Overcoming challenges: strategies for effectively using ICT in teaching

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Abstract. The pandemic spurred the rapid development of e-learning, making the hybrid learning model a highly relevant approach. However, this model still faces various technical, psychological, and methodological issues. This article explores these challenges and suggests potential solutions for organizing hybrid learning to enhance the ICT competence of future foreign language teachers. Through careful planning and a judicious integration of e-learning technologies in both online and offline classes, students can become active participants in their own education, effectively organizing hybrid learning and preparing themselves for a range of communicative and methodological tasks that require the use of ICT in a digital educational environment. Moreover, this approach fosters collaborative learning, facilitates the resolution of tasks, and promotes positive interactions among all participants in the educational process.

Keywords: future teachers of a foreign language, hybrid learning, the formation of ICT competence, training difficulties

1 Introduction

The realities of the modern world: an unfavorable epidemiological situation which lead to quarantine measures during pandemic, as well as the rapid development of e-learning technologies actualize hybrid learning as one of the most promising learning models.

For future foreign language teachers, hybrid learning is an additional opportunity for the further development of their ICT competence. Existing studies on the development of ICT competence of a foreign language teacher (M.V. Bovtenko, M.N. Degtyareva, M.N. Evstigneev, E.N. Zaitseva, E.S. Polat, S.V. Titova et al.) note the necessity to master the usage of the array of online services and digital tools. Students’ digital experience should be provided through the development of the ability and readiness to solve various communicative and methodological tasks by means of ICT in a digital educational environment in conditions of active network interaction of all participants in the educational process. Future foreign language teachers should be ready to use hybrid learning in modern

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conditions, so they need to move from the role of a passive recipient of information to the role of an active organizer of the educational process.

Hybrid learning should be understood as a synchronous learning process, when during an in-person classroom session, students are divided into two types - students who attend the class in person, and students who join the classroom virtually using videoconferencing technology [1]. Qi and Tian researchers [2] identified 4 properties of hybrid learning:

1. combination of collective and individual training;
2. combination of synchronous and asynchronous learning;
3. combination of independent and group training;
4. a combination of formal and informal learning.

The advantages of hybrid learning include an increase in the effectiveness of the educational process, a reduction in financial costs, an increase in the availability of materials, an increase in the level of ICT competence of all participants in the educational process [3]. In our opinion, the hybrid learning model is one of the most promising models of teaching modern students due to the fact that this generation of young people belongs to the so-called “digital aborigines” who perceive digital technologies and the digital environment as natural, differ from the previous generations in the ability of multitasking, and, consequently, are able to perform several tasks simultaneously. Moreover, students are active users of networks and are ready for changes in rapidly developing technologies.

Despite the variety of existing educational technologies, their selection according to the following standards - high-quality and appropriateness to the tasks being solved online and offline, and requirements of high learning outcomes - is the main problem. In addition, many researchers [4, 5, 6] note difficulties in the organization of hybrid learning, which includes difficulties of technical, psychological and methodological nature. Let’s consider these difficulties and possible ways to overcome them in the context of development of ICT competence of future teachers of foreign languages.

2 Technical difficulties and ways to overcome them

We have identified two main types of technical problems of hybrid learning: force majeure (or events beyond the control) and organizational problems. The first group may include a sudden power outage, communication interruption or poor connection quality and unstable Internet connection due to a failure of the communication channel. Oftentimes, the solution of difficulties of this nature is impossible, and the lesson must be postponed. Organizational problems are primarily related to the quality of the material and technical equipment of the audience. Thus, the sound and image quality depend on the resolution of the microphone and video camera. Moreover, if multimedia devices are static, then all participants in the educational process need to be in close proximity to them, which is impossible in groups with more than 5-7 people.

The solution to difficulties of this nature can be the use of such technical equipment as:

- PTZ cameras or cameras with auto-tracking. PTZ cameras, equipped with a system of rotation, tilt, optical zoom, have manual and remote control and broadcast the image of the teacher wherever she is.
- Audio panels mounted on the ceiling, capable of transmitting sound from anywhere in the audience.
- Interactive panels/screens. The screens display all online students with their cameras turned on. It is necessary to constantly monitor the involvement of all students in the lesson, to answer questions in a timely manner.

If solving problems is difficult due to insufficient support, it is recommended to minimize them in class by increasing the amount of work in pairs and mini-groups. With such an organization of training, the task of the teacher is in the nature of monitoring and
mentoring. In addition, students and teachers are invited to attach lapel microphones to the collar, which increases the quality and volume of sound.

