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Media-Communicative Occupational Guidance Based on the Platform of Online Game

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Abstract

The forced transition of institution of learning to distance education during the pandemic stimulated the active introduction of digital technologies in the process of forming students' competencies. For the Russian educational system, which is focused on traditional teaching technologies, this situation has identified a number of problems. The main one is the lack of effective communication in the digital area.

The study is devoted to the developing and testing of a new psychological and teaching methodology, that is used for solving the problem of optimization the process of media studies applicants' communication. The study results are of an intermediate nature and require a longer period of testing of the methodology along with a change of digital technologies used in the course of training. At the same time, the empirical data are of scientific interest and interdisciplinary and can be used in teaching humanitarian and technical disciplines.

For the experiment it is chosen an online gaming platform "Minecraft". It allows to teach applicants to separate themselves as a communicative personality existing in the real world from their digital twin.

Keywords: media education, digital education, digital transformation, gamification of education, distance education.

1. Introduction

Currently, the process of digitalization of education all over the world is developing rapidly and irreversibly. This development seems to be natural and, accordingly, defining new realities. And the main point is the provision of specialists who meet the requirements of the digital age and are in demand on the labor market.

Today, the learning process becomes more effective with the active use of educational innovations based on the use of information and communication technologies.

A pandemic has become a catalyst for the digital transformation of education around the world, forcing all participants in the educational process to participate in the development of digital technologies. The Russian education system was not ready to work in the online environment, but it received a powerful incentive for change. At the same time, a number of problems emerged, including a decrease in mental activity and a weakening of students' memory, loss of communication and argumentation skills, poor vocabulary, inability to express their thoughts, and, as a consequence, the processing of teaching and learning methods and an increase in the digital literacy of professors (Shamshovich et al., 2020: 138-139).

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Another problem of the Russian educational system is the formation of professional competencies of students in the absence of well-functioning online education technologies. Most of the Russian experts agreed on a significant decline in the quality of student training (Shamshovich et al., 2020; Goncharov, 2020).

And on the contrary, studies conducted by foreign authors in 2020-2021 proved the effectiveness of using digital technologies in the educational process to form the necessary skills. So, in particular, the inclusion of neural network technologies, VR and AR technologies, online gamification, interactive and transmedia storytelling significantly increase the quality of knowledge assimilation and the ability to apply them in practice. It is a mistake to believe that online education will completely replace offline learning in the coming decades, but modern educational technologies certainly open up new opportunities for students and teachers.

One of the main threats to the development of e-education in Russia is the underestimation of the possibilities of the digital environment. Today, online education is mostly imitating face-to-face classes using the Internet. Meanwhile, the advantage and competitiveness of the digital teaching is in the direction of creative expansion of tools for creating and presenting educational products.

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2. Materials and methods

The study was conducted in the 2020-2021 academic year as part of vocational guidance work with applicants, begun by the authors in 2019 at the Omsk State Technical University (OmSTU). The purpose of this work is to recruit applicants wishing to study in media communication areas and university training profiles. They are "Advertising and public relations in digital media", "Information systems and technologies in the media industry" and "Graphic design".

In 2019, on the basis of the anti-digital camp organized by the authors, an experiment was carried out using digital-detox technologies to identify and develop the communication skills of adolescents, as well as to form their responsible attitude towards communication in the digital environment. The temporary abandonment of gadgets and digital technologies made it possible for the camp participants to reveal their communication skills in full and understand how they are focused on further education and a career in the media communications area (Anashkina et al., 2020).

The new study was started in October 2020 and was finished in May 2021. It was focused on active involvement of digital technologies in the vocational guidance program.

The purpose of the study is testing of proprietary technology aimed at revealing the communicative potential of applicants using digital gamification. For its implementation it was attended 347 11th grade schoolbodies who were trained in preparatory courses for the Unified State Examination (USE) in social studies.

