EDUCATIONAL TECHNOLOGIES IN TRAINING FUTURE MANAGERS

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The introduction of educational technologies, which are developing at a rapid pace, requires professionalism and readiness of managers to implement the latest information technologies. Therefore, the use of electronic resources in the educational process in higher education can contribute both to developing professional skills and gaining the experience of using online environment. **Purpose** of the paper is to analyse the electronic educational resources and describe the process of implementing online games in future managers' training. **Method.** The survey on the use of electronic resources in the learning process is conducted among 50 Master students who study full-time and part-time to gain the speciality "Management". Online courses and tests developed with the help of electronic resources are the most popular among the students, while WebQuest, quizzes and online games are used only by a small number of respondents. The survey shows that the use of electronic resources is insufficient in future managers' training. **Findings.** Within the course "Information Systems and Technologies in Management of Organisation" an interactive online game on online platform Goosechase was developed. This resource can give the opportunity to fulfil assignments in the course by displaying photos and video materials, which contribute to involving participants into a team game and developing future managers' key competences in the course. **Implications for research and practice.** The results of this study allow to conclude that training of students is successful if an online game is used which can be adapted for various specialities and courses.

Keywords: electronic resource; online game; WebQuest; higher education institutions; future managers.

Introduction

Motivation for studying at higher education institution has always been one of the crucial problems of the qualitative organisation of the educational process of higher education institutions (HEI). Fleeting technological progress, digitalisation of modern society, the implementation of modern information and communication technologies require mobilisation, modernisation of educational content and adaptive response of the teaching staff on the today's challenges. At the same time, high standard and competitiveness on labour market have high criteria for providing educational services at HEI. In particular, the information competence, critical thinking, mobility, ability to quickly respond to a crisis situation, the ability to study independently must be enhanced in higher education institution along with developing professional skills. These facts contribute to searching for new, interactive teaching methods, tools of improving the quality of the educational process. One of the means of increasing students' motivation to achieve academic success and creating an enabling learning environment of the institutions is the use of modern educational technologies, aimed at upgrading the existing learning platforms and creating new educational programmes, using game elements, tests, and different tools of information visualisation.

It should be emphasised that the skills to use modern information and communication technologies, including the rational use of electronic resources both during training and during professional activity, are essential for modern managers and directors in any sphere. The introduction of electronic management elements, which are developing at a rapid pace, requires professionalism and readiness of managers to implement the latest information technologies. As the potential of electronic educational resources is not always fully used in the learning process in higher education institution, there is the urgent need of further studying of this issue and identifying the latest tools and resources for future managers' training.

Literature review

The external factors, contributing to the modernisation of the higher education content in professional training of future managers to innovative management, include: the influence of economic, political, social, and technological factors; the globalisation of international standards and cooperation in the sphere of education and science (Sas, 2017). So, the update of the educational process in educational institutions should take place on an ongoing basis, taking into consideration the didactic potential of modern information and communication technologies, and it also should be aimed at the formation of educated and harmoniously developed personality who is capable to study independently, to be professionally mobile and to rapidly adapt to changes in the socio-economic sphere (Buinytska, 2019). Taking into account the trends of rapid development of information and communication technologies, the leading function of HEI is to teach young people to learn and to quickly respond to changes, to implement progressive practices, and broaden their horizons (Tulchinsky, 2017). While the format of traditional lectures should be replaced by consultation,

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dialogues, discussions, and conducting classroom tutorials may be accompanied with the latest online technologies (Zhyrova & Kotenko, 2018). The realisation of educational objectives promotes the use of online courses, webinars, and interactive electronic textbooks, as well as data visualisation, virtual technology parks and others (Bykov et al, 2017).

