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THE USE OF INTERACTIVE MULTIMEDIA WORKSHEETS AT HIGHER EDUCATION INSTITUTIONS

Abstract. The conducted research has revealed a high level of technical, technological and psychological readiness of students for integration into the educational activities of cloud technologies in general and interactive multimedia worksheets (IMWS) in particular. In the article, the possibilities of use of the Wizer.me cloud service to create IMWS were analysed; it was established that they entirely correspond to the peculiarities and principles of distance education. When using worksheets, a student turns from a passive recipient of knowledge into an active participant in the teaching-learning process. IMWS are effectively used with the purpose of organisation of formative assessment. Alongside considerable advantages of using IMWS, certain technical, financial, organisational, psychological and methodological problems of incorporation of worksheets into the teaching process at higher educational institutions were revealed.

Key words: cloud technologies; application software for teaching purposes; higher education institutions; teaching resources; worksheet.

1. INTRODUCTION

Problem statement. The purpose of modern educational institutions is to prepare a young person for life in an information-saturated environment that in addition undergoes perpetual renewal. Today's students need to not only assimilate a considerable amount of educational material, but also to learn how to promptly adapt to the new conditions created by society. The only way to achieve this goal is to let a student be an active participant of the process of teaching and education, which in turn requires a student to develop various thinking skills [1].

The objective of the National Strategy for the Development of Education in Ukraine for the period until 2021 is defined as "an increased availability of high-quality, competitive education for the citizens of Ukraine in accordance with the requirements of the innovative development of society, economy, and each citizen; ensuring one's personal development in keeping with individual inclinations, abilities, and needs based on one's lifelong learning" [2]. According to the Strategy, one of the main directions of the state policy in the field of education is its informatisation [3].

The rapid development of information and communication technologies in general and of cloud-based services in particular reveals a wide spectrum of possibilities for the implementation of the goals of modern higher education. There is a gradual improvement in the matter of equipping educational institutions with computers (namely with multimedia systems containing an interactive whiteboard or an interactive surface activator) and providing access to the Internet. However, there is a persistent problem with the lack of funds to purchase licensed software for both general and academic purposes.

It should be noted that recent years have seen the emergence of an important number of various types of cloud-based software for educational purposes that has a significant functionality, and in addition much of it is free. On the other hand, teachers have little knowledge of such services' possibilities and seldom use them in teaching activities. These

types of software can be effectively used to form students' professional competence, which necessitates not only the assimilation of actual knowledge, but also the development of high-level thinking skills.

Analysis of recent studies and publications. Different aspects of teacher preparation for the use of information and communication technologies in the process of teaching as well as the development of their information and communication competence are discussed in the works of V. Bykov, A. Verlan, R. Hurevych, M. Zhaldak, I. Zakharova, A. Kolomiiets, I. Kukharenko, V. Lapinskyi, M. Leshchenko, N. Morze, O. Ovcharuk, V. Osadchyi, S. Rakov, Yu. Ramskyi, O. Spirin, H. Tolkachova, Yu. Tryus, L. Chernikova, V. Shvets and others. Specifically, the problems of using cloud technologies in education are highlighted in the research done by E. Ablialimova, T. Arkhipova, N. Balyk, V. Bykov, Yu. Diulicheva, T. Zaitseva, S. Lytvynova, N. Morze, M. Popel, M. Rassovytska, Z. Seidametova, O. Spirin, A. Striuk, Yu. Tryus, V. Franchuk, M. Shyshkina and others.

Theoretical and methodological guidelines for the creation of electronic educational resources are reflected in the works of O. Alieksieiev, M. Bieliaiev, O. Balykina, V. Bykov, A. Hurzhii, S. Denysenko, L. Zainutdinova, N. Klokar, V. Lapinskyi, S. Lytvynova, Yu. Mashbyts, Z. Savchenko, E. Skybytskyi, M. Shyshkina and others.

The problems of a personality-oriented approach are revealed in the studies of N. Aleksieiev, V. Andrieiev, Ye. Bondarevska, L. Hrambovska, V. Lutsenko, O. Piekhota, V. Sierikov, A. Starieva, A. Khutorskyi, I. Yakymanska and others.

The development of thinking was researched by such scientists as A. Aleksiuk, L. Anderson, Yu. Babanskyi, V. Bespalko, L. Vyhotskyi, P. Halperin, V. Davydov, L. Zankov, O. Zaporozhets, D. Elkonin, O. Kabanova-Meller, A. Leontiev, V. Lozova, S. Maksymenko, S. Rubinshtein, M. Smulson, S. Spoldinh, B. Teplov, O. Tykhomyrov, D. Khamblin and others.