Trial hypothesis is that in the process of preparing for the USE tasks, applicants develop a model of passive communicative behavior, and the introduction of digital gamification will help to reveal their real communicative potential and, will help to make a high-quality vocational guidance selection for media communication specializations of OmSTU.

In the course of the study, there were used general scientific theoretical methods and special scientific empirical methods and techniques.

1. Theoretical methods made it possible to justify the urgency of the problem that the authors encountered in practice when conducting vocational guidance program. Theoretical basis was selected with the help of analysis, generalization and deduction. It is necessary for a comprehensive study of the problem, also research material was structured, that allows to evaluate the effectiveness of the use of various digital technologies in the learning process of adolescents. Also, the basic conceptual apparatus was formed to determine the goal and hypothesis of empirical research.

2. Empirical modeling of the teaching process of applicants using digital gamification was carried out on the basis of the online game "Minecraft". It included conducting of ascertaining, educational and pilot experiments, as well as observing the participants and comparing models of their communicative behavior.

To conduct the ascertaining experiment, it was chosen a psycho-diagnostic technique, which is used as a test. It allowed assessing in quantitative terms the communicative potential of the participants in the experiment (applicants) and the opportunity to introduce them to the media communication specializations of OmSTU.

The program of the educational experiment included a series of training sessions on writing essays (task 29 of the USE in social studies) and the correct selection of arguments. Classes were delivered in a traditional way and on online gaming platform *Minecraft,* which allowed to compare the empirical data obtained. Also, during the gamification, there were used other digital tools that are necessary for effective communication between the organizers and the participants of the experiment. One of the tools is Zoom, an online platform for holding conferences, another one is a social network *VKontakte*. At the same time, the assessment of the dynamics of disclosing the communicative potential of applicants was made on the basis of a content analysis of their essays, written at the stage of ascertaining and pilot experiments.

Thus, in the course of the study, it was tested the proprietary technology, that aimed to its goal's achievement – revealing the communicative potential of applicants in the preparation for the USE in social studies process.

3. Discussion

The digitalization of education is developing rapidly. This process actualizes the need to study the best practices, apply technological approaches that guarantee the mastery of the necessary competencies in a rapidly changing world.

Let's turn to the experience of our foreign colleagues.

O. Zawacki-Richter considers the impact of the Covid-19 pandemic on teaching and learning in German universities. Considering the question of whether the practice of an emergency transition to distance learning will lead to an acceleration of the digitalization of education, the author concludes that the situation had a positive impact on the implementation of digital innovation in university education in Germany, as well as the optimization of teaching resources (Zawacki-Richter, 2020).

Another example is a study, that was carried out at the University of Malaga as part of an innovative educational project "Professors Versus COVID-19". This project aimed to verify whether the figure of teacher-prosumer, that is, consumers of media culture and creators of their own educational resources, favors the initial training of teachers during the pandemic. For this, students from the course in Didactics of Social Sciences created 37 educational videos that teach the social sciences curriculum to children between 6 and 12 years. These videos were disseminated through the project's YouTube channel. The results of this study corroborate the effectiveness of turning students into teachers-prosumers, generating the development of critical, creative, digital, and socio-emotional skills (Triviño-Cabrera et al., 2021).

Educational projects based on AR and VR technologies have become more and more popular. This has been achieved through the using of e-books, VR and AR learning content and through the using of smartphones. The dissertation of South Korean scientists describes a positive learning experience based on virtual and augmented reality. It presents the development of AR implementation tools and the principles of an AR curriculum (Mi-Young et al., 2021: 659-661).

Researches of the using computer-generated VR in teaching instructional content that have spatial frameworks such as in science, technology, engineering, and mathematics, conclude that VR has a positive compensatory effect on students with low spatial abilities (Safadel, White, 2020).

The pandemic keeps up to date studies devoted to the using of digital technologies for disabled students. One such study was conducted at the New Zealand's university on the group of students with vision disorder. Result showed that disabled students often use online technologies and adapt them to solve various problems. Authors of the research recommend higher education institutions to use interactive digital tools in addition to events for disables students in order to motivate them studying (Pacheco et al., 2020: 200).

