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Educational IT Environment and the Problem of a Foreign Language Teacher's Information and Communication Competence Formation

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Abstract

The paper deals with the problem of how to develop information and communication competence of a foreign language teacher by creating an appropriate educational environment and active application of information technologies in the learning process. An analysis of publications on this problem shows that we can talk about preparing a future specialist in an environment based on information technologies, on the one hand, and further active use of the electronic learning environment for young professionals in their professional activities, on the other. A competency-based approach to professional and methodical teacher training can be applied, which can be defined as the ability of the teacher to solve typical professional tasks using information and communication technology tools or as professional ICT competence. The requirements imposed by modern society in terms of the professional competence of teachers are becoming higher. Educational institutions are called upon to actively implement innovative learning technologies which along with fundamental training ensure the development of future teacher's information and communication competence.

Keywords: ICT; information and communication competence; educational IT environment; competence-based approach; software; online service.

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Introduction

Information technologies have long become an integral part of teaching foreign languages at all levels of the Russian education system. Not only students but also tutors are increasingly interested in the practical application of IT. The practice of teaching a foreign language is no longer thought without an extensive base of authentic sources of information, interactive courses, etc. With only one click of the mouse, we can find ourselves in the country of the target language, and that makes computers and the World Wide Web an essential component of the educational environment. But are we free in choosing the material we need? Can we say that we can create with our own hands such a resource that we need rather than what is provided by educational software developers?

In December 2017, the Russian Federation Education Minister O. Vasilyeva at the congress of United Russia stated that only 16% of Russian teachers know how to use computers and other digital equipment although even these people's skills are far from being perfect. Studies show that it is difficult to argue with this statement despite the fact that future teachers have special training in such subjects as "IT in foreign language teaching", "Automation of Foreign Language Teachers' Workplace", etc.

Based on our own experience, we can say that so far only 40-50% of future teachers fully master the proposed amount of knowledge and practical skills in the use of information and communication technologies in teaching foreign languages. However, this is not a guarantee that when they come to school, they will systematically use the acquired skills. This is largely due to the fact that the development of digital educational materials is associated with significant time and labor costs, which the present-day Russian teachers are in dire need of.

This does not justify the low level of use of interactive teaching materials in the classroom in particular, and the insufficient digital competence of our teacher corps as a whole. What competence in this case, should we talk about first and how can it be achieved?

Scientists and practitioners around the world have long been discussing this question. An analysis of publications on this problem shows that we can talk about preparing a future specialist in an environment based on information technologies, on the one hand, and further active use of the electronic learning environment for young professionals in their professional activities, on the other. Here the e-learning environment comes to the fore. What does this term imply? There are several interpretations. Some authors use the term "virtual learning environment" or "institutional learning environment". However, these are difficult to tell apart – in fact, it can be said that the two terms refer to the same environment.

As for the so-called "smart-learning environments" (SLE), the term should reflect the interconnection of pedagogy and technologies. In the smart environment, pedagogy is represented by learning and assessment paradigms, social factors and policy. Technology includes emerging technologies, innovative uses of mature technologies, adoption usability and standards, and emerging/new technological paradigms (open educational resources, cloud computing, etc) (Barab & Plucker, 2002).

Hwang (2014) suggests three points to summarize the potential contribution of SLE:

1) smart learning environment is context-aware; that is, the learner's situation or the contexts of the real-world environment in which the learner is located are sensed, implying that the system is able to provide learning support based on the learner's online and real-world status.

2) A smart learning environment is able to offer instant and adaptive support to learners by immediate analyses of the needs of individual learners from different perspectives (e.g., learning performance, learning behaviors, profiles, personal factors) as well as the online and real-world contexts in

which they are situated. Moreover, it can actively provide diverse personalized support to learners, including learning guidance, feedback, hints and learning tools based on their needs.

3) A smart learning environment is able to adapt the user interface and the subject contents to meet the personal factors and learning status of individual learners. The user interface is not necessarily a conventional computer. Instead, learners can interact with the learning environment via mobile devices (e.g. smartphones or tablet computers), wearable devices (smart watches) and others.

Another way of approaching ICT applications in education is the creation and use of the so-called "personal learning environments" (PLE). Schaffert and Hilzensauer (2008) argue that contrary to the traditional learning management systems (LMS), the PLE systems have been very well received and offer a potential to change the paradigm of education. They identified seven aspects which reflect these changes in the most significant manner. In general, learning in the PLE leads to the following changes:

1) The student has the role of active and self-directing creator of the content;

2) Personalization is seen as a result of the information and support of the members of the particular community;

3) Instructional content appears as an immense "bazaar";

4) Social involvement begins to play a key role;

5) Ownership of students' data;

6) The significance of the self-organized study for the culture of educational institutions and organizations, and, finally,

7) Technological aspects of the use of social software tools and the collection of various sources.

