech of preschool children; to organize the educational process using digital technologies and distance learning technologies, to develop the skills of safe use of digital technologies and services among students of higher education.

Guided by system, activity, and technological methodological approaches, the structure of the technology and the logic of the *HyFlex* organization of foreign language learning for students of specialties 013 “Primary education” and 012 “Preschool education” have been determined, which includes the following stages: organization, procedure, and evaluation (Kosharna, Petryk, 2022).

Each stage of the *HyFlex* learning technology implements specific tasks, which are interrelated and interdependent. Adherence to the algorithm of actions of the application of this form of education contributes to the successful achievement of program learning outcomes (Educational and professional programs of specialty 013.00.01 "Primary Education", 2018, 2021, 2021; Educational and professional programs of specialty 012.00.01 "Preschool Education", 2020, 2022, 2022).

Conducting foreign language practical classes to students of pedagogical specialties requires an appropriate educational toolkit that will assist students in foreign language mastery in the terms of the *HyFlex* model. The thorough search and analyses of various resources permitted us to compile such a toolkit.

The learning management system **Moodle** has a basic component that combines developed certified author's electronic courses and offers asynchronous learning to students. In addition, the mobile application for the system is available to process and perform tasks. Each electronic learning course corresponds to regulations (an educational program, curricula and syllabus). They typically include a developed system of tasks based on authentic electronic materials that provide the students with the opportunities to acquire the content of the course. The most frequently integrated in foreign language learning are the resources of the *British Council* (particularly Video, Audio, Story, Magazine Zones) and *Cambridge English* (different level listening, reading, writing, and speaking tasks that could be used by the students with the different foreign language skills). We can also recommend some online resources in teaching English professional communication to the students of Bachelor's and Master's Degree Programmes as the educational toolkit. They are *Distance Teaching and Learning Hub* (Macmillan Education Platform), *The Techie Teacher*, *One-stop-English*, *Online Professional Development Resources*, *Cambridge English Teacher Support Pack*, *English Language Teaching from Oxford University Press*. The integral part of the educational toolkit goes to reference electronic resources, mainly *Cambridge online dictionary* and *Thesaurus*. It is important to mention that the major part of materials and tasks are adapted to students' professional direction to meet the regulations' requirements.

A video hosting platform *YouTube* is significant for foreign language learning within *HyFlex* learning because of its various resource choices. Firstly, it is a rich source of audio and video content for listening and discussion. Secondly, this is a platform where practical classes are broadcasted for students who study asynchronously at their own pace.

In recent years, the learning management system Moodle has been connected to Google extensions. One of them is **Hangout Meet**, which is the basic tool to organize the class in the *HyFlex* teaching model. The in-built features of the applications for conducting classes online give an opportunity to organize various types of activities such as using group or individual work on a digital whiteboard, asking and answering questions online, creating a poll to share the screen to present the necessary theoretical or practical piece of material. Among the other

extra features that could be useful in terms of HyFlex is the ability to record the meeting or even broadcast it on YouTube. The most important feature that is offered by the aforementioned software is the ability to organize the work in mini-groups, with the choice of the automatic or manual distribution of students that is necessary for combining the students according to their language level or other goals. Thus, **Zoom** is popular as well.

In addition to options provided with the learning management system Moodle each lecturer is free to choose the educational toolkit that can be integrated to electronic courses to make them more efficient for teaching a foreign language.

HyFlex learning demands such a toolkit that allows it to be plunged into the educational process either synchronously or asynchronously.

It is important to acknowledge our choice:

- **Google Services** (Google documents, presentation, sheets, forms, Jamboard) for collaborative language learning; for sharing and presenting content;
- **Quizlet** and **Anki** for practicing lexical vocabulary with the help of flashcards;
- **Mentimeter** to hone and evaluate language and communication abilities through the use of various express polls;
- **Quizalize** to improve grammar and vocabulary through solo or group games; to verify the information in reading and listening assignments;
- **WordWall** to generate personalized and interactive assignments for learners with varying degrees of difficulty;
- **Flip** to encourage student cooperation and social learning, which is largely focused on language skill development and improvement;
- **Canva** to brainstorm ideas, to co-work during the class, or to use it as a self-study tool to present their own works and projects;
- **Vocaroo** to record and share voice messages;
- **Metaverse Studio Application** to create the augmented reality experience, for various purposes and language skills development (Rudnik, 2023, p.42).

The list of educational toolkits is not exhaustive in terms of the rapid change with the existing software, but it is universal from the point of view of developing various language skills and aspects. Thus, it allows comprehension of listening, speaking, reading and writing as well as to practice phonetics, grammar and vocabulary at any time and place.

The received data of the self-assessment survey is presented in Table 2.