Individual issues of improving the efficiency of the teaching process through the use of workbooks are studied by such scientists as N. Erhanova, L. Yermolaieva, I. Ioniv, A. Likarchuk, I. Maiorova, L. Nechvolod, O. Nilson, V. Onyshchuk, N. Preobrazhenska, O. Privalova, M. Savchyn, V. Starosta, Yu. Troitskyi, I. Unt, I. Upatova, I. Khudolieiev and others.

The concept and use of interactive multimedia worksheets as a means of teaching, that are the successors of the print-based workbooks (PBWB) created with the help of cloud services, are to date insufficiently researched. In this respect one can emphasize the works of such scholars as O. Herasimova, N. Silicheva, N. Semenova, S. Riabtsov, Yu. Riabtsova, L. Baggott, B. Wright, J. F. Johns, T. Ehmke and others.

The analysis of scientific sources and actual teaching activities shows that the issues of the use of free cloud services at the institutions of higher education are not developed enough. For instance, there has been almost no research done into the problem of creation and use of opportunities offered by interactive multimedia worksheets at different stages of the teaching process.

The objective of this article is to highlight the potential of interactive multimedia worksheets, propose some possibilities of their use in the course of both teaching and learning at different stages of the educational process, as well as analyse the problems relating to introduction of these technologies into the work of higher education institutions.

2. THEORETICAL FOUNDATIONS OF THE RESEARCH

The idea of using PBWB is not new to the methodology of teaching. They were occasionally created from individual teaching objects, sometimes used in the classroom at secondary and professional schools, and then forgotten for many years. During different

periods of time the use of this teaching aid had different didactic purposes. For that reason, workbooks were made based on diverse conceptual approaches [4]-[6].

I. Upatova [7, p. 167] specifies that "a PBWB can perform the functions of an innovative multifunctional didactic tool which is at the same time a means of teaching and learning that facilitates the development of thinking, steps up the process of self-development and self-education, which in turn increases the efficiency of the educational process. A PBWB is a tutorial representing a pool of tasks, exercises, instructions for independent resolution of tasks of different levels of difficulty, laboratory and practical tasks (depending on the specifics of the subject); it has a special didactic apparatus that helps students to assimilate the subject matter while providing teachers with a real possibility to optimize the teaching-learning process".

Recent years witness the dynamic development of information and communication technologies in general and cloud technologies in particular and, as a consequence, they are being introduced into the teaching process of educational institutions of all levels [8]-[15].

V. Bykov [16, p. 14] emphasises that "a decisive factor in determining the effectiveness of the process of informatisation of education is not so much the achieved scientific and technical level of computerisation of education, but first of all the quality and amount of educational software and other information and educational resources that can be used in the process of teaching and education".

During the last few years, workbooks have begun to be developed on the basis of cloud technologies. This gives us an interactive multimedia worksheet (IMWS).

IMWS is a digital tool used by a teacher to organise students' learning activities with the help of cloud-based services and other web resources [17]. IMWS is utilised to place videos, pictures, tasks, tests etc. It can be customized for each student or be the same for a group of students. IMWS can be used to activate received knowledge, to form information processing skills (in particular, high level thinking skills [1]), to increase one's motivation to study.

The list of the above-mentioned advantages of using IMWS should also be complemented by the fact that this educational asset is an effective instrument of formative assessment [18]-[21]. Formative assessment reveals how well a student assimilates proposed material on a given subject, ensuring a feedback function when a student receives the information about his/her successes and difficulties. Most often the results of formative assessment are not presented in the form of scores (points), but are rather used by teachers and students in order to further adjust the processes of teaching for the former and learning for the latter.

3. RESEARCH METHODS

During the research the following methods were used: the method of critical analysis of scientific and methodological sources on the use of information and communication technologies in the educational process in general as well as creation and introduction into the teaching process of interactive multimedia teaching assets developed with the use of cloud services in particular; generalisation and systematisation of the results obtained; questioning and interviewing; pedagogical observation, generalisation and systematisation of experience.

The foundation for the methods of study of students' technical, technological and psychological readiness for the introduction into the teaching process of interactive multimedia teaching resources created with the help of cloud services was the analysis of the results of questioning and interviewing of 715 students of the following higher education institutions (HEI): Vinnytsia State Pedagogical University named after Mykhailo Kotsiubynsky, Vinnytsia Institute of Trade and Economics of Kyiv National University of

Trade and Economics, National Pedagogical Dragomanov University, Vinnytsia National Agrarian University, Vasyl Stus Donetsk National University, State Agrarian and Engineering University in Podilya.