Milligan, Johnson, Sharples, Wilson, and Liber (2006) summarized some of the critical objections to LMS systems, one of which concerned the inability of many institution-based LMS systems to provide the opportunity of greater peer-based pedagogy. The authors argue that the PLE uses tools that would allow the learner to learn with other people and to control their learning resources.

The concept of modernizing the Russian education system sets and defines new targets for the training of future specialists based on the competency-based approach to ensure the quality of their training. It is necessary to achieve a new level of learning results involving the formation of professional and general cultural competence of university graduates. As noted above, the knowledge and skills that are formed in the course of training future specialists often turn out to be unclaimed in real life situations. In this regard, it is necessary to create an appropriate IT-based educational environment and change the requirements for the content of professional and methodical training of future foreign language teachers. These requirements should be aimed at the formation of flexible and mobile knowledge as well as the ability to apply this knowledge in various educational situations.

Pedagogical Principles and Conditions

ICT competencies

To solve this problem, competency-based approach to professional and methodical teacher training can be applied, which can be defined as the ability of the teacher to solve typical professional tasks using information and communication technology tools or as professional ICT competence. Such ICT competence may include:

- key ICT competencies necessary for any professional activity of the teacher (teacher's competence, manifested in his ability to solve professional tasks using ICT tools);

- basic ICT competencies reflecting the specifics of the teacher's professional activities in the

context of the requirements relating to informatization of the educational process and the implementation of the new Federal State Educational Standards requirements;

- special ICT competencies reflecting the particulars of a specific or meta-subject activity, (competencies that implement key and basic ICT competencies in a specific subject area or a specific area of professional activity) (Abdurazakov, Dzamyhov, & Temirjanova, 2014).

Therefore, we can conclude that the formation of foreign language teachers' information and communication competence serves as one of the main goals in the professional training of a future specialist. Achieving this goal will depend on the implementation of several principles, the most important of which, in our opinion, are the following:

- the principle of individualization and differentiation of teaching (the principle of adaptability) involves selection of tasks of a reproductive, productive and creative character, making it possible to accurately take into account the existing level of foreign language teachers' efficiency in their use of ICT, which gives them the opportunity to choose the required level of complexity and consistency in implementation of educational tasks when using ICT in the process of learning a foreign language and culture of the country of the target language.

- the principle of visualization involves computer visualization of educational information, which enables students to make a presentation, analyze and draw conclusions about the studied linguistic phenomena and processes. In accordance with this principle, training is based on specific images directly perceived by students, and involves the use of various types and forms of clarity: linguistic clarity (selection of authentic texts, speech patterns, which demonstrate the functional features of the material being studied, etc.), visual (photos, drawings, caricatures, art illustrations, various kinds of symbolism, film and video clips), auditory clarity (audio recordings).

- the principle of redundancy implies a deliberately excessive number of tasks that cannot be performed only during the lesson time. Redundancy is a prerequisite for organizing educational activities in an audience with a different level of preparedness on the subject: depending on the level of students' preparedness, the teacher has the opportunity to offer each student the task of a particular level of complexity. In addition, redundancy provides the teacher with additional tasks that may be recommended to the students for extra study. However, a significant part of the tasks must be completed by all students.

- the feedback principle implies a mandatory response to the actions of the student in various types of educational activities (for example, correcting mistakes, receiving and issuing response options, etc.) and others (Evstigneev, 2011).

Ways to form ICT competence

ICT competence as a component of professional competence of the foreign language teacher can be formed only by a comprehensive and systematic implementation of information and communication technologies in the learning process, when they become not only the subject and means of special courses but also a tool and means of language cycle subjects, when future specialists are convinced of their effectiveness, efficiency and the need to use them in their own learning activities.

Development of skills in the use of ICT and, consequently, the formation of ICT competence in the process of foreign language learning is directly dependent on compliance with a number of pedagogical conditions.

First, to develop methodological competence of future foreign language teachers, it is necessary to integrate information technologies in the whole pedagogical process of learning the language and foreign language culture. In other words, it is vital to create an information and communication educational

environment. To meet the first condition we need a relatively high level of information and communication literacy by the time of the study. The second important condition is the continuous development of motivation to use ICT in professional activities. Thirdly, it is necessary to develop ICT-based teaching aids for students to learn foreign languages and cultures. And finally, the fourth condition can be technological support of educational activities of future foreign language teachers who are acquiring ICT competence (Evstigneev, 2011).

Results and Discussions

Here we can refer to the old well-known method of "learning by doing". One can learn and master something only in the activity. Only after completing an electronic exercise, having studied certain electronic content and mastered the appropriate application, the student reaches a certain level of development and becomes realizes the effectiveness of this tool, begins to feel the need to use the same or more advanced tool in his or her future professional activity.