The analysis of the scientific researches of the authors (Turner et al, 2018; Bevz et al, 2019; Kvasova & Liamzina, 2019) draws our attention to the basic educational tools and their influence on the process of training students in higher education institutions. So, educational computer games are widely used for making students' learning easier. The researches indicate that these games can improve the learning effectiveness if they are based on the appropriate learning strategies, have clearly defined goals, objectives and vector directed towards students' knowledge and skills (Huang, 2019). At the same time, the use of learning computer games not only offers students a virtual learning environment, but also gives them an opportunity to play an active role in learning, to develop their skills to solve problems or to master a course in the process of practical use that traditional teaching tools may not always ensure (Huang, 2018). Consequently, the use of gaming technology based on information technology achievements helps to engage students of higher education institutions in the educational process not as passive participants, but as active ones. The important functions of linking the educational process and computer online games are: a context that reflects the use of information in real life; re-enactment of real activities; multiple viewpoints and roles; providing operational assessments and training; the representation of explanations at important moments (Turner et al, 2018). At the same time, the question of adapting online games to the professional training of future managers, determining the need and effectiveness of recruiting them remains unclear.

On the other hand, the use of Web quests 2.0 is becoming increasingly popular, as it successfully models professionally-oriented objectives whose achievement requires the involvement of a peer team into analytical, creative and responsible activities, in particular by oral and written communication (Kvasova & Liamzina, 2019). They contribute to the intensification of the learning process, development of students' creative thinking, fostering skills to work in the information and communication environment (Bevz et al, 2019). However, the issue of adapting platforms for designing web quests to the requirements of higher education institutions in the sphere of Master's training is still uncertain.

Also, researchers (Aleksieieva et al, 2019; Shakhina and Ilina, 2016; Glowacki et al, 2018; Marchenko and Tymoshchuk, 2016) pay special attention to the use of tests and puzzles as electronic educational tools in the educational process of higher education institutions. Test control contributes to a clear analysis of the structure of knowledge of the higher education institution students and monitoring the quality of methodological approaches to the study of this course, individualising the learning process, and activating the independent work. Unlike other objectives, tests comprise scientific and empirical research method and are characterised by their adaptability (Buinytska, 2010). Systematic control of knowledge of the higher education institution students requires using automated control software. The learning process takes place in the most comfortable conditions for the participants as they become carriers and transmitters of knowledge. So, the implementation of electronic testing for learning and professional development with an opportunity of operational knowledge control is reasonable and relevant (Shakhina & Ilina, 2016).

For example, the platform Kahoot, which is used as a service for creating online tests and surveys, is particularly popular in educational institutions for learning English. Students can answer the questions, created by the teacher using tablets, laptops, and smartphones, uploading photos and videos. The rate of doing tasks is controlled by setting a time limit for each question. If it is necessary, the teacher may assign bonus points for correct answers and speed. All the answers are displayed on the computer monitor. To take part in the quiz, the students just have to open the service and enter the PIN code provided by the teacher from his or her computer (Glowacki et al, 2018). However, the tests created on the platform Kahoot can be used for interim assessment of students' progress while studying different courses.

Important didactic aspects of creating online puzzles are the practical application of game technology in the learning process, which helps to enhance the ability to concentrate, systematise and analyse the available information not only on the basis of symbolic information, but also on a set of visual objects that need to be reconstructed (Marchenko and Tymoshchuk, 2016).

The following examples include: creating of electronic resources, used in the educational processes of higher education institutions, do not limit all possible variants, but only represent the most interesting and effective ones. Other tools include: creating a word cloud (displaying a phenomenon or process through a certain number of keywords); mind cards or maps (created on the basis of the technique of visualisation of thinking and information fixation, graphic representation of concept structures); timeline (interactive timeline containing photos, texts, and illustrations); infographics (the representation of ideas, phenomena or

processes, which involves the illustrative support of information, the combination of text and graphic images (Aleksieieva et al, 2019).

The logic of our study implies the analysis of electronic resources in the process of future managers' training. The analysis of the theoretical and practical developments of leading domestic and foreign scientists shows the wide range of platforms, resources, including those developed by teachers. They are WebQuests, distance learning courses, games, design technology, tests and others. At the same time the question about the appropriateness of the search for the most rational and effective e-learning resources, which cause the need for their systematisation, becomes relevant. For this purpose, in our paper, we consider it feasible to identify the main electronic platforms for the development of educational tools in the process of future managers' training, as well as the development of an interactive online game.