The survey involved students who study for a bachelor's degree (629 persons, 88%) and a master's degree (86 persons, 12%) in different branches of science. First-year students did not participate because, in the author's opinion, they do not have enough personal experience of studying at HEI.
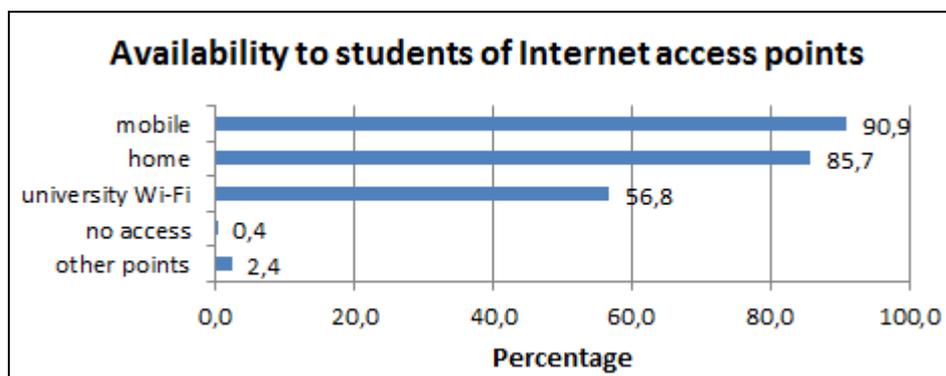
4. RESULTS OF THE RESEARCH

4.1. Analysis of the technical, technological and psychological readiness of students for the use of interactive multimedia worksheets

Taking into account the results of the research [22] conducted among the teachers of higher educational institutions on the subject of how actively they use information and communication technologies (ICT), and identifying the most popular ICT and software, it was decided to concentrate on the situation with the use of ICT by students.

Questionnaires and interviews of HEI students aimed primarily at identifying their level of technical preparedness to use cloud technologies in the process of learning. The students were asked to name all points of access to the Internet that they use in everyday life and while studying.

Among all those questioned only three students (0.4%) admitted that they had no access to the Internet at all. It was established that 712 students (99.6%) had one or more access points of different types: 712 students (90.9%) used mobile Internet, 613 students (85.7%) – home Internet, 406 students (56.8%) – Wi-Fi in university auditoriums and in libraries (fig. 1). Seventeen students (2.4%) named other Internet access points, among which coffeehouses, Internet clubs, public transport in Vinnytsia etc.

*Fig. 1. The results of student questioning as to the availability
and types of their Internet access points*

A large part of students questioned said that they used several access points. In an interview they explained this situation by the fact that students usually opt for the lowest rates proposed by mobile providers. However, such rates often include insufficient volume of Internet surfing, so whenever possible students use Wi-Fi at universities or at home in order to spare some mobile surfing possibility.

Thus, the results of the analysis of students' responses regarding the availability of Internet access lead to a conclusion about their highest level of technical preparedness to use cloud technologies in studying.

Further research was dedicated to identifying the level of technological readiness of students.

The following questions aimed at ranking the frequency with which students use different reporting forms after performing independent work, doing self-preparation for laboratory or practical classes etc. It was established that the largest number of students preferred oral response (302 students, representing 42.2%) (fig. 2). Occasionally reports were submitted in a handwritten form and as printouts (328 (45.9%) and 228 (31.9%) students respectively). 327 students (45.7%) answered that they rarely submitted electronic reports.
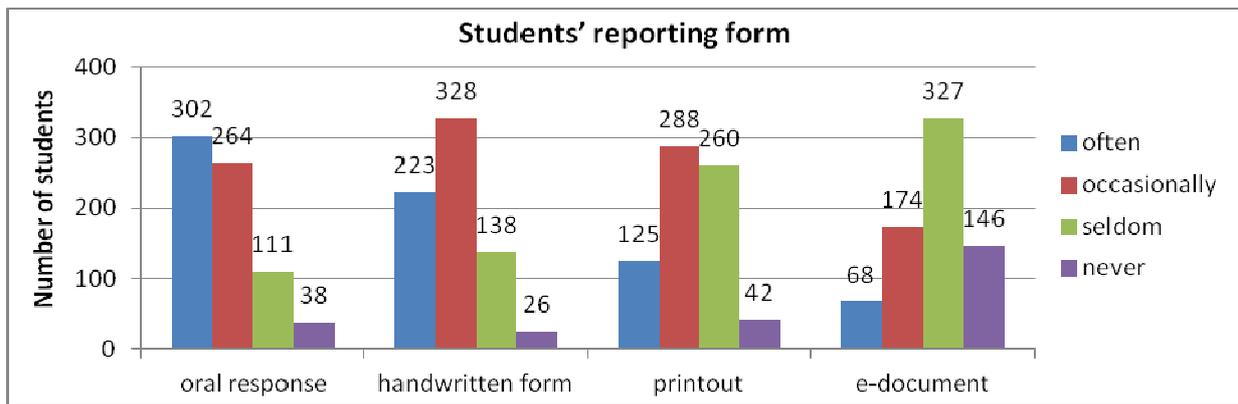

Fig. 2. The results of student ranking of reporting forms by the frequency of their use