In addition, we recommend providing the possibility of simultaneous video recording of the event. In case of technical problems of an insurmountable nature, students who did not have the opportunity to attend the lesson and did not have the opportunity to directly participate in it will be able to watch it in the recording. For educational institutions, this is a convenient way to simultaneously create materials for online MOOC courses (massive online courses), which are required today from all universities. Teachers will not have to spend time on recording, further processing it, and sometimes voicing materials. Simultaneous recording during the lesson will save time and resources, and make the learning material more lively.

3 Difficulties with software and services usage

The global Internet has become a storehouse of various online services that allow you to create various polls and votes, use virtual whiteboards and other tools for collaboration. On the one hand, all these listed materials provide multimodal interaction of participants of offline and online audiences.

On the other hand, the lesson turns into a kaleidoscope of transitions from the program to the service. Students using mobile devices to participate in a hybrid lesson face the problem of overheating of the device, lack of sufficient RAM and built-in memory.

To avoid such difficulties, we recommend integrating existing programs and services with the Learning Management System (LMS). So, the Moodle platform we use allows us to integrate existing services by embedding them in HTML code or using SCORM packages. This makes it possible not only to simplify the process of managing and distributing educational materials, but also the formation of reporting and content analytics.

4 Psychological difficulties and ways to overcome them

We have identified several psychological difficulties:

5 Difficulty in focusing

The issue of focusing students’ attention is one of the most difficult psychological problems discussed by experts from various domains of pedagogical science and practice. Attention, being an integral part of all mental processes of a person, occupies a special place. Firstly, it is responsible for the clarity of mental activity, which makes it more successful. In addition, with the significant development of such attention skills as organization and arbitrariness, the quality and success of training is ensured.

Learning from home involves a lot of distractions. So, Danilov O.E. [7] notes that students find it difficult to keep their attention for more than 6-9 minutes, after which their activity decreases significantly. Firstly, this is due to the general style of clip thinking of generation Z, as the development of multitasking reduces the level of concentration. Secondly, in the era of information overload and hyper-inclusion, attention deficit disorder is spreading. Moreover, our survey of students showed that 79% of students find it difficult to separate the “home” and “study” space, which negatively affects the effectiveness of online classes.

As mentioned above, attention is a litmus test of psychological processes taking place in human development and is the basis of productive cognitive activity of students. The intensity of concentration on the object of study largely depends on the interests, needs, attitudes and orientation of the individual to the learning process. Over the past 10-15 years, the formation of psychological dependence of the “comfortable generation” on mobile digital devices has
been observed, which negatively affects the degree of concentration of attention on the educational process. There are two types of fluctuations in attention when learning in a hybrid format: endogenous (internal) and exogenous (external). The first is connected with switching the student’s thoughts to the need to interact with a mobile device. The second type of attention fluctuation occurs when external signals are received, such as sound notifications and incoming messages, initiating interaction with the phone. Research [8] shows that the efficiency of the task with such fluctuations is significantly reduced, as well as the time required to complete the task increases by 4 times.

In order to solve this problem, we suggest the following strategies:

6 Compliance with the working regime of studying

Conducting classes strictly according to the schedule of the educational institution is the main demand in the situation. At the same time, taking into account the great fatigue of students who are in front of the computer, it is proposed to take 5-minute breaks and change activities regularly. So, the performance of tasks involving discussion should be alternated with practical exercises including the usage of services or programs, drawing up smart maps or performing laboratory work.

7 Compliance with the dress code

The right style of clothing, regardless of whether the student is in the classroom or is engaged remotely, sets students up for work, it is easier for them to focus on the learning process.

8 Creation and following the routine in the educational process

Here, first of all, it is necessary to include issues of the organization of the training session, such as greeting, setting and discussing specific and practice-oriented learning goals, stages of the lesson. The competence-based approach to learning significantly increases the importance of the presented material. Modeling situations, using role-playing technology or solving cases are the most effective ways of teaching the use of information and communication technologies in the process of teaching foreign languages.

9 Organisation in the student’s learning space

It is necessary to ask students to turn off social media notifications, prepare the necessary educational materials in advance.

10 Monitoring and feedback

Students might be motivated and kept focused through frequent monitoring of their activities as well as receiving feedback from them. So, for example, in the remote format of studying, the teacher, explaining the educational material, can ask all students to respond to some statement in the chat in the form of a “plus” or “minus” symbol, or use some emotional icon or other pictorial representation of their emotions.
11 Activation of different ways of perceiving information

One of the ways to overcome the problem of attention fluctuation is to activate all students’ ways to perceive information: auditory, visual and motorial. So, the use of an interactive video lecture or video, where, along with the perception of audio and video series, the student must perform a number of simple actions, such as the use of emoticons or other types of reactions to the information received, can contribute to increasing the intensity of the educational process.