A wide variety of electronic resources for education, science, and self-development on the Internet does not always make it easier to pick up the desired electronic resource. Therefore, in our study, we have analysed a number of platforms for developing electronic tools for implementing in educational process: online games, WebQuests, quizzes, tests, and puzzles. Of course, the resources do not limit all the opportunities of e-learning tools for future specialists, but some summarise possible online resources. It should be noted that most of them are in English and require appropriate teacher training. Resources can be both free and paid, depending on the extent of use and functionality (Stupak, 2020).

A **hypothesis** implies that a future managers' training is more successful if online games are used.

The **purpose** of the paper is to analyse the electronic educational resources and describe the process of implementing online games in future managers' training.

Research Model/Design (qualitative, quantitative or mixed methods).

Our research is based on the mixed method, it comprises quantitative and qualitative data. According to the research objectives, the survey has been chosen as a quantitative method of the empirical research. The survey includes 4 closed questions and requires answers "yes" or "no", aimed at defining the level of using the most common learning tools with the integration of electronic resources:

1. Have you ever used online games for educational purposes?
2. Do you use distance courses of academic disciplines?
3. Have you ever participated in educational quests and quizzes, developed by means of electronic resources?
4. Do you use tests, developed by means of electronic resources in the educational process?

To determine the effectiveness of hypothesis the experiment has been applied, which contributes to implementing the developed online game of the academic discipline "Information Systems and Technologies in Management of Organisation" in the educational process of 25 respondents. The experimental group has been formed of students who study this academic discipline.

After implementing the online game as an electronic online tool, the participants have been again involved into the survey with open questions:

1. Did you like participating in the online game? Explain its usefulness.
2. What do you think about the content quality and game tasks?
3. Where can you implement the experience of participating in the game in the practice of your professional activities?
4. Are you ready for the further implementation of online methods in the educational process?

Sample/Participants.

To verify the hypothesis, a survey on the use of electronic resources in the educational process was conducted among 50 Master students who study full-time and part-time to gain the speciality "Management" in HEI "Donbass State Pedagogical University" (DSPU). The introduction of the developed online game on the Goosechase platform for future managers has taken place within the course "Information Systems and Technologies in Management of Organisation" (25 participants).

Data Analysis.

The survey of future managers about the implementation of the electronic resources in the educational process has been carried out individually by means of using both the paper questionnaires and Google Forms. This makes it possible to do manual and automated processing of the received data. We should stress that automated one significantly fasters the result processing that indicates the feasibility of using Google Forms while holding the survey of higher education institution students. That is why, while carrying out the resurvey, the respondents get the link to Google Forms and data processing has been conducted by means of electronic resource Google.

The introduction of the developed online game on the Goosechase platform for future managers has taken place within the course "Information Systems and Technologies in Management of Organisation". This resource has given an opportunity to get assignments on the course and to reflect the results of the fulfilment by a mobile application online through uploading photos, videos, and text messages.

The study procedure has the following stages:

– analysing electronic resources for creating educational electronic tools;

– conducting a survey among future Masters of Management on the use of electronic resources in the educational process;

– developing the online game on the Goosechase platform;

– introducing the online game into the course "Information Systems and Technologies of Management of Organisation", involving groups of students who study full-time and part-time to gain the speciality "Management" at DSPU;

– conducting an online game analysis and interviewing students to determine the effectiveness of its introduction into the educational process.

The study of the course "Information Systems and Technologies in Management of Organisation" aims at possessing knowledge by future managers and developing their skills regarding modern information systems and technologies, their rational use, as well as practical skills to effectively use modern information technologies in managerial activities in organisations. *The main objective of the course study* is to systematise knowledge about the nature of information systems and their importance in the management of modern organisations; to master the practical skills to use information systems in the management of the organisation; to develop information structure at the enterprise.

The course includes 120 hours /4 credits.

In our opinion, it is reasonable to implement an online game, created on the web site https://www.goosechase.com with a number of functions and tasks, in the course. The resource has English interface, however, it is quite convenient to use. When designing a game, you have an opportunity to add a name, description in the section "GAME INFO", to set a time limit for passing ("STAR & STOP") and the password if it is necessary. Using the activity rating in real-time you can follow the participants' answers, give extra points or comment on their answers. Both teams and individuals can take part in the game, their number is reflected in the section "PARTICIPANTS". If you install a game password, only those participants can take part who know the password. Tasks can be varied; participants can get a certain number of points which are reflected in the section "MISSIONS".