If at the previous stage of the research students acknowledged the use of electronic reports in the course of their studies, then they were asked to rank the frequency of use of different reporting forms submitted to teachers. It should be noted that despite the technical readiness to use cloud technologies, it was determined that a USB flash drive remains the most commonly used means of data transmission (fig. 3). Most students indicated that they occasionally used electronic mail to send work reports to their teachers. Considering the data presented in fig. 1, it is sad to admit that the majority of students replied that they never used general purpose cloud software (Dropbox, Google Docs etc.) in communicating with teachers. Unfortunately, with almost total student access to the Internet (99.6% - fig. 1), 482 students (67.4%) said they never used cloud computing as educational software.
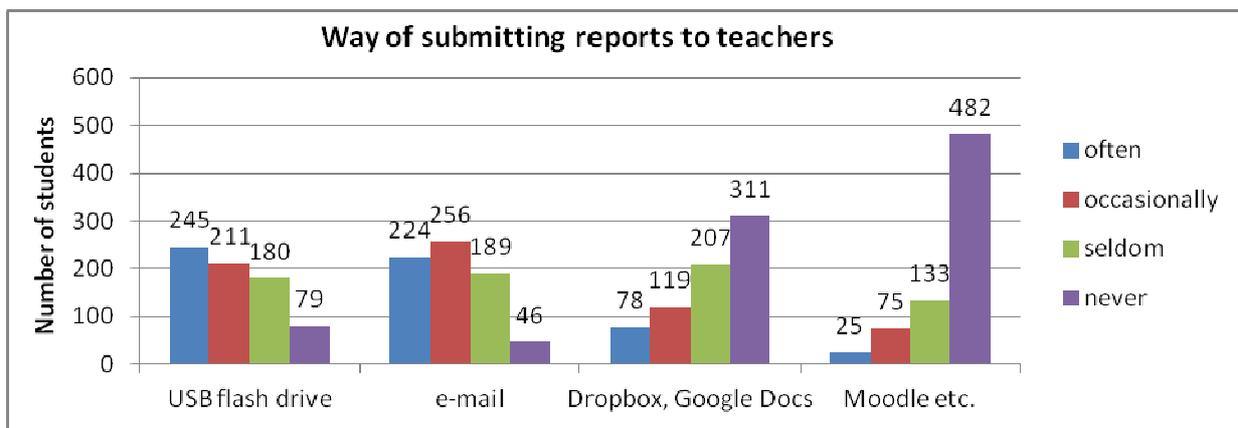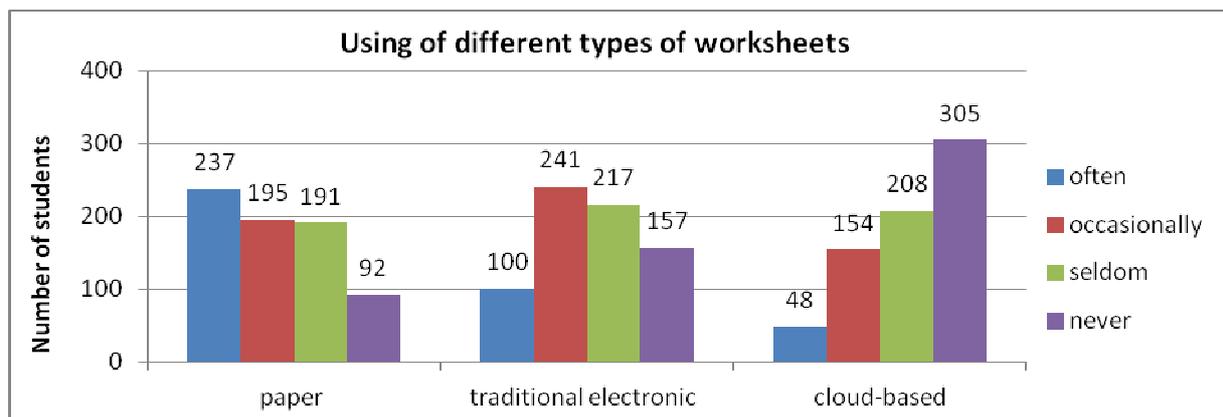

Fig. 3. The results of student ranking of different ways of submitting electronic reports by the frequency of their use

At the present stage of development of higher education, teachers use a variety of teaching assets, including ICT [22]. Therefore, students were asked how often their teachers used different types of worksheets. It was found out that despite the availability of free cloud services that could be used for teaching purposes and technical readiness of students to use them, paper worksheets remained the most frequently used option (fig. 4). Worksheets created with the general purpose software (Word, PowerPoint etc.) were used occasionally. IMWS designed with the help of educational cloud services were almost never used. Among the latter students named Moodle.

