

# Formation of Highly-Demanded Soft Skills in the Game Environment of Educational WebQuest

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## Abstract

The inclusion of game elements in the students' cognitive activity is an urgent question of modernization in the modern educational system. A quest, as a form of learning and a mean of implementation, is one of the options for the gamification of the school's digital space. The authors investigate the problems of forming actual soft skills using the tools of quest, which provides all participants with the necessary resources in a playful way to solve didactic and career-oriented problems of the digital environment. The aim of the study is to identify the design features of educational WebQuest based on modern digital technologies to form actual soft skills. The methodology is based on the analysis and systematization of research works whose importance in didactics, the gamification of learning, and the use of digital educational technologies is recognized by the scientific community. As a result, the ideas of an approach reflecting the necessary changes in the support of the cognitive activity of students by the resources of mobile game applications in the genre of quest" are described; the levels of differentiation of training are presented depending on the individual and age characteristics of the participants, the choice of digital means. In conclusion, it is determined that the usage of WebQuest as an effective educational technology for the formation of highly-demanded competencies of the digital environment has certain features: taking into account the learning style, the professional ambitions and students' interests, the correlation of actually formed soft skills with planned ones and so on.

## Keywords <sup>1</sup>

Gaming technologies, learning tools, gamification, digital technology, over-professional competencies, mobile applications, professions of the future

## 1. Introduction

The formation of over-professional competencies (system thinking, project management skills, cross-industry communication, multilingual ability, etc.) is a priority direction for the development of the modern educational space. As a result, it is expected to update the content of education, to introduce technical innovations as teaching tools, and to expand teachers' understanding of the possibilities of digital technologies, including mobile services and platforms. New challenges of the state and society to the education system make it necessary to develop students' skills in information interaction and project activities in the digital world, teaching data analysis, programming elements, and creating digital products. The "quest" technology is one of the forms of organizing an environment that has necessary resources, both in educational and career guidance activities.

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WebQuest implemented by means of information technologies and presented online or via mobile application, activates the interest of students, supports their educational and cognitive activity.

However, the designing and implementation of WebQuest based on modern digital technologies for many teachers has a number of objective methodological and software-technical difficulties: the lack of development experience, insufficient level of programming skills; time limits; difficulties in correlating the course content with the capabilities of WebQuest game environment and planned learning outcomes. Despite the fact that the conditions for training digital school teachers to use mobile applications for educational purposes are described, the conditions for effective organization of WebQuests in the e-learning environment are identified [1], the organizer of game technology is faced with the significant problems: the correlation of planned educational results and formed soft skills with the functionality of digital technologies; choice of software that best suits educational and cognitive goals, the challenges of modern society and students' needs.

## **2. Purpose and objectives of research**

The main objective of the work is to identify the design features of an educational WebQuest based on modern digital technologies for the formation of highly-demanded soft skills. The hypothesis of the research is that the design of an educational WebQuest based on modern digital technologies will contribute to the formation of highly-demanded soft skills among students, if the identified features and requirements for the development of appropriate gaming environments are taken into account. The following tasks were identified as the main ones:

- to clarify the substance of the term "WebQuest" for the educational space of a digital school;
- to supplement the existing system of requirements for the design and development of educational WebQuests, taking into account the need of forming highly-demanded soft skills;
- to describe the system of work for designing an educational web-quest using modern digital technologies;
- to check the effectiveness of the proposed gamification variant of learning experimentally.

## **3. Literature review**

Currently, the researches to identify the possibilities of modern digital technologies for gamification of learning; to describe the essence of the quest, its potential and features of inclusion in the learning process for a modern school are conducted. Many scientists point out the need to transform the content, organizational forms, methods and means of teaching in the context of the formation of digital school [2]. Functions and resources of mobile applications for the formation of special set of knowledge, skills and abilities, which have received the conditional definition as "digital literacy" are also described. The authors investigate the acquisition of a special system of knowledge and acquisition of skills, the formation of digital literacy, through remote interaction in the virtual simulator of the medieval world "The Quest" (the project Camelot) [3]. They prove that mobile platforms and services provide a wide range of educational incentives. The possibilities of digital tools are not limited only to motivating students, but also provide a great number of resources: for working with multimedia content, for timely and "point" hints in cognitive activity, for interaction between participants in digital educational environment [4]. The theory and practice of including mobile technologies in educational programs and courses is being actively developed; the specifics of the usage of mobile devices in learning, the justification of their significance and didactic solutions are being studied [5]. The advantages and disadvantages of using mobile platforms at school and the range of practical possibilities for personalizing learning are described and methodically studied [6]. The researches are provided with the analysis of existing mobile solutions, their interface and specifics of technological support [7]. The vast majority of the mobile tools and applications currently in use are included in the cognitive process only at some specific phase of the activity to solve a