The game, designed for Master students of the speciality "Management" of DSPU, has got the name according to the course into which it is introduced – "Information Systems and Technologies in Management of Organisation". The game is scheduled for one week and starts at the same time for student groups of full-time and part-time study. Students are given the task to complete 7 missions that are graded with different points, but they can obtain extra points for creativity, an extraordinary approach to fulfilment, or vice versa, the moderator (teacher) has the opportunity to reduce or not to credit the points for an incorrectly completed task. The result of the task is confirmed by uploaded photos, videos (up to 20 seconds), and text materials through the site mobile application. The interesting fact is that the game is played in real time, that is, as soon as one of the team participants completes the task, the others can see the added material, comment, and moderator credit points, or add bonuses with the accompanying commentary in the form of a post or an image. This approach creates an interactive gameplay, fosters teamwork and a competitive spirit. Missions are evaluated by crediting different amount of points, but the participants shouldn't pass all the missions. The team with the highest score wins. So the team has the opportunity to build their own strategy: to accomplish easier tasks or more difficult ones.

Taking into account the specifics of this course, a number of tasks are developed, which correspond to the learning and methodical complex of the course, as well as easy but informative tasks are added which contribute to the group's cohesion. The missions of the game are reported to be the following:

1. To learn the governmental, parliamentary, archival, and library resources on the Internet at the given portal addresses. To analyse the resources. To compare the composition and structure of information resources accessed. To draw up a comparative table – 250 points.

2. To determine the relative value of different information sources from the viewpoint of their use in the system of information management. To conduct an expert survey among not less than 3 persons on how different types of information sources (mass media; periodical literature; non-periodical literature; advertising documentation; the Internet; governmental and departmental acts, laws; conferences, meetings; the sources of oral information) meet the requirements of timeliness, completeness, originality, accuracy, and brevity (using a 5-point scale of evaluation). Take a video or a photo with the respondent – 300 points.

3. To explore the documentary information flow in the category "Management and Administration", using funds and library directories of DSPU. The structure of the documentary flow can include newspapers, journals, theses, and books (monographs, textbooks) for a specific period (for instance, for recent 5 years) – 200 points.

4. To conduct interviews with the head of organisations or units (Head of the Department, Dean, Deputy Dean), asking about the factors motivating staff to achieve results and take video (up to 15 sec.) – 300 points.

5. To form an information file on the chosen topic, to make a list of found sources (titles of books, journals, newspapers, which cover different aspects of a given topic) – 200 points.

6. To investigate the structure and content of information flows that come to the institution and turn over in it (for instance, faculty, university, libraries, etc.). To build a scheme of information flows in the organisation, upload a photo of the scheme – 300 points.

7. To attend all the tutorials in the course "Information Systems and Technologies in Management of Organisation" and take a photo with a group – 50 points.

The implementation of the online game requires the practical training with the students, the systematic support of participants, giving them advice, commenting on the results of the completed tasks on the online platform, as well as analysing after finishing the game. An important point in the implementation of this educational electronic tool is not the replacement, but the addition and variety of students' assignments for independent work in the educational process.

Ethical issues.

We should emphasise that during the research the most important principles of ethical behaviour, which are admitted by scientific community, have been followed:

– voluntary participation and safety of the research: students take a voluntary part in the research, the participants can leave the research at any stage without any consequences;

– anonymity: the survey of participants is carried out anonymously, so the researcher and anyone who can read the survey results can't identify the answers of a certain participant.

Results

The analysis of electronic resources for developing educational tools to train students of higher education institution shows that for creating online games, quizzes, WebQuest, tests, puzzles and other numerous platforms are used.

The presented platforms make it possible to develop an online game in the framework of training future Masters of management. The need to use an online game in the educational process is proved by the results of the student survey.

42 respondents (84%) have given the positive answer to the question "Do you use distance courses of academic disciplines?" that proves that a great number of the students have been involved into the distance courses developed by the university lecturers that is also the priority policy of the education institution.

17 students (34%) have given the positive answer to the question "Do you use tests, developed by means of electronic resources in the educational process?". While only 5 students (10%) have answered "yes" to the question "Have you ever participated in educational quests and quizzes, developed by means of electronic resources?".