Fig. 4. The results of student ranking of different types of worksheets
by the frequency of their use

So, students already have some experience working with ICT in the process of studying which permits to make a conclusion about a sufficient level of their technological readiness for broader incorporation of cloud services.

In order to assess the level of their psychological readiness, students were asked to rank the answers to the following questions on a scale from 1 ("No, not ready at all") to 5 ("Yes, without a doubt"):

– Are you ready to submit different types of reports in an electronic form?
– Are you ready to receive at classroom lessons or for independent study in addition to text materials also those created with interactive multimedia services? For example, a video with comments and interactive tasks in the course of its run.

It should be noted that on the whole students have a positive attitude towards the use of cloud services in education, namely, 600 students (83.9%) are positive or neutral concerning the use of electronic reporting forms (fig. 5) and 600 students (83.9%) welcome or do not object to getting from teachers electronic educational materials created with special educational cloud software (fig. 6).

Thus, the results of the analysis of students' responses regarding their psychological readiness to receive from teachers learning materials and report about their academic progress electronically lead to a conclusion about a high level of the above-mentioned readiness.

The survey was conducted among students studying for a bachelor's degree and a master's degree in different branches of science. However, the results showed that the frequency and extent of the use of ICT in general and cloud technologies in particular do not depend on teachers, but rather represent a trend at each specific university.

Also, one could observe a direct correlation between the number of teachers of various universities using electronic teaching resources and their students' attitude to reporting and receiving electronic teaching materials: at universities where teachers use a greater amount of electronic documents, students react to the use of ICT rather positively, while at universities

in which teachers used fewer electronic documents, students' attitude to their use is mostly neutral or negative.
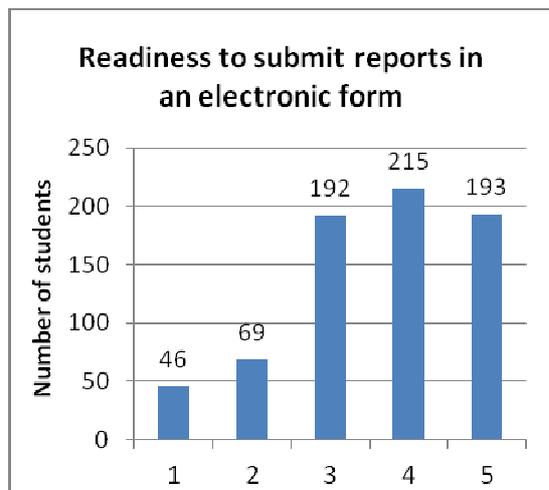

Fig. 5. The results of student ranking of their readiness to submit electronic reports
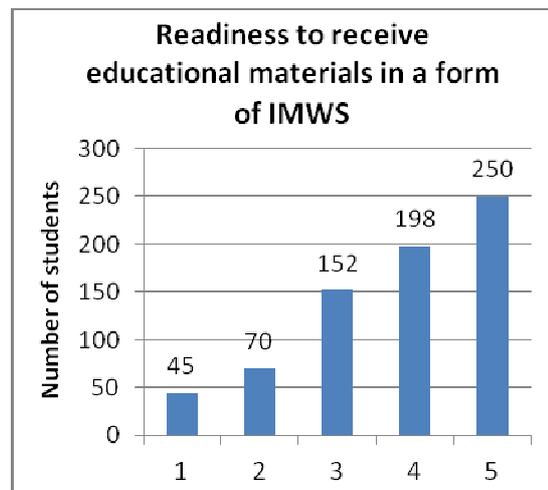

Fig. 6. The results of student ranking of their readiness to receive electronic educational materials

This situation can be explained by the fact that students who are not familiar with working with cloud services regard them with certain distrust, while students who have that kind of experience enjoyed their advantages and, therefore, have a positive attitude.

4.2. Evaluation of usability of IMWS in the teaching process at higher education institutions

At present, there is a considerable variety of free services which can be used to create interactive multimedia worksheets, for instance, Google products and services (documents, spreadsheets, presentations, forms, pictures), LearningApps, Linoit, Padlet, EDpuzzle, HapYak etc. The Wizer.me service, for instance, in addition to being free has a significant capacity to create, use and get feedback from students. Let us look into it more thoroughly.

The Wizer.me service (https://app.wizer.me/) is a free, easy to use and high speed cloud-based product for creating interactive multimedia worksheets. To register, one can use one's Google account which greatly simplifies the procedure. It should be noted that this service provides two options for access: as a teacher (with the possibility of creating content and evaluating the results of tasks completion), and as a student (work with the given content only).

First of all it is worth stressing that Wizer.me gives the opportunity to create IMWS from scratch as well as to use ready-made worksheets with the possibility to tailor them to one's own needs thanks to an extensive library of available resources, which moreover is constantly replenished with new items.