certain system of tasks for educational and career guidance purposes, or to develop mental processes: thinking, memory, attention and imagination [8]. This state of affairs undoubtedly does not correspond to the specifics of implementing the quest technology in the learning process, the priority areas of variability, and the personality-oriented nature of education and training [9]. These reasons significantly reduce the didactic potential of mobile applications to support education quest technology in the context of the digital education environment. Teams of authors and developers of interactive mobile applications with the ability to support the technology of the educational quest with the potential for the formation of highly-demanded competencies in modern society, in most cases, do not hold a broad discussion of the form and content of resources with participants in the digital educational environment [10].

Analyzing the various functions of mobile services that stimulate student personality development and support educational and cognitive goals, we conclude that most of these services correspond to the highly-demanded competencies of professionals of the future [11]. However, there are practical difficulties in implementing the identified potential opportunities for play-based forms of education, including WebQuest, precisely because of the need for teachers to change the entire methodological system [12]. Indeed, thinking through the goal system must include a stage of reflection and selection of the soft skills that can and should be formed through a didactic process. It is also necessary to improve software tools and teaching methods (mobile technologies, interactive resources, game platforms, cloud services). A complex of tasks is required to organize the WebQuest's play space and to orient its content towards both educational and professional self-determination of the student [13]. The designed game education environment should not only help to achieve the priorities of the digital school, but also be personalized and responsive to the needs of the quest participants [14].

Thus, there is an objective problem, which is expressed in the need to identify the specifics of organization of educational WebQuests supported by modern digital technologies and providing opportunities for personalized development and professional self-determination.

## 4. Methodology

To identify the substance of the quest technology as an organizational form of modern digital educational environment, the analysis of psychological, pedagogical and methodological literature has been used. To investigate the functions of mobile educational resources, the conclusions of authority-recognized scientists in the scientific community were studied. Gamification software solutions for learning and teachers particular developments for different subject were analyzed. The materials of the article reflect various approaches revealing the phenomenon of the "quest": the game technology with significant potential for learning, cognition and personal development; solving a problem task with game elements; the technology that involves finding a solution, solving the mystery; the complete development of the game world; the innovative usage of mobile services and applications. In the process of designing the presented game space, it was taken into account that WebQuest is an interactive and gaming method of working with students that motivates them for learning activity [15]. Such structural components of the quest as introduction (scripting, character selection), creation of tasks (cards, interactive, novels), step-by-step action plan (points, penalty) and summarizing (awarding, stimulation) have been implemented. The analysis of job market demands for professionals, of government requirements for the system of training graduates allows us to conclude that activities to identify the level of forming soft skills include: monitoring the behaviour when solving a problem task; open dialogue in a direct online communication mode; psychological tests and cases; business games. Based on this procedure, it can be reasonably concluded that the materials and methods used in the design, development and protection phases of the implemented WebQuest correspond to the basic ideas of the process of evaluating a particular over-professional skill in the employment/self-realization of a graduate.

Empirical methods (observation, expert evaluation, analysis of game applications and learner performance in relation to the system of soft skills generated) were used to experimentally assess the effectiveness of the proposed approach to the gamification of learning in the "quest" genre. 48 students of the direction 44.03.05 Teacher education (with two training profiles) were involved in the designing of educational WebQuest while studying the subjects "The Theory and Methodology of

Computer Science Education" and "The Project Activities on the Methodology of Computer Science Education". All the participants are the fourth-year students with an average age of 23 years. The materials of the expert evaluation (which involved other teachers, employers' representatives and graduates of previous years) were systematized in accordance with the criteria for the competencies to be formed and presented for interpretation of the results in tabular and graphical forms.