Another research describes using of iAnimate Live project. Such tool helps to create virtual environments, virtual characters (avatars), augmented reality and animation. It could be used for creating educational content to teach social skills to individuals with autism (Kellems et al., 2020).

The usage of neural network in the educational process is a productive way of teaching in a number of studies. For instance, T. Saito and Y. Watanobe suggest to solve the problem of lack of teaching materials and human resources with the help of machine learning. The paper also

presents a recommendation system for learning paths that applies a repetitive neural network to a student's ability diagram, which displays the student's grades and is used as an indicator of his current knowledge (Saito, Watanobe, 2020: 50-63).

S. Aydogdu has got similar approach. It describes the model, which predicts final students' performance with an accuracy of 80.47 % using an artificial neural network in the online learning platform (Aydogdu, 2020).

There is a hybrid model in the department of computer studies at the Iraqi university. A hybrid model combines two artificial intelligence techniques inside the design and the development of an intelligent e-learning system. The utilization of artificial neural networks algorithm especially recurrent neural networks (RNN) is a way of implementing deep learning technique to predict the students' final out comes in virtual class room based on their grades and their learning behaviors. The results of the proposed model showed a promising accuracy when compared with the mentioned machine learning algorithms (Kadhim, Hassan, 2020: 186-187).

According to the data from the research project "Media competencies of citizens in emerging digital media in university environments" funded by the Ministry of Economy and Competitiveness of Spain, there is little use of social networks for educational and creative purposes in Spanish universities. This served as the basis for an experiment to incorporate student use of social media into university teaching practice. The social network WhatsApp was chosen as an experimental platform for communication between students and professors during classes. Students appreciate the direct and immediate communication of these networks, but are concerned about the possibility that teachers could invade their privacy (Figueras-Maz et al., 2020).

Transmedia storytelling has great potential in the field of education. M.S. Perry explores the use of transmedia storytelling as a multimodal pedagogical tool for students from a Malaysian public university. Students' project output including campaign pitches, campaign designs and artefacts such as scripts, storyboards, posters, photos and videos submitted via digital formats were collated and analyzed using a multimodal framework. As a result, the conceptualisation and production of a transmedia storytelling campaign enabled students to develop various skills and competencies (Perry, 2020: 35-38).

Project-based approach is one of the relevant and effective way of teaching. There are some natural questions about the difference of face-to-face and online team projects in terms of prevalence of personal goals, team tasks and individual or social strategies. Comparing face-to-face and online projects, swiss researchers conclude that students, who work online, tend to manifest a significantly lower prevalence of specific challenges and strategies, suggesting that online teamwork may have involved less group deliberation. These results provide evidence for the "equivalency theory" between online and face-to-face learning in a context where all systemic levels transitioned to a digital modality (Goñi et al., 2020: 15).

Gamification as a pedagogical approach has become increasingly popular in educational contexts. Using of this technology shows positive results in terms of promoting students' motivation for learning. Gamification is actively and effectively used for teaching different subjects. For example, Spanish researchers share with the results of their study, where they describe successful implementation of P.E. curriculum, based on the Marvel Cinematographic Universe (Fernandez-Rio et al., 2020).

Study, devoted to the exploring gamification techniques in higher education, describes experience in use of popular online platform Kahoot as an effective tool to make students to get motivated. Within the project 101 undergraduate students participated in online Kahoot quizzes designing their own questions. According to the results of the pre- and post-tests, the integration of this game-based student response system into the teaching process improved students' perception of certain concepts in social science teaching, increased their active participation in the lesson, and motivated them towards learning in a more interactive and environment (Campillo-Ferrer et al., 2020).

Another research presents the pilot testing on the use of gamification in the educational process, based on the use of Agile methodology for receiving better results in the process of software developing (Al-Azawi et al., 2019).