A teacher is given the possibility to work with an interactive multimedia worksheet in three modes: "Create and Edit", "Review", "Assign to learners", "Answers".

At the stage of creation and editing a teacher can: grade the level of assimilation of the subject matter; propose a list of keywords for content; select the design of a Web-page; enter the title of a worksheet; add to a worksheet a particular type of task (a teacher has the possibility to present all tasks as a formatted text (special symbols included), images, hyperlinks, personally created audio document).

Worksheet's content may contain the following components:
- an open-ended task in which a student is given the possibility to propose the answer/solution in the form of a text, picture or audio message; a teacher sets the field size;
- a multiple choice task where a student is given a question with a few responses to choose from; options for responses – a text and/or images;
- a task in the form of a text with empty spaces to be filled by a student;
- a task in the form of an image to which a student has to add captions in places designated by a teacher;
- a task in which a teacher provides text elements of content, and a student has to group the given elements into logical pairs;
- a task in the form of a table during the creation of which a teacher introduces data into all its cells each proposing only one option: "Instruction" (e.g. a task displayed to a student in a mode that permits its completion) or "Key answers" (e.g. the correct answer. In a mode that permits a task completion the cell is empty, and students have a possibility to enter the answer themselves). Such tasks are verified automatically by means of comparing the cells values entered by a student, with the values set by a teacher in "Key answers";
- a task in which a teacher designates two or more categories and provides a list of text elements, and a student must distribute the given text elements between the designated categories;
- a task in which students can draw their response in the simplest embedded graphics editor as well as add to the generated picture some ready images and text messages;
- a formatted text message (a comment or a teacher's story) with associated images;
- an image that a teacher can download to a worksheet from the server's collection of images or from among those saved on a computer;
- a video fragment from Youtube;
- a hyperlink to any file on the Internet;
- a possibility to insert a video, a presentation, an interactive image, a Google map and many more by simply copying the code from the appropriate site and pasting it in the text box of a task's designer;
- organisation of a discussion the results of which will be displayed to students on a virtual whiteboard together with their comments and names.

After filling IMWS with content, a teacher moves to the next stage – providing students with access to processing the contents and completing the tasks of a worksheet. The worksheet, with the help of appropriate buttons, can be integrated into Google Classroom or Edmodo services or into a teacher's own site; access can also be granted through a hyperlink and a PIN code that a student must enter while signing in to the service. At this point the teacher can also enable the automatic messaging function to inform students about the results of evaluation of their progress ("Automatic feedback to students").

The last stage of work with IMWS is evaluating the tasks completed by students. It should be noted that the vast majority of tasks is verified automatically (based on the number of points set by a teacher for each correct answer). A teacher can also add a comment to each task either in a text form or as a manually created audio message.

To summarise everything said above, it should be emphasised that the possibilities of the Wizer.me service fully meet the peculiarities and principles of distance learning [23, pp. 77-92], and can be equally used in other forms of education (classical daytime, by correspondence, external) as well as in certain disciplines or blocks of disciplines designed to enhance the educational level or qualifications of individual and/or groups of students [24].

4.3. The advantages of using interactive multimedia worksheets in teaching

Interactive multimedia worksheets can be used for both full-time (day) and correspondence (distance) learning. Worksheets are practical both for independent work of students and in the classroom. In addition, IMWS are an effective means of teaching at various stages of a lesson: activation of basic knowledge, presentation and consolidation of new material, control of the achieved results etc. IMWS can be personalised for each student or be the same for all students in a group.

Interactive tasks of a worksheet allow instant practicing of theoretical knowledge. They can effectively complement and illustrate the educational material received in the classroom, which will promote more fruitful assimilation of complex data.

A teacher should take into account the fact that different students need a different amount of time to give the correct answer (at secondary school pupils are often told: "Faster, faster…", but it has a negative impact on the performance). The use of worksheets permits to consider an individual pace and order each student needs to process the educational material which ensures the freedom of choice and respect of one's individual capabilities and skills and agrees with the principles of personality-oriented teaching.

It is an established fact that is it vital to have feedback from students during learning activities and to periodically control their knowledge. However, oral questioning is not always convenient in the classroom because the audience is usually large, and some students might be shy to speak out. Written feedback has deferred result, because a teacher will only be able to verify students' works after classes, and therefore they only have the possibility to correct their results during the next class (it is for a reason that people say: "A stitch in time saves nine"). It should be noted that one of the most important advantages of IMWS is the possibility to perform not only the current and final control, but to apply formative assessment which has a much greater impact on the end result of teaching. This is achieved thanks to the automatic verification of tasks completion and informing both a student and a teacher of its results. Besides, a teacher can specify in the settings of a worksheet one of two options: a student will get these results immediately or after some time.