The question "Have you ever used online games while studying?" is of particular interest for our research. Only 3 respondents have given the positive answer to this question that is only 6% of the whole number of future managers being surveyed. We should point out that received data indicate a selective involvement of students into online tools, gaining the experience of using electronic resources outside the educational institution, in particular in informal education (workshops, forums, online courses etc.).

Analysis of the survey shows the insufficient level of use of electronic resources including online games during the training of future managers and the relevance of research.

The survey conducted among the future managers makes it possible to assess general competences which are relevant for studying the course "Information Systems and Technologies in Management of Organisation" at Master's level:

- skills of using information and communication technology;
- skills to work in teams;
- skills to identify and solve the problems, and to generate new ideas.

In our opinion, the experience of using online games as one of the educational tools contributes to developing skills to use information and communication technology in both the educational process and professional activities of future managers. Due to the group work, which is included in the online game

conditions, the students develop their skills to work in teams, building interpersonal relationships, communicating and agreeing in a group about the process of doing tasks. Whereas the tasks require the creative thinking and contribute to developing skills to identify and solve the problems, to generate new ideas and to strive to achieve results.

Achieving the purposes of the study requires the development of an online game in the educational process of future managers' training. Goosechase platform is used for this purpose. An online game on this platform for future managers is implemented in the course "Information Systems and Technologies in Management of Organisation" and developed after the survey. The analysis of the completed tasks shows the high interest of future managers in the course content. Despite the fact that the name of the game is new to them, and it has English interface, students, who study both full-time and part-time, learn with the enthusiasm and spirit of competition to complete the mission and upload pictures. For example, an interview with the head of the organisation is conducted with the headteacher of Sloviansk Pedagogical Lyceum, which is represented in the video response, but it is not limited to 20 seconds that can be uploaded into the game. The headteacher is pleased to share her experience in managing the teaching staff, the means of motivating her colleagues and so on.

While using of funds and catalogues of the library of DSPU, students explore the documentary information flow on the topic "Management and Administration", journals, abstracts of theses, monographs, and textbooks for recent 5 years. While fulfilling these assignments, the students do not always adhere to the time period, that is, sometimes the literature sources are more than 5 years old, so the points for doing the task are deducted, which is followed by a comment on the site.

The simple missions for which additional points can be obtained are developed along with professional assignments for future managers' training in the course "Information Systems and Technologies in Management of Organisation". The applicants take photos with group members during training sessions with great fun. The proposed tasks are aimed not only at educational aspect, but also at uniting students in formal and informal learning processes.

As a result of the game, the winners are the team of the full-time department, who received the highest number of points. On Goosechase, this information is displayed in the "LEADERBOARD" section. Participants are able to see all the photos, videos, and text responses of the other team in "ACTIVITY FEED" section, as well as see the points received, the teacher's comments in the "SUBMISSONS" section. After the implementation of the game, a survey is conducted among the participants, who show the interactivity, unusual approach to the practical training in the course, interesting format of the online game and the assignment content, whose answers are analysed in detail in the classroom tutorials. The winners also show the positive attitude to the ability to fulfil tasks together, elements of competition between groups, and especially the practical character of using the online games, because the electronic resource Goosechase makes it possible to independently develop online games for teams.

After the implementation of the game, we provided the complete analysis of the questions during the classroom tutorials. Answering the question "Did you like participating in the online game? Explain its usefulness", the students emphasis the opportunity to use it for gaining the experience of implementing electronic educational resources, improving the motivation for studying, making the acquaintance of learning materials easier, and applying non-standard approach to conducting independent activities.

Answering the question "What do you think about the content quality and game tasks?", students reveal the easiness of understanding the tasks, the opportunities to see the answers of other teams, to get comments from the moderator, to use photo and video materials while giving responses, and to work in teams.

The following spheres of the use are identified due to the answers to the question "Where can you implement the experience of participating in the game in the practice of your professional activities?": education process with senior school students at education institutions, small business enterprises and firms while carrying out informal events, team building, as well as the elements of further staff training.

All the game participants say that they are ready to further implement online methods in the educational process.