Students remember 10 % of what they read, 30 % of what they see, 50 % of what they see and hear, 70 % of what they say or write, and 90 % of what they do. Therefore, it is very important to implement systems that increase student engagement in order to consolidate long-term knowledge.

In this context, the use of all the described technologies can be useful for mastering the training competencies necessary for their professional activity.

4. Results

The study was carrying out for 7 months from October, 5 2020 to May, 14 2021 on the basis of preparatory courses for the Unified State Exam in social studies. The research duration is justified by the fact that several groups of applicants are recruit with different periods of study during academic year (from 24 to 104 academic hours). In general, 347 11th grades who were trained in the courses took part in the study.

The decision to organize vocational guidance selection in the 2020-2021 academic year, as well as to conduct a related study on the basis of preparatory courses, was not made by chance. It is substantiated by real complaints, conspired in the practice of carrying out vocational guidance work in OmSTU, namely:

1) The process of preparing schoolchildren is increasingly reduced to completing only test tasks that are required from adolescents' conveyors of thoughts, avoiding oral communication to written communication. As a result, their communicative potential remains completely undeveloped even when mastering humanitarian disciplines.

2) Students who entered the university for media communication specializations have to master the skills of oral public communication from scratch and learn to creatively approach the implementation of educational tasks. Not all of them manage to switch to such way of learning. As a result of decreased motivation and loss of interest in professional development.

3) Over the past 1,5 years, education for both students and schoolbodies is increasingly carried out remotely using digital technologies. As a rule, these are online services for conducting classes and conferences, where communication interaction occurs through text chats. The practice of using the digital environment in this format has a negative impact on the communication skills of adolescents.

It is obvious that the educational process will increasingly go into the digital space. It is no longer possible to refuse to use digital technologies in it due to a decrease in the quality of communication practices between a teacher and a student. Therefore, it is necessary to develop new pedagogical methods for the changing reality, using digital products within them, taking into account the peculiarities of the influence of the digital environment on the formation of universal and professional competencies of students.

That is why the study was devoted to the development and testing of a new psychological and pedagogical methodology, with the help of which the authors tried to solve the above problems. Its results are of an intermediate nature and require a longer approbation of the proposed methodology with a change in digital technologies used in the course of training. At the same time, the empirical data obtained are of scientific interest, since they are interdisciplinary in nature and can be used in teaching humanitarian and technical disciplines.

Imagine how the study went.

The organization of experiments started with the identification of applicants' problems that arise when it comes to the preparation for the USE in social studies. According to the survey's results, the most difficult USE task is exercise number 29 – essay.

Essay is a written creative way of communication by which author has to express his opinion and to show his communicative potential with the help of arguments.

Analysis of demo tasks, teaching notes and assessment criteria of the task number 29 on the site of Federal Institute for Pedagogical Measurements (FIPM) shows that the execution of the task involves the sequence of the following steps:

– to describe the intent of one of five quotes, that were said by well-known individuals (each quote corresponds to a topic in sociology, government, law, economics or philosophy, which are included in the subject social studies),

– to determine the position of the author (applicant) regarding the idea contained in the quote (for example, "I agree with the opinion of V.V. Putin on the role of the media in modern society, because ..." or "I do not agree with the opinion of V.V. Putin about the role of the media in modern society, because..."),

– to provide with at least three arguments that can be based on historical events, literary examples or examples from the media, as well as the applicant's own life experience,

– to summarize the above and to structure the conclusion on the topic.

The essay is worth 6 points: 1 point is for disclosing the author's intention according to the selected quotation, 1 point – for each argument given as confirmation of the applicant's position, 1 point – for the use of terminology on a social science problem, and 1 point – for the ability to briefly and state your position in a structured way.

On the basis of these data, a program of ascertaining, educational and pilot experiments was developed.

As part of ascertaining experiment, there were two applied methods:

1) Content-analysis of applicants' essays.