M. Kurvyts says: "We do not teach students, we help them learn" [25]. Formative assessment permits to promptly show a student where they were wrong. With IMWS, student's errors are seen by the student (instant reflection) and the teacher (who immediately summarises mistakes made by different students, exposes important and minor problems, makes corrections).

It is important to point out that in the Wizer.me service, despite the fact that the majority of the tasks are verified automatically (except for open-ended ones), teachers can in each task, if they want to, add to the given points a message (in an audio or text form) and/or "like it" by clicking on a heart symbol to change it to red. Here it is important to remember that the positive attitude of students increases their motivation to study. Therefore, first, it is worthwhile to leave at least a few comments because this will contribute to the implementation of the principle of an individual approach to students. And second, such comments should avoid negative statements, even if some mistakes were made during the tasks completion.

The Wizer.me service offers a variety of tasks stimulating the development of different thinking skills [26]. To this end, it is possible for each task type to copy a question (Duplicate question) for its subsequent editing, i.e. one question can be used in different situations.

As each worksheet is a model of a lesson that can be freely corrected and supplemented, IMWS prove very useful during student independent work with educational materials; on the other hand, it can also be partially or fully used in the classroom.

The analysis of the methodological literature revealed that normally the creation of teaching aids belongs to a teacher's area of activity. It should be said that students also can be

asked to develop IMWS as an individual or group task. The accomplishment of this task has several advantages, among which the general understanding of educational material on the subject matter; the development of skills of creative and critical thinking during the selection of the type of tasks and development of their contents etc.

4.4. The problems of the incorporation of interactive multimedia technologies into the teaching process at higher education institutions

Despite the described advantages, the introduction of interactive multimedia worksheets into the pedagogical practice of higher education institutions (HEI) encounters certain difficulties.

Even with the high level of technical readiness of students to use cloud technologies in studies, it should be noted that at present there are still some *technical* problems with supplying HEI with interactive multimedia systems (which include not only computers, but also a projector with an interactive whiteboard or an interactive surface activator) and high-speed Internet. Under such circumstances, teachers can propose IMWS only for independent work and not in the classroom.

Financial problems are closely related to the technical ones in the matter of the lack of funds allocated for the purchase of interactive multimedia equipment and paying for Internet services.

When funds are allocated for technical needs, one often forgets to acquire application software, including the one for educational purposes. At the current stage of the cloud services development, there are some freely available software products, but for their majority the most effective components must be purchased separately. Therefore, teachers are forced to find new free services in order to compensate for the features that have to be paid for in other services.

The rapid development of cloud-based technologies stimulates the emergence of new aids and methods of teaching, therefore educators must be taught to use them effectively. Most teachers do their in-service training at other HEIs where they learn from their colleagues' experience. Firstly, that experience is not always innovative; secondly, teachers do their in-service training only once every five years; and thirdly, in most cases such training takes place on a part-time basis, alongside regular teaching load and is funded by teachers themselves, which creates certain difficulties and affects the resulting quality. Scientific and practical conferences and seminars only allow to familiarise oneself with the new accomplishments. For these reasons it would be worthwhile to allocate funds for holding practical master classes and workshops during which teachers could practice innovative technologies in order to be able to use them in their work.

One should bear in mind that due to the lack of ready electronic educational materials a teacher needs a lot of time to prepare for classes and create interactive multimedia content. This teacher's activity is innovative, experimental. Luckily for the students, there are teachers who are enthusiastic about their work, spend their own money and time and make physical, mental, emotional efforts to enhance the effectiveness of teaching. Unfortunately, usually no financial support is foreseen for such innovative educators.

In addition to the above-mentioned problems, there are some *organisational* ones. It is clear that HEI teachers must be taught innovative technologies. Secondary school teachers are obliged to periodically undergo training at the Academies of Postgraduate Education. However, there are no institutions of postgraduate learning (where one can do more than just familiarise oneself with others' experience) for HEI teachers. Thus, there remain pertinent questions as to whether it is really needed and what organisation must see to it.

A considerable number of advantages of using cloud-based technologies in general and IMWS in particular should not create the illusion that teaching-related problems are easy to solve. A teacher's work in this context is not getting any simpler but rather more complicated, and requires additional skills. In such a situation, the psychological readiness of a teacher to incorporate cloud technologies into the teaching process is vital. Among the *psychological* problems one can distinguish the following:

  − a low level of teachers' motivation for innovative activity (there is obviously a close link with financial problems);
  − failure to accept the changes in society (there is an opinion that traditional methods and means of teaching were fruitful for a long time, so why change anything?);
  − misunderstanding of the purpose of integrating cloud technologies into the educational process (everyone understands the importance of a teacher's personality for the end result of teaching, therefore there is an apprehension that a computer will turn teachers into a machine or will take their place altogether);
  − the existence of a stereotype that it is quite difficult to learn to use new cloud technologies (although educational services are designed for teachers having the basic level of computer and Internet user's skills).