Interviews with students show the effectiveness of introducing an online game into the educational process, which confirms our hypothesis. Participants emphasised its accessibility, interesting format and opportunity to use an electronic resource to create their own games while doing their professional activities.

Discussion

The high requirements for the professional competence of future managers contribute to the widespread use of information and communication technologies in the educational process of higher education institutions. At the same time, a sufficient number of electronic resources makes it possible to create online

games, web quests, tests, and puzzles, which ensure both increasing the motivation for students' training and developing the information competence that is necessary for each qualified manager. The purpose of the paper is to analyse the electronic educational resources and describe the process of implementing online games in future managers' training.

The study procedure had the following stages: analysing electronic resources for creating educational electronic tools; conducting a survey among future Masters of management on the use of electronic resources in the educational process; developing the online game on the Goosechase platform; introducing online game in the course "Information Systems and Technologies of Management of Organisation", involving the groups of students who study full-time and part-time to gain the speciality "Management" at DSPU; conducting an online game analysis, interviewing students to determine the effectiveness of its introduction into the educational process.

Unlike the platform Kahoot which is used for a current assessment of students' knowledge (Glowacki et al, 2018), online game on Goosechase platform gives students an opportunity to show their creative skills and contributes to improving the motivation for learning activities. Taking into account the potential of computer games, which give students the opportunity to play an active role in learning, develop their ability to solve problems or to learn a subject through the process of practical use, as well as they are not considered to be traditional teaching tools (Huang, 2018), the results of implementing the online game in the educational process show a wide range of the spheres of the use in training future managers.

As a result of the study, we have come to the conclusion that the introduction of electronic educational tools in the higher education system promotes effective communication, visualisation, clarity, and accessibility of the educational process. Our conclusions are agreed with the viewpoints of Zhyrova and Kotenko, 2018; Tulchinsky, 2017; Buinytska, 2010. This fact is confirmed by the survey among future managers on the feasibility of using online tools in training and analysis of a wide range of online platforms for creating electronic educational tools. At the same time, unlike Bykov, Spirin, and Pinchuk, 2017 who focus their attention on the use of online courses, webinars and interactive e-textbooks for educational purposes, the online game implementation process for future managers' training has been shown in an accessible format that is easy to use and has a positive impact on the acquisition of the learning material.

The conducted survey among Masters who study full-time and part-time to gain the speciality "Management" at HEI "Donbass State Pedagogical University" shows that online games, puzzles, and web quests are not sufficiently used in the educational process. Therefore, an online game has been developed as a part of the course "Information Systems and Technologies in Management of Organisation" using the Goosechase online resource. The main feature of the new game is its interactivity, the process of competition, and real-time tasks with display of photos, videos, and text material.

Since one of the electronic educational tools is used as an online game in the process of professional training of future managers and the objective of analysing and interviewing higher education institution students, its positive influence on the learning of educational material has been confirmed. So, it means that such tools should be introduced in the training of future specialists of other specialities. The prospect of further research is the development of other educational tools using electronic resources in future managers' training.

It is recommended to educators and lecturers of higher education institutions to implement electronic tools in the educational process of different academic disciplines. Taking into account the learning purposes and competences of future specialists, various tools for a current assessment of students' knowledge and the level of mastering the learning material can be chosen, namely: web-quests, tests, online games, puzzles etc. At the same time, these educational tools play an important part in youth informal education (trainings, forums, online workshops, webinars etc.).

The scientific findings about the development and implementation of online games on Goosechase platform in training future teachers of economic disciplines have a great impact on the research and practice of further use of these games in the educational process of secondary schools and vocational education institutions.

The methodological limitations of this research include the small number of managers who study at Donbas State Pedagogical University, the absence of previous researches on this problem. The limitations of the researcher appear to be fluency in a foreign language while developing a wider range of tasks, limited opportunities to use the Goosechase resource for free.

Conclusions

Based on our own research, we can determine that the use of electronic tools in the process of higher education is an effective mechanism. A large number of resources and platforms contribute to the

development of qualitative approaches in the educational process. At the same time, online resources cannot replace a full-fledged educational process, but only provide it with interactive and modern methods. The use of Goosechase platform tools makes it possible to create online games for future managers. Moreover, the platform can be used both for other specialities and outside the field of education.

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