Table 2.
Distribution of respondents by levels of in diagnostics of the results of self-assessment survey (%)

| Participants | Number of participants | Levels | | | |
|--------------|------------------------|-----------|--------------|-----------|----------|
| | | Intuitive | Reproductive | Searching | Creative |
| Group 1 | 17 | 17 | 41 | 29 | 13 |
| Group 2 | 25 | 20 | 40 | 28 | 12 |
| Group 3 | 19 | 21 | 47 | 21 | 11 |
| Total number | 61 | 20 | 43 | 26 | 11 |

The conducted diagnostic procedure revealed that a major part of the students demonstrated a reproductive level of the abilities to learn a foreign language in terms of the HyFlex model, while the less number of students showed the advanced skills that correspond

to the creative level of the aforementioned abilities. To give a more detailed clarification for the offered levels, it is worth describing each of them in a separate way. Thus, students who possess intuitive level of abilities to learn a foreign language in terms of the HyFlex model and constitute 20% of all participants of the survey are characterized by the minimum theoretical knowledge and practical skills as well as their technological aspect that is revealed via fragmentary use of the offered digital tools without any kind of reflection or creativeness, which is often seen in their activities that mostly copy the given examples.

Reproductive level (43% of all participants) is associated with basic theoretical knowledge and partly developed practical skills of introducing new digital tools in foreign language learning. Students' with the current level of the abilities to learn a foreign language in terms of the HyFlex model are able to follow various instructions and guidelines to successfully complete the tasks by coping with the offered steps to achieve the best results possible.

The searching level (26% of all participants) corresponds to situational use of practical skills and basic theoretical knowledge, but highlights the students' ability to search for the necessary digital tools and use them quite easily.

The final, creative level of the abilities to learn a foreign language in terms of the HyFlex model proves students' integral theoretical knowledge and perfectly developed practical skills of introducing new digital tools in foreign language learning. They easily reflect on the use of digital tools in foreign language learning.

Conclusions. The conducted literary analysis in terms of the efficiency of HyFlex among others allows consideration of its positive influence on basic psychological needs, contribution to the improvement of quality education, and the enhancement of academic integrity. To prove its efficacy in teaching foreign languages the experiment was held. The presented study is a logical continuation of the first stage of the research, which was highlighted in the theoretical findings of Kosharna and Petryk (2022). It presented the method and procedure of an ascertaining stage of a pedagogical experiment. In terms of modern challenges, implementing in practice the HyFlex technology of teaching a foreign language for future teachers of primary and preschool education provides students with equal opportunities in mastering the disciplines of the foreign language block. The results of the experiments proved the necessity of conducting a formative stage of the experiment since the majority (43%) of all participants confirmed the processing of the reproductive level of the abilities to learn a foreign language in terms of the HyFlex model, which shown that while students possess the knowledge of some basic theoretical ideas of the HyFlex concept they lack the practical skills to implement it in their future professional activities. Therefore, the compiled toolkit became useful in terms of improving students' readiness to master a foreign language specifically in terms of HyFlex model. Further research is necessary to reveal the data of the next stages of the research.

Prospects for further research development. Prospects for further research are to describe the method of the formative stage of pedagogical experiment about developing students' readiness to master a foreign language within the HyFlex model.

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ЗАСТОСУВАННЯ ТЕХНОЛОГІЇ HYFLEX У НАВЧАННІ ІНОЗЕМНИХ МОВ СТУДЕНТІВ ПЕДАГОГІЧНИХ СПЕЦІАЛЬНОСТЕЙ У КОНТЕКСТІ СУЧАСНИХ ВИКЛИКІВ

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Анотація. У статті висвітлено використання технології HyFlex у навчанні іноземних мов студентів педагогічних спеціальностей, зокрема 013 «Початкова освіта» та 012 «Дошкільна освіта» у контексті сучасних викликів. Відповідно до мети дослідження визначено такі завдання: з'ясування сутності основних понять; опис технології навчання іноземної мови HyFlex; та визначення перспектив подальших досліджень технології HyFlex навчання іноземної мови майбутніх учителів початкової та дошкільної освіти. У цьому дослідженні представлено методiku та процедуру констатуючого етапу педагогічного експерименту, який включає опитування самооцінки та інструменти діагностики для оцінки готовності студентів до вивчення іноземних мов у моделі HyFlex. Рівні інтуїтивної, репродуктивної, пошукової та творчої готовності студентів визначено авторами в рамках моделі HyFlex. Результати дослідження свідчать про те, що більшість студентів демонструють репродуктивний рівень навичок у цьому контексті. У статті розглянуто організацію, принципи та структуру навчання іноземних мов HyFlex для студентів початкової та дошкільної освіти, наголошено на важливості технологічних та лінгвістичних критеріїв. Автори представляють низку освітніх інструментів і цифрових ресурсів, які покращують вивчення мови в рамках HyFlex (сервіси Google (документи Google, презентації, аркуші, форми, Jamboard), Quizlet і Anki, Mentimeter, Quizalize, WordWall, Flip, Canva, Vocaroo, програма Metaverse Studio). Очікується, що майбутні дослідження будуть зосереджені на формувальному етапі педагогічного експерименту з метою подальшого розвитку здібностей студентів до вивчення іноземної мови в рамках моделі HyFlex.

Ключові слова: комунікативна компетентність; іноземна мова (англійська); HyFlex навчання; HyFlex модель; HyFlex технологія; педагогічні спеціальності; підготовка вчителів