One should not forget the *methodological* problems of including IMWS into the pedagogical process.

Inexperienced teachers add to IMWS too many tasks in order to control acquired knowledge and verify students' memory. These tasks can be included into a worksheet. Instead, their part in the overall number of tasks must be in accordance with the objective, without forgetting the necessity to develop the high level thinking skills. In the given situation, one should pay more attention specifically to formative assessment.

It is appropriate to ask questions that would stimulate a student to use prior knowledge in new situations. These tasks, on the one hand, are a challenge for students, and on the other hand motivate them to obtain and assimilate the newly acquired knowledge.

Moreover, as was already mentioned, the main purpose of IMWS is formative assessment; therefore it is unreasonable to overload IMWS with extracts from a textbook.

Usually tasks are created from the point of view of a teacher ("easy-hard", "can be done quickly - takes time to complete" and so on), so in order to correctly determine the complexity of tasks and the time required to complete them, the newly created IMWS must be tested (at the very least, teachers must complete all the tasks from IMWS themselves and/or ask colleagues to do it).

Teachers do not always realise the advantages of using IMWS. Computers in general and cloud-based services in particular are perceived by educators as a toy rather than a means of teaching. This problem can be solved through the organisation of trainings and master classes with proper explanation of the role of worksheets in the teaching process.

There is a belief that studying at higher education institutions is a serious job for serious people, for adults. And why not add a bit of humour? For example, a serious question can be proposed with one or more humoristic responses or a comic question with serious answers. In general, a teacher tries to fill a lesson with the most concentrated information on the subject matter, as a result during the second half of a lesson students begin to get tired. They will burst out laughing, decompress, get some rest, and all this in a learning environment. Besides, creating a positive mood helps revitalise the educational activity.

5. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The research has revealed a high level of technical, technological and psychological readiness of students for incorporation into educational activities of cloud technologies in general and interactive multimedia worksheets in particular.

The use of IMWS developed with cloud-based services ensures a high degree of student involvement in the educational process. When using worksheets, a student changes from a passive recipient of knowledge into an active participant of the teaching-learning process. IMWS are effectively used for the purpose of formative assessment. The main advantage of worksheets developed in the Wizer.me service is a total interactive and multimedia nature of all stages of work with IMWS (at the stage of submitting, completing, and evaluating a task).

Together with a considerable number of advantages of using IMWS, there are certain technical, financial, organisational, psychological and methodological problems concerning the integration of worksheets into the educational process at HEI.

The prospects for further research may be related to establishing a theoretical basis for and developing the methods of using interactive multimedia worksheets in inclusive education.

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ВИКОРИСТАННЯ ІНТЕРАКТИВНИХ МУЛЬТИМЕДІЙНИХ РОБОЧИХ ЛИСТІВ У ЗАКЛАДАХ ВИЩОЇ ОСВІТИ

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Анотація. Проведене дослідження виявило високий рівень технічної, технологічної та психологічної готовності студентів до впровадження хмарних технологій до навчальної діяльності в цілому й інтерактивних мультимедійних робочих листів (ІМРЛ) зокрема. У статті проаналізовано можливості хмарного сервісу Wizer.me для створення ІМРЛ; визначено, що вони повністю відповідають особливостям і принципам побудови систем дистанційного навчання. У разі використання робочих листів студент з пасивного отримувача знань перетворюється на активного учасника навчального процесу. ІМРЛ ефективно використовують з метою організації формуючого оцінювання. Разом зі значною кількістю переваг використання ІМРЛ визначено певні технічні, фінансові, організаційні, психологічні та методичні проблеми впровадження робочих листів у навчальний процес вищих навчальних закладів.

ИСПОЛЬЗОВАНИЕ ИНТЕРАКТИВНЫХ МУЛЬТИМЕДИЙНЫХ РАБОЧИХ ЛИСТОВ В ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЯХ

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Аннотация. Проведенное исследование выявило высокий уровень технической, технологической и психологической готовности студентов к внедрению облачных технологий в учебную деятельность в целом и интерактивных мультимедийных рабочих листов (ИМРЛ) в частности. В статье проанализированы возможности облачного сервиса Wizer.me для создания ИМРЛ; определено, что они полностью соответствуют особенностям и принципам построения систем дистанционного обучения. При использовании рабочих листов студент из пассивного получателя знаний превращается в активного участника учебного процесса. ИМРЛ эффективно используют с целью организации формирующего оценивания. Вместе с большим количеством преимуществ использования ИМРЛ выделены определенные технические, финансовые, организационные, психологические и методические проблемы внедрения рабочих листов в учебный процесс высших учебных заведений.

Ключевые слова: облачные технологии; прикладное программное обеспечение учебного назначения; высшая школа; средства обучения; рабочий лист.