## 5. Results

In this research we consider the educational quest to be a solution of a learning problem that includes game elements. The system of game elements complements the process of searching information, taking a decisions and performing actions based on the data obtained, which are appropriate for the learning situation. The efficiency of the educational quest is increased by using interactive resources of the information educational environment: digital cards with tasks; tools for "drag-and-drop" objects; music background for correctly/ incorrectly completed tasks; QR code scanning; use of a smartphone (or other gadget) etc.

These tools help to maintain motivation, cognitive activity and expand the communication and information interaction by ensuring that such interactive tools are in line with the students' modern 'clip' way of thinking. The learning content obtained in such a quest is immediately applied in practice, increasing the playing and, consequently, social level of the participant. Today's young people for a greater percentage have the value scale necessarily includes a social hierarchy: the distribution of roles in the class, in everyday communication, in the virtual space and in the game world. The opportunity to improve their game and therefore social position is one of the advantages of the quest, as a technology for the gamification of learning. By WebQuest we mean a gaming form of activity that allows for the integral use of digital school tools together with traditional methods and teaching tools. One of the variant of web-quest implementation are mobile game applications with educational content.

For WebQuest to be truly educational, it is necessary to design the content of the levels as a chain of solutions to non-standard tasks that contribute to the formation of fundamental theoretical knowledge and super-subject skills.

The effective inclusion of digital platforms in the organization of the educational WebQuest involves: software and hardware support; organizational support, methodological recommendations for teachers, rules for participants, evaluation principles and prizes; a game educational space: story; a game space with rules, characters, levels, etc. For teachers who are just beginning to include mobile services in the cognition and learning processes, it is an objective difficulty to fill the game educational space.

The designing an educational WebQuest based on mobile services includes the following stages:

1. Matching planned educational results, soft skills with the functionality of digital technologies. Selection of a software tool that best suits the educational and cognitive goals, challenges of modern society and the needs of students.
2. Learning the software tool supporting the selected digital technology for the development of WebQuest: purpose, functionality, interface, features of implementation. Applying the content that has been studied for solving traditional learning tasks.
3. Formulation of a web-quest plot, filling the game world, grading of tasks and transition to levels, distribution of roles, a system of points and rewards.
4. Development of an algorithm, a program for the implementation of WebQuest by means of the studied technology.
5. Correlation of the actual knowledge and soft skills with the planned educational goals, requirements of modern society and the interests of students. Assessment of the social significance and impact of the work on professional definition and development.

The aim of the research is the practical implementation of the features described above in the use of the web-quest for the digital school education space. The peculiarity of the methodological solution is that the educational content of WebQuest (the selection of the system of tasks, teaching materials, subject and personal results) can be selected by each teacher according to the specifics of class. It is possible because through WebQuest designing the teacher can take into account the development of

general subject skills and competencies. In other words, it can be seen as a game scheme or a world that can be filled with any characters. The levels of differentiation, recommendations and rules of WebQuest remain the same.

In order to carry out the declared design of WebQuest, the first stage of the work included defining a system of soft skills, the development of which could be effectively implemented in the learning process. For this purpose, the requirements of potential employers for professions of the future both with the state requirements to the system of training graduates were analyzed. The following soft skills were selected in the course of relevant analytical activities: Communication and communication skills; Critical thinking; Customer focus; Project, people and self-management; Problem solving skills; Computer and technical literacy; Working in the uncertainty mode; Lean production and environmental thinking; Self-analysis and self-reflection. Subsequently they were grouped by the organizers of the web-quest into six competences: System Thinking, Algorithmization /Programming; Decision Making Ability in Uncertainty; Communication; Self-examination/Self Reflection; Project, people and self-management.

The proposed methodological approach is described using the example of the application in the "quest" genre - "The Traveler's Terem". In Ancient Russia terem is a living accommodation in the upper part of the house or a tower-shaped house. The didactic component is presented in the form of a game educational space that supports interactivity and individual educational path. This capability is provided by a system of differential tasks. Each level has a particular content defined by the specifics of learning in a digital school. The choice of the software component is left to the teachers: Python, Scratch, Java, C++, etc. In the research, the application was designed using Android Studio tools. The choice of this digital resource was justified by the following factors: it contributes to the development of traceable skills to improve the quality of learning; it has a free version; it is understandable when introduced into object-oriented programming; there is a preview of the image of the project being developed; it is one of the most convenient and popular programs for creating Android applications. Methodological support for "The Traveler's Terem" game educational space is detailed according to the level of the game.