Applicants who came to the first lesson of the preparatory courses for the Unified State Exam in social studies were given a test. After its completion, the test results were recorded in an electronic journal, and the content of the essay was analyzed for the applicants' use of their communication skills within the framework of written communication.

2) Psychological testing of applicants.

The authors used a special psychological technique to identify and assess the level of communicative and organizational inclinations of the individual, which involves testing on 40 closed questions (Fetiskin et al., 2002: 184-186).

Comparison of the obtained data made it possible to divide students into 4 groups.

Group number 1 consists of applicants, whose essay score is 3 or 4 out of 6. At the same time, during the psychological test they show high level of communicative potential. They turned out to be 19 % of the total number of participants in the experiment.

Group number 2 incudes applicants with high level of communicative potential, but their essay score is 1-2 points. Their share was 26 % of the total number of participants in the experiment.

Group number 3 consists of applicants with middle level of communicative potential and essay score range from 0 to 3 points. Their share was 42 % of the total number of participants in the experiment.

Group number 4 incudes applicants with low level of communicative potential and their essay score range from 0 to 1 point.

In addition, the results of the content analysis of the essay at the stage of the ascertaining experiment showed obvious communication problems of adolescents: 54 % of them could not structure their own opinion on the statement of a famous person (they reformulated it using synonyms), 67 % of applicants did not understand the difference between the value judgments and the factual judgments, and 72 % did not distinguish theoretical judgments from actual ones, which significantly complicated a structured and clear presentation of their position.

These data show that the absence of clear boundaries between events in the real world and events in the digital space negatively affects the communicative behavior of an individual. In the conditions of passive consumption of information, for example, when listening to online lectures, reading a news feed, viewing bloggers' comments on social networks, it becomes increasingly difficult for teenagers to form their own opinion and convey it to the people around them. That is why the online gaming platform *Minecraft* was chosen for the educational experiment, which allows in the digital space to teach applicants to separate themselves as a communicative personality existing in the real world from their digital twin.

Minecraft is a digital gaming environment that allows its users to explore randomly generated worlds and transform them by constructing various virtual objects. It can be played alone or as a large team via public servers. These advantages of *Minecraft* were used in the development of a methodology for disclosing the communicative potential of applicants and its further testing.

The methodology proposed by the authors is based on the data of analysis and compilation of theoretical material on the development of critical thinking in a person and the formation of his need for active communicative and organizational activity. It involves the implementation of three stages of preparation in each study group for each unit of the subject social science (sociology, political science, economics, law and philosophy):

1) Introductory class. Professor presents requirements for the structure and volume of the essay, types and examples of arguments and criteria for assessing this task by expert teachers.

In the context of the transition to e-learning, this class was delivered using *Zoom*, which provides users with the opportunity to conduct online training using presentations, videos, text messages along with voice and video communication between all conference participants.

After delivering the class, each student was sent a guide for completing homework on the online gaming platform *Minecraft*, as well as instructions on how to use it and a link to a conversation organized on the social network *VKontakte* to solve technical problems. It is worth noting that about 23 % of the applicants, who participated in the experiment, have never used Minecraft, but at the same time mastered its functionality on their own.

2) Applicants do their homework on the online gaming platform "Minecraft" according to a guide, that is developed for each of the 5 units of subject.

At this stage the theoretical material on each unit of subject social studies has already been learned within the framework of the school curriculum, the terms, concepts and methods used in sociology, political science, philosophy, economics and law have been mastered. It was important to ensure their correct application in practice in the progress of the essay.

The guide for each of these units differed in the wording of the initial phrases that the applicant had to continue based on the study of the *Minecraft*'s world, but at the same time had the same structure, corresponding to the course of writing the essay.

There is an example of the task (that included in the guide) from philosophy unit. Applicants have to explore *Minecraft* world, generated by system, and then to make a video presentation, continuing following phrases:

I want to introduce my virtual *Minecraft* world. At first sight you could think it looks like "_____". It's your subjective view, which is based on "_____". I invite you to explore it with me.