Speaking about the formation of ICT competence of the foreign language teachers, we do not imply professional programming level. In practice, one should proceed from the fact that the future specialist should possess the skills and abilities of an advanced user of commonly available software. This level of information and communication competence makes it possible to solve practically any tasks in teaching.

In this paper, we do not set a goal to discuss traditional methods of working with the most common applications. MS PowerPoint presentations with hyperlinks and triggers or MS Excel-based tests are rather common and give a certain idea of the level of a teacher's computer awareness.

As an example, we will consider specially developed Web 2 activities integrated into blocks in the form of web sites that have been used for several years in the system of further education. Due to their nature, such courses are conducted partly in distant mode. In this case, students receive by email blocks of additional tasks (the principle of redundancy), which are designed in the form of web sites functioning offline. We call them "autonomous websites" (Malikhin, 2009) because you can work with them without the Internet, which turned out to be very convenient in rural areas, where a network is not always available. Web sites are illustrated, some flash animations of grammar rules are introduced (visualization principle), and the tasks provide feedback that shows how well the exercise has been performed (feedback principle). This kind of work allows not only to improve language skills acquired in the contact phase of classes but also to arouse students' interest in mastering the skills of using computer technology in their professional activities. The tasks are developed in the Hot Potatoes software shell, which is very popular all over the world and is used by teachers of almost all subjects. The shell is introduced at IT classes and supplemented by independent work with an electronic manual containing instructional videos (Malikhin A. & Malikhina E., 2006; Malikhin, 2013).

Many teachers are beginning to use the software shell to create their own teaching materials in the practice of German language teaching. The advantage of this shell is its availability and free of charge installation for non-commercial use. It also supports the SCORM 1.2 standard, which makes it possible to create tasks that can be imported into any training system that meets these standards, including Moodle.

The second example of practical work on the formation of ICT competence of future specialists with the help of software that does not require special programming training and, therefore, increases motivation, can be the application of Learning Apps web service. It provides opportunities for creative implementation by creating students or teachers' own instructional materials. The service offers 34

templates to design interactive didactic materials. The templates are divided into clusters depending on the type of activity: selection, distribution, sequence, fill-in, online games and tools. It is quite easy to create exercises because the interface does not cause any difficulties and can be understood even by primary school students. It is important that working with it creates a situation of success and motivates for further work. For example, users may develop their own activities by studying and analyzing the can see existing exercises.

The resource enables the teacher to create accounts for the entire class and track the correctness of the students' performance of the proposed tasks in the “Statistics” section. To do this, students simply log in with their username and password and then complete the proposed tasks. The resource can also become a handy assistant for student-trainees since it makes it possible to use the SCORM 1.2 standard, upload their activities for the offline mode and import them into distance learning systems. Experience with the service has shown that both future and practicing teachers easily and quickly master it and begin to actively use it in their professional activities.

As mentioned above, the development of ICT competence is only possible if information technologies are constantly and systematically integrated into the process of the teaching foreign languages and cultures.

For the past few years, cloud services, in particular, Google services have been the most popular in lessons and practical exercises, the main advantages of which include general accessibility, versatility (multiplatform) and intuitive interface. The Google Docs cloud service is a free online version of the Microsoft Office application suite for working with various types of documents (texts, spreadsheets, multimedia presentations, etc.), as well as a virtual space for storing and sharing files. For the teacher, the special value of the Google Docs application is in the possibility of simultaneous team collaboration with one document when each team member sees the actions of partners.

The teacher can monitor students in real time as they perform learning activities. At the same time, communication in a text chat is possible, where the teacher can comment on the students' actions and, if necessary, correct errors. Google services have long been used for educational purposes, both in our country and abroad. Google Docs application increases the effectiveness of classroom training in writing in the preparation for the Unified State Exam. Unlike the traditional lesson, where students write texts in class or at home and give them to the teacher for testing, and only the authors review the checked-up works, performing a similar task in Google Docs format changes the approach significantly. The teacher in real time monitors the work of all students and can give advice directly in the process of writing. Students can then check each other’s texts, and the results of this work are visible to everyone. The teacher analyzes one or two works in detail and the students follow the analysis (Klimentyev D. & Klimentyeva V., 2018).

As we can see, the use of cloud services in everyday activities becomes a universal tool to increase learning motivation of future professionals in the process of developing their information and communication competence.

Conclusion

In conclusion, we should note that the requirements imposed by modern society in terms of the professional competence of teachers are becoming higher. Consequently, foreign language teacher’s ICT competence can be formed through continuity, consistency, and continuity of the educational process. Educational institutions are called upon to actively implement innovative learning technologies which along with fundamental training ensure the development of future teacher’s information and

communication competence.

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