Nevertheless, it is worth noting that the active use of a variety of analyzers increases the level of student’s fatigue, and this dictates the need to formulate requirements for the form and volume of video lectures offered to students [8]:

1. Educational video recording should be limited to the disclosure of only one thought or idea: this may be a proof or thesis, conducting an experiment, solving a problem, etc.; while the completeness and integrity of a traditional lecture is determined by the disclosure of the whole topic, as well as the connection and its place within the entire training course. Due to the stated above facts, in hybrid training, it is recommended to record and demonstrate video lectures lasting no more than 6-9 minutes.

2. Students activities during work should have a methodically sound algorithm: it is required to accompany the lecture with an annotation and accompanying comprehension tasks.

3. In cases where the duration of the lecture playback exceeds the 9-minute limit, it is recommended to provide for the possibility of navigation through the key content parts of the material being studied.

12 Changing the volume level of speech

Changing the volume of sounds is a way to preserve the attention of students: in the process of a long explanation of the material, more than 5 minutes, with a relatively monotonous presentation of information, there is a shift of students’ attention to third-party objects. To increase the focus of student’s attention, it is recommended to reduce the volume level and further increase it, which will lead to a wave-like explanation.

13 Visual materials

Visuals provide additional condition for increasing the focus of students’ attention in a distance learning format. Such visual materials as tables, graphs, infographics, presentations, short videos, augmented reality elements can significantly increase the concentration of students’ attention. All of the above can not only arouse the interest of the students, but also keep their attention. Nevertheless, it is worth noting that the quality of the materials used should be high enough and meet the criteria of aesthetics and design. The use of more than 7-9 graphic elements will lead to the fact that attention will be shifted only to a part of them.

14 A favorable atmosphere

A favorable atmosphere is the key element of retaining the attention of students in a hybrid learning format. It is necessary that students on the other side of the screen do not feel forgotten and receive positive feedback more often. It is worth switching to a mentoring style of teaching, that is, the teacher not only explains the material, gives tasks and monitors their performance, but provides students with the necessary support, especially in digital format, which creates a favorable learning environment. A favorable atmosphere can also be
improved by creating and preserving local values in the group: encouragement for creative ideas and solutions to tasks, contribution to group work, mutual assistance, teamwork, and so on.

However, we consider it necessary to highlight some requirements for the organization of classes in a remote form:

- during the presentation of the theoretical material or the lecture, it is necessary to set up the possibility of correspondence between students in a group chat in order to receive comments from them and their reactions to the questions asked by the lecturer or to the material being explained;
- indicate the speed of students’ reaction to the questions asked and student initiatives;
- implement a variety of communication formats in the learning process (accessible forums and chats, discussions of subject content on the web, confidential communication channels and videoconferences, etc.);
- create a favorable business microclimate in the study group by organizing group activities in the digital space;
- acquire an equally high level of ICT competence, which will allow the teacher and students to communicate freely in the digital space [9]

15 Lack of visual contact

As you know, eye contact is the tool through which the teacher and the student establish a psychological connection, through which a sense of trust with the interlocutor is formed. Eye contact performs not only controlling and cognitive functions, but also regulatory and emotive. It is noted that the establishment of visual contact with distance learning is complicated by the direction of the interlocutors’ gaze. Due to the fact that subconsciously the participants of the educational process look into each other’s “eyes”, and not into the camera, it feels like a person is looking away. Another disadvantage of the lack of visual contact is the inability to monitor the current activities of students, respectively, it is quite difficult to anticipate potential difficulties arising with a particular task.

![Graph showing comparison of distance studying and in-class studying](image)

**Fig. 1.** Lack of visual contact study.

We conducted a survey that showed that within the framework of lectures, eye contact between a teacher and students is in demand only among 43% of recipients in the audience
and 41% in the distance learning format. At the same time, practical exercises show a significant increase in the need for visual contact with the interlocutor. Thus, 84% of recipients noted that with eye contact with the interlocutor, their tension decreases, a sense of presence and interaction is created.

The problem of lack of visual contact and difficulties with monitoring the activities of students present online can be solved by appointing one of the full-time students responsible for monitoring and assisting in remote work. This will allow students to gain experience in organising distance learning.

In addition, students who are outside the classroom should be invited to place the camera directly above the video conference window. Thus, the student’s gaze will be directed at the camera and at the same time she will see the interlocutors, therefore, face-to-face communication will be simulated.