To distinguish between real and Minecraft world I'm going to use such ways of viewing as "_____". Philosopher "_____" considered that I can/can't explore the world using these ways of viewing because "_____". Although, another well-known philosopher "_____" would describe my approach for knowing as "_____". Such a discrepancy is possible because "_____".

Scientists from fields of knowledge such as "_____" would say, that we can/can't compare real and virtual world, because "_____". In order to get objective and reliable information about real world it is necessary to use such scientific methods of enquiry as "_____". I'm going to show you how to distinguish between empirical and theoretical methods of enquiry using *Minecraft*. Thus, the advantage of virtual world is that such method of learning as "_____" is applicable in this case.

As you can see, there are different objects in *Minecraft* world. I'm going to introduce them to you. In real world I can/can't do it, because "_____". But first, I will test this statement in the virtual world. Then I can predict "_____".

After exploring the virtual *Minecraft* world, my initial opinion about it has/hasn't changed. It's better/worse than real world I live because "_____".

It can be seen from the example of the guide, the tasks of this stage of the educational experiment were aimed at developing critical thinking among. This was achieved through the exploratory activity of various *Minecraft* worlds and the delineation of what reflects students' theoretical and factual knowledge of the real world from what can only be done in digital reality.

An important condition for completing tasks, contributing to the disclosure of the communicative potential of applicants, was the creation of a five-minute video presentation. Applicants can interestingly present their *Minecraft* world in terms of social studies in a group through the video. It required adolescents to immerse themselves in the information needs of the audience (not the teacher, but the group that will vote for the video), actively use communication skills in arguing their position, show initiative and organizational skills in the creating of video content and the selection of tools for editing and animation, as well as control over speech and emotions in the process of voice-over.

3) Applicants present their videos using Minecraft with the help of voting system.

After completing previous steps there was an online presentation of applicants' videos. They were assessed by voting on *VKontakte*, created specifically for this purpose. Thus, a competitive environment was maintained, motivating adolescents to realize themselves as a video blogger and to improve the quality of their tasks with each new unit of social science.

At the stage of the pilot experiment, which coincided in time with the final lessons in the preparatory courses for the Unified State Exam in social studies, applicants completed their essays in traditional written way. Applicants were assessed using criteria approved by the FIPM listed below:

1) The explanation of the problem suggested by the author of the quote.
2) Statement of the theoretical basis, confirming the applicant's own position on this issue.
3) Description of reliable facts from public life, demonstrating the objectivity of theoretical judgments.
4) Correct presentation of the argument based on the applicant's own life experience.
5) Use of social science terms.
6) Writing an essay in full compliance with the requirements for the structure and volume of this form of written communication.

In order to track the dynamics, we have to compare the results of the essay of 347 participants at the stage of the pilot experiment with the results obtained at the stage of the ascertaining experiment, and present them in Figure 1.

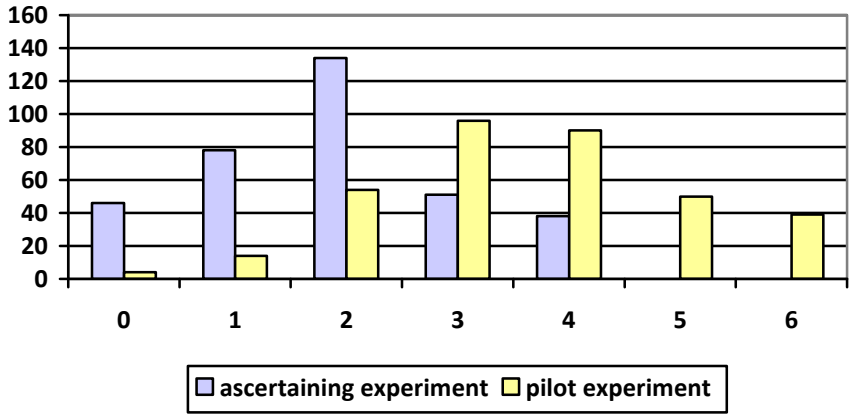

Fig. 1. Dynamics of the results of participants' essay writing at the stage of ascertaining and pilot experiments

It can be seen from the data in Figure 1, we can speak about the presence of positive dynamics. After conducting an educational experiment using digital gamification technologies, applicants significantly improved quality of their essays. Most of the participants began to state their position reasonably and consistently. Content analysis of the essay showed high level of disclosure of the communicative potential of 52 % of the applicants who participated in the study.