The idea of the quest: a group of 12 travelers (the number of participants is determined by the number of students) decided to spend their vacation roaming villages and settlements in the countryside of Russia. One day, in search of food and lodging, they wandered into a village on the edge of which there was a half abandoned wooden house. The windows and doors were not boarded up, but there were some strange symbols on them, catching the attention. There was a text inscription on the ground floor door. One of the windows was marked with graphic symbol. On the first floor door, the travelers found the table with numbers and words. Methodical recommendation: the quest can be designed also on the basis of students' independent choice. In this case, the stylistic features of the presentation and perception of information (text, graphical, tabular forms) of students will be taken into account.

The Terem was very large, so travelers decided to split up and cast lots. To draw lots, they used the method "Guess the number". If the number is divided into three, then the participant joined the group, which goes through the downstairs door. If the number divided by three gives the remainder equal to two, the traveler will be in through the window. In the last variant - participant goes through the door in the second floor. Methodical recommendation: for splitting it is convenient to use a random number generator and the components for processing text messages. Depending on the number of participants and the number of groups, the algorithm can be easily corrected. Participants send the number with a message, or enter into a text window for splitting. Wishing to meet each other inside, the groups bravely began their journey. However, trying to get into the house, they faced an obstacle: only one person could get into the hole. Usually the Captain makes the decision, so each group should solve a mini-task to choose a leader: to count the average age, to determine the oldest one, etc. Methodical recommendation: for choosing a Captain, use a task for which all participants should know the initial data. Doing this task students activate the information interaction within the group.

When the Captain gets into the Terem, he meets the Ancient. He says that the treasure is hidden in the Terem, but he can't pass all the floors of the Terem to find the treasure alone. The captain needs to decide whether the group will go to look for the treasure or not. Methodical recommendation: be sure to include into WebQuest tasks, where participants make responsible decisions, make a choice. In this

case, the over-professional competence - the ability to make decisions in conditions of uncertainty - is already evident. If the Captain decides not to search, all the participants move in the virtual world of the quest in front of the house. If the group goes with the Ancient, the Terem offers them to pass the first test.

The task of the first level. The Terem was built in the year when Johann Gutenberg invented book printing. There are antique frescoes on the walls and participants should determine the fresco on which the inventor is depicted. The captain realises the group's choice and clicks on the corresponding image. If the answer is right, an entrance and a tunnel are opened under the fresco. A Bird-talker sits at the exit of the tunnel and proposes the second level task. For example, a mystery: "A study of information processes is the second part of our performance. Here is the second task: storage, processing and...". The participants of the group have to finish the sentence (answer: data pass), thus guessing the riddle. If the answer is right, the group will receive the link to the second task. When they follow the link, a wooden figure of a Dog with a collar appears. Her task is an extension of the second level. "All your files are saved. And it does not bark or bite. Synchronises, minimises risk. There is Google, there is Yandex...". The group members have to complete the sentence (answer: disc), thus guessing the riddle. If the answer is right, the group opens the collar, and the Captain opens the new door. Methodological recommendation: At this level, the communication skills tasks should be used so that the group can communicate and interact to bring the team together, to prepare for more complex stages.

The entrance to the first floor of the Terem is closed with a coded lock door. The second level task is to calculate the information volume of text in the first riddle. The result should be given in bytes and then should be translated into a binary number system. Modification variant: For the first letters of each line of the second riddle, write out the values in the ASCII code table. The captain enters the resulting sequence as code without spaces. Methodical recommendation: use system thinking tasks at this level, managing the group as a team. This type of activity allows each participant to prove himself, while at the same time the result of each one determines the success for the whole group. In other words, the team works as a system.

On the second floor of the Terem, the travelers meet the Tin Woodman which is managed by the program. The participants are required to perform the same operations of the algorithm by means and capabilities of digital technologies (programming language). Methodological advice: tasks for developing algorithmic skills, programming skills better to use at the last levels of the quest. The necessity to implement the algorithm technically causes difficulties and negative attitudes for most students. Such emotional experiences can have a negative impact on the group's interaction if such a task is placed in the content of the first level.