16 Alarm status

Despite the fact that distance learning has minimized the number of stressful situations when performing assignments for submissions, students may experience anxiety due to the lack of instant feedback due to technical reasons. Consulting on the performance of tasks can be carried out indirectly, which often takes some time. Accordingly, a long wait queue to get help in completing the task or mastering the material can create psychological discomfort. And the psycho-emotional state of the student affects not only her general well-being, but also her ability to assimilate the material as a whole.

In order to relieve the state of anxiety, it is recommended to provide not only a verbal explanation of the upcoming type of work, but also a demonstration of the screen / board with the task and a consistent explanation of the task. In addition, it is possible to accompany the task with feedback, which can be formative, perhaps in the form of self-assessment or mutual evaluation, and is necessary not as much for control but to motivate students for further educational activities.

17 Methodological difficulties and ways to overcome them

17.1 Organisation of discussions

Unlike the traditional educational process, conducting classes in a hybrid format requires more careful planning and appropriate training from the teacher. So, a teacher methodically building a hybrid lesson may face the complexity of organising discussions. If during the lesson all students are in the classroom or study remotely, then the organisation of discussions is limited to explaining the task for discussion and dividing participants in the educational process into mini groups in the classroom or in breakout rooms. In the context of hybrid learning, when some students are in the classroom and some are studying remotely, the organisation of discussions can be complicated. In addition, if students work in groups in the classroom during a full-time lesson, and the teacher has the opportunity to monitor the progress of the discussion, then monitoring the discussions in the chat will already be problematic.

A necessary condition for solving problems in discussions organisation might be involvement of highly active students in regulating the learning process. It is very important for the teacher to shift from the leading role to mentoring one, allowing students’ autonomy [10]. Performing tasks to create educational products using ICT tools, such as a forum, glossary, wiki, group projects, allows you to implement technologies for mutual peer review,
evaluation of other students’ work and reorient the role of a student from a passive recipient of information to an active sender.

17.2 Organisation of testing and learning curve tracking

Carrying out interim and final tests can also cause certain difficulties. Students studying online and offline are in unequal conditions, due to the fact that it is impossible to track whether students consult with additional sources, copy works of other students, perform it together. Moreover, we cannot claim that the work was done by someone who is on the other side of the screen [4].

The solution to the current difficulty can be a shift from testing tasks to the implementation of practical tasks in the discipline of ICT, conducting colloquia and doing methodological cases. This approach will create the same conditions for all participants in the educational process, as well as see in practice the level of competence being developed, and not just checking knowledge and skills, as it is done in tests.

It should be emphasised that there are no significant data proving that modern students approach the learning process in a fundamentally different way. Factual statistics show that students do not recognise that they need pedagogical support. Learning outcomes are not determined by early experience with digital technologies. Moreover, some teachers see danger in non-critical sources of information. Situations when students overestimate their capabilities lead to the fact that they build their educational activities in the wrong way, as well as underestimate the need for pedagogical support [11].

A meaningful course on training future foreign language teachers in the ICT domain may include such activities as active participation in various online communities, organisation of remote projects in a foreign language, selection and creation of electronic educational resources, filling the content of the information environment with electronic resources, organisation and management of communication. To prepare future foreign language teachers attending ICT classes online and offline, we have developed the following scheme of teaching tools (see Fig. 2):

![Diagram](image)

Fig. 2. Tools for teaching future teachers of a foreign language in the ICT domain in a hybrid learning environment.
In classes organised online, in the process of theoretical training, students are offered a series of interactive lectures, lasting no longer than 10 minutes, with embedded questions on content. Screencasts are pre-recorded by the teacher to master new software tools. Students attending full-time are offered traditional interactive problem lectures, enhanced by the ICT tools usage. Thus, theoretical training in online and offline modes can be conducted independently.

The organisation of practical training, including discussions, project assignments, requires more careful planning. At the same time, it will be quite difficult for a teacher to effectively monitor the activities of all students. Assigning the responsible to track in-class activity and organisation of online and offline activities to various students can contribute to the removal of this difficulty and the formation of students’ experience in the organisation of hybrid learning. The tools of practical training include various services and simulators to create quizzes, tasks such as fill in gaps, etc. Interaction software and services include social networks, programs for webinars, forums, chats, etc. The tools include programs to create websites, blogs, video, audio resources, time tapes, smart maps, online whiteboards, etc.

The hybrid learning model, which is in its primary stage of existence, has a huge potential for training future teachers of a foreign language, not only in the ICT domain, but also in solving communication, psychological, and methodological problems which are faced by modern teachers. In this article, we have proposed some of the possible ways to solve the difficulties of organising hybrid learning, which can be clarified with the development of educational technologies and ICT tools.

References

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