There is a comparison of the results of the essay in 4 groups of applicants at the stage of the ascertaining experiment (Figure 2: data are presented on the left) and the pilot experiment (Figure 2: data are presented on the right).

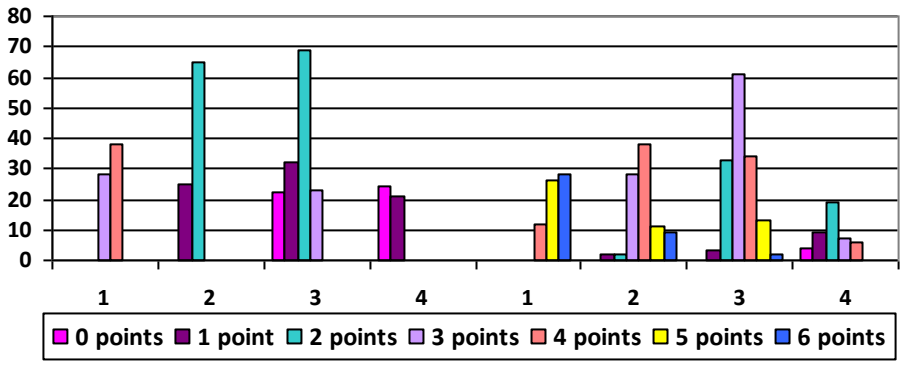

Fig. 2. Results of the essay writing in 4 groups of applicants

It can be seen from the data in Figure 2, positive dynamics was found in all four groups, but the maximum was in group number 2. At the stage of ascertaining experiment applicants with high level of communicative potential were included in the second group. But they couldn't reveal their potential during the writing of demo essay. The score is 1-2 out of 6. After the applicants took part

in the educational experiment, their results in this way of written communication increased: 64 % of them wrote an essay with 4-6 points. Only 4 participants (1 %) with a low level of communication potential wrote an essay with 0 points. For 41 % of applicants, the individual dynamics of improving the quality of essay writing ranged from 2 to 3 points.

Thus, the results of the study, presented in the figures 1-2, confirm the effectiveness of the proprietary technology for revealing the communicative potential of adolescents using digital gamification, as well as its relevance for identifying their professional involvement in media communication areas and training specializations at university. This allows to speak about the possibility of its active use for vocational guidance selection of applicants even at the stage of preparation for passing the USE.

5. Conclusion

The transition of the educational system to e-learning is not "digitalization" of different processes, it also requires an integrated approach that changes the structure and content of the educational process. The forced transition to distance learning during the pandemic taught many teachers not to be afraid of the already come future. The transition became a catalyst for changing approaches to teaching and understanding the role of the teacher in it.

In the context of a natural experiment in the digital transformation of education, the teacher becomes not a source of knowledge as a mediator in a vast ocean of information, a guide in using all digital and analog opportunities for studying the subject. An important component of successful digital learning is staff training and the development of effective and creative techniques for organizing work with students.

That is why, the authors organized and conducted an empirical study, the results of which speak of the possibility of effective use of the digital environment and digital gaming technologies for the development of universal communicative competencies of adolescents.

In the course of this study, the proprietary technology for revealing the communicative potential of adolescents was tested in the process of preparing for the Unified State Exam in social studies, and on the basis of its results, a vocational guidance selection of applicants to OmSTU was made and recommendations were formed on the choice of various media communication specializations.

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