At the exit of the second floor, the way to the stairs is blocked by a wall depicting a huge calendar of the current year and month, in which the ancient asks participants to indicate the current time, their time-presence in the Terem, the event held in the calendar. The difficulty is to specify the time in various international standards, in various watch formats (AM and PM). Methodological recommendation: one of the levels of the quest should include multi-language tasks so that learners develop this over-professional skill as well. Next, a joystick appears from the wall and when you click on it, you reach a large meadow. A table with food, friends of travelers may be presented on the glade (the main treasure is communication with family and friends); there may be a portal at another time for a new journey (the main treasure is new horizons); there may be certificates in a cafe, bookstore, gym, etc. Methodological recommendation: the last level of the quest must take into account the needs and cognitive interests of the learners in order to consolidate the positive effect of the activity.

After the quest, the master of the game should arrange the reflexing. For example, through the quest chat to write a letter to the Ancient, to the Bird-Talker, to the Dog, to the Tin Woodman and other travelers. In the chat, the participants should list their comments, wishes, emotions, impressions, etc. Be sure to indicate what caused the difficulties and to mention new getting knowledge. Methodological recommendation for the idea of the quest: an important condition for the effectiveness of the given series of educational and cognitive tasks is to correlate the content of each level in the mobile game application with the professional preferences and needs of students. Without taking this factor into account, it is impossible to offer students really meaningful tasks (for socialization, for professional development). It can be realized through differentiation in project options for independent research activities. For example, in a project for a student who is fond of

graphics, art illustration, modeling, each task can be designed as a "puzzle", "pixel" or a mechanical element. Performing the tasks of WebQuest a participant collects the parts of the image, model. As an option to complicate the level, the student can only be offered a part of the tasks, which will provide a graphic fragment. To identify and enter in the text field the name of the whole object (e.g. a robot vacuum cleaner, a globe, a picture's name) - this task is for WebQuest participant.

In order to experimentally assess the effectiveness of the proposed approach to the gamification of learning in the "Quest" genre in the study of the subjects "Theory and Methodology of Computer Science Education" and "Project Activities on the Methodology of Computer Science Education", a research for students activity was organized. They were involved in the designing of educational WebQuests using modern digital technologies, including based on mobile services.

Other teachers, employers' representatives and graduates were invited to carry out an objective analysis of the designed game space, its content, program implementation and correlation of the planned results with the actual ones. Each expert assessed on a scale from 1 to 5 for each competence. Thus, based on the results of project evaluation the participants could score from 0 to 30 points. The information obtained was then systematized according to the criteria allocated to the competencies being formed and presented for interpretation of the results in table and graphical form. As noted above, in order to determine the level of soft skills system formation, the criteria have been formulated which allow to correlate the actually obtained knowledge with the planned educational goals, requirements of modern society and the interests of students.

The high level (from 25 to 30 points) of formation of the soft skills system was demonstrated by the participants, who planned the system of educational and cognitive activities individually, considered the evaluation and application of the information received; justified the need to take into account the interrelationship between WebQuest stages; made decisions based on the analysis and synthesis of the software system data; actively, reasonably and rationally used the possibilities of the game environment for information interaction. When transmitting information, students also oriented on the possibilities and needs of other participants of communication; when designing the quest game environment, they used algorithmic constructions/programming language tools without errors; the projects were realized technically without mistakes and with the best possible functionality of digital technologies. In addition, the participants, who demonstrated a high level, understood the prospective directions of application of the received project solution, its development; adequately assessed the advantages and disadvantages of its implementation, its result of activity; formulated conclusions and recommendations competently.

The average level (from 13 to 24 points) was shown by students who did not always plan the sequence of educational and cognitive activities and could not objectively and critically evaluate the information obtained for its efficient usage; when justifying the need to take into account the interrelationships between WebQuest stages only the most obvious facts; allowed one or two logical mistakes in the analysis and synthesis of the data; unreasonably applied the possibilities of the game environment for information interaction. When designing the quest game environment the participants also used algorithmic constructions/programming language tools with one or two non-critical errors; the resulting projects were implemented on a good technical level, but with excessive time and labour resources; they did not always think about the possibilities of applying the resulting project solution, its development; when evaluating the results of their activities they were frequently not objective, but they accepted and corrected the comments of the mentor; they made the right conclusions about the work of the project in general, but they were difficult to understand.

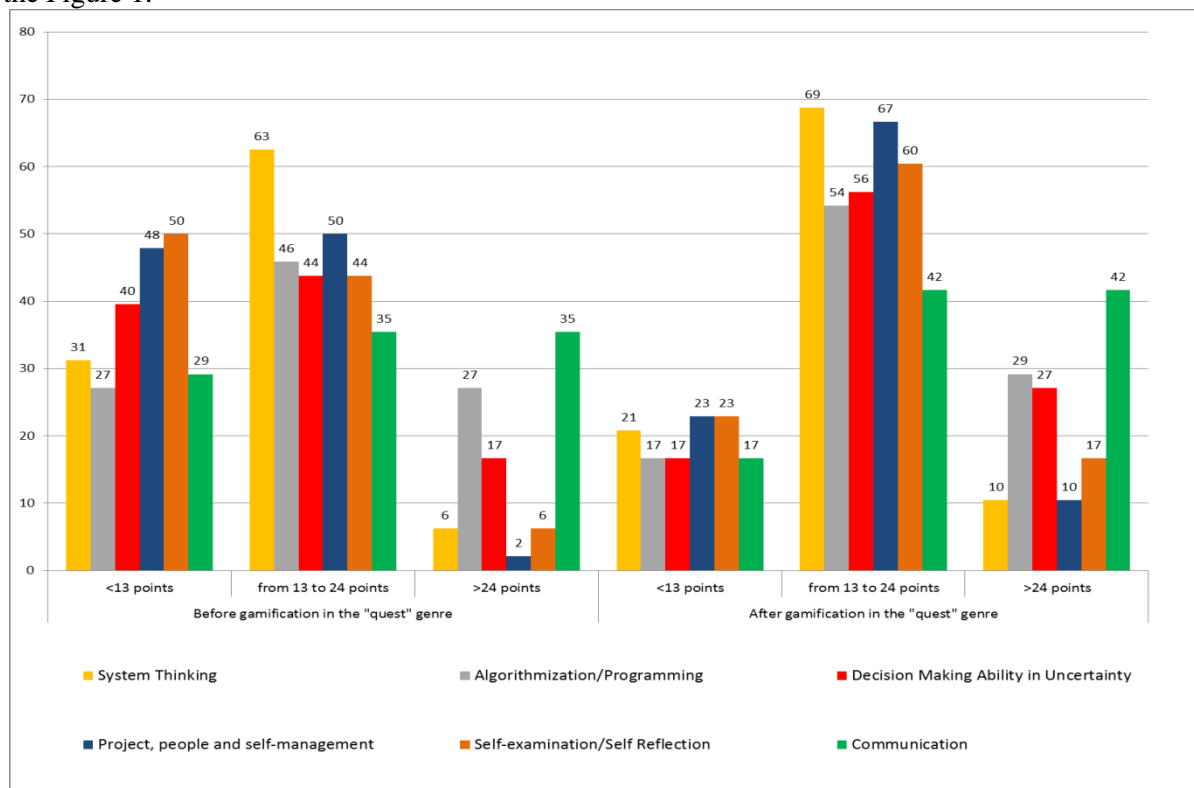
The low level (0 to 12 points) was shown by the students, who could only perform tasks and solve problems under the constant guidance of a mentor; the information received from various sources was practically not criticized, understood, and its application was not justified and most often non-systemic. Also, the transition between the stages of WebQuest was not technically realized or worked without taking into account the relationship between the previous and subsequent levels; only one or two requirements of other interaction participants were taken into account when communicating; the algorithm and the program were implemented, but with significant excess efforts; no thought was given to the possibilities of using the resulting project solution. Participants were most often unable to estimate the results of their activities; incorrect work conclusions were made, and corrections were made under the control of the teacher. Students made serious mistakes in formulating and presenting the conclusions.

In order to analyze the data obtained in the expert evaluation, a summary of all points awarded for each competence has been determined. The systemized result for each participant before and after the gamification of the learning process is presented in the Table 1.

**Table 1**  
Results of using the technology

Soft skills	Before gamification in the "quest" genre			After gamification in the "quest" genre		
	<13 points	from 13 to 24 points	>24 points	<13 points	from 13 to 24 points	>24 points
System Thinking	15	30	3	10	33	5
Algorithmization /Programming	13	22	13	8	26	14
Decision Making Ability in Uncertainty	19	21	8	8	27	13
Project, people and self-management	23	24	1	11	32	5
Self-examination/Self Reflection	24	21	3	11	29	8
Communication	14	17	17	8	20	20

For visualization and interpretation the results of the assessment are also presented graphically in the Figure 1.



**Figure 1:** Dynamics of levels for each of the selected soft skills

In summary, the usage of mobile resources with the ability to support quest technology make arrangements for an environment that is suitable for solving tasks that are priorities for the modern



educational digital world. However, there are a range of obstacles that teachers may face if they wish to use WebQuest developed by digital technologies: a lack of technical training; a preferring the traditional way of organizing the quest; teacher's negative attitude towards mobile applications as a "distraction"; the problem of devoting time to prepare and to realize quests, etc. To ensure the integrity of the educational and cognitive process, it is necessary not only to apply the technology of the quest based on software, but also to combine it with traditional methods and forms of digital school education.

## **6. Discussion**

In the analysis of the presented results, we conclude that the greatest increase in the level of "high" and "average" occurred for "Decision-making skills under uncertainty" and "Self-reflection/self-analysis". This is due to the fact that, in the environment of the quest, cognitive activity requires participants to be able to work under conditions of a diverse future, assess the result of a decision and make adjustments to the track of the game world. The least qualitative changes are observed in the soft skills "Algorithmization /Programming" and "Systemic Thinking". Such results are also objective, as the development of these competencies requires more detailed work. This is due to the fact that, in the environment of the quest, cognitive activity requires participants to be able to work under conditions of a diverse future, assess the result of a decision and make adjustments to the track of the game world. The least qualitative changes are observed in the soft skills "Algorithmization /Programming" and "Systemic Thinking". Such results are also objective, because the development of relevant competencies requires longer and more focused training. In analyzing the development of communication skills, we note a significant increase at all levels, especially for "low". This confirms the fact that interaction in the virtual game environment corresponds to the psychological characteristics of digital schools' students. The conclusions are in line with global research findings concerning the practice of using game platforms to organize cognitive research activities for students. The revealed characteristics are also of practical value to the mentoring school. They can be taken into account in the planning and implementation stages of the quests; for designing and creating a personalized, game-oriented educational space with elements of gamification using digital technology tools.

## **7. Conclusion**

A significant result of this research is the description of the basic ideas of the approach that expands teachers' understanding of the peculiarities of organizing an educational WebQuest based on mobile applications as a game form of activity in the context of digital school priorities. The changes are presented on the example of the didactic, methodological components. The didactic component assumes that WebQuest should be preceded by a system of planned educational and personal results and over-subject competencies. The development of a game story, reasonable choice of software and hardware support, and correlation of the emotional and psychological component with content of the game educational space are important methodological stages in planning WebQuest. The study justifies the possibility and effectiveness of using WebQuest as an educational technology to stimulate students' cognitive interest, meet their requirements and aspirations in choosing future professions and improve the quality of the didactic process as a whole. The authors describe the features of this method in the conditions of a digital school. The problems of including technology in the educational and cognitive process are pointed out separately: when choosing mobile applications and technologies, a digital school mentor should know the definitions of the area and variety of mobile games with teaching content. The teacher should be familiar with the methods of designing, developing and evaluating creative project forms of activity.

The effectiveness of the educational WebQuest has been tested as part of a pedagogical experiment, taking into account the characteristics for improving the quality of the learning process and creating a system of highly-demanded soft skills. The results obtained in the course of the study can be used in gamification of the educational process in a digital school, but also to support cognitive research activities of students. The inclusion of the findings in the school's mentoring practice should

be mentioned as a priority area for developing the conclusions formulated. In addition, game scenarios (task differentiation, content, relationship between levels) can be used to design a personalized educational environment with gamification elements.

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