МЕКТЕПКЕ ДЕЙІНГІ, БАСТАУЫШ БІЛІМ БЕРУ, АРНАЙЫ ЖӘНЕ ҚОСЫМША БІЛІМ БЕРУ МӘСЕЛЕЛЕРІ ПРОБЛЕМЫ ДОШКОЛЬНОГО И НАЧАЛЬНОГО, СПЕЦИАЛЬНОГО И ДОПОЛНИТЕЛЬНОГО ОБРАЗОВАНИЯ

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USING SCRATCH SOFTWARE TO DEVELOP THE CREATIVE THINKING OF PRIMARY SCHOOL STUDENTS

Abstract

Scratch is a block programming software developed at the MIT Media Lab. It allows children to create their own games, animations, and interactive projects using blocks instead of writing code. Scratch is an effective tool for teaching children the basics of programming and developing their creative thinking.

In this article, we will look at how the use of Scratch can affect the presentation and development of creative thinking in primary school students.

Representation is the ability of children to perceive and interpret the world around them. Using Scratch allows children to express their ideas and thoughts in an interactive way. They can create their own projects using blocks with different functions, such as motion, sound, and animation. This teaches children to present their ideas and concepts in a concrete way, which contributes to the development of their representational abilities.

Creative thinking is the ability to generate new ideas, find innovative solutions, and see things differently. Using Scratch allows children to develop creative thinking as they create their own projects that use their own imaginations and ideas. They can experiment with different colors, shapes, sounds, and movements without having to be an expert programmer. Scratch allows children to express their ideas and thoughts in an interactive way, and do it using blocks, which greatly simplifies the process.

Another advantage of using Scratch is that children can work as a team and collaborate with each other. It teaches children communication and project management, and helps them develop social skills.

Using Scratch also helps children develop higher cognitive skills, such as analyzing, synthesizing, and evaluating information.

Keywords: Scratch, programming, motivation, creative thinking, coding, project, divergent, convergent, digital content, problem solving.

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ИСПОЛЬЗОВАНИЕ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ SCRATCH ДЛЯ РАЗВИТИЯ КРЕАТИВНОГО МЫШЛЕНИЯ УЧАЩИХСЯ НАЧАЛЬНОЙ ШКОЛЫ

Аннотация

Scratch- это программное обеспечение для блочного программирования, разработанное в MIT Media Lab. Оно позволяет детям создавать свои собственные игры, анимации и интерактивные проекты, используя блоки вместо написания кода. Scratch является эффективным инструментом для обучения детей основам программирования и развития их креативного мышления.

В данной статье мы рассмотрим, как использование Scratch может влиять на представление и развитие креативного мышления учащихся начальной школы.

Представление - это способность детей воспринимать и интерпретировать мир вокруг них. Использование Scratch позволяет детям выразить свои идеи и мысли в интерактивной форме. Они могут создавать свои собственные проекты, используя блоки с разными функциями, такими как движение, звук и анимация. Это учит детей

представлять свои идеи и концепции в конкретной форме, что способствует развитию их представительных способностей.

Креативное мышление - это способность генерировать новые идеи, находить нестандартные решения и уметь видеть вещи по-разному. Использование Scratch позволяет детям развивать креативное мышление, поскольку они создают свои собственные проекты, в которых используют свои фантазии и идеи. Они могут экспериментировать с различными цветами, формами, звуками и движениями, и при этом не нужно быть экспертом в программировании. Scratch позволяет детям выразить свои идеи и мысли в интерактивной форме, и делать это с помощью блоков, что значительно упрощает процесс.

Еще одним преимуществом использования Scratch является то, что дети могут работать в команде и сотрудничать друг с другом. Это учит детей коммуникации и управлению проектами, а также помогает им развивать социальные навыки.

Использование Scratch также способствует развитию у детей высших когнитивных навыков, таких как анализ, синтез и оценка информации.

Ключевые слова: Scratch, программирование, мотивация, креативное мышление, кодирование, проект, дивергентность, конвергентность, цифровой контент, решение задач.

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БАСТАУЫШ СЫНЫП ОҚУШЫЛАРЫНЫҢ ШЫҒАРМАШЫЛЫҚ ОЙЛАУЫН ДАМЫТУ ҮШІН SCRATCH БАҒДАРЛАМАЛЫҚ ҚҰРАЛЫН ПАЙДАЛАНУ

Аңдатпа

Scratch-бұл MIT Media Lab-та жасалған блоктық бағдарламалау бағдарламасы. Бұл балаларға өз ойындарын, анимацияларын және кодты жазудың орнына блоктарды қолданатын интерактивті жобалар. Scratch- балаларға бағдарламалау негіздерін үйретудің және олардың шығармашылық ойлауын дамытудың тиімді құралы.

Бұл мақалада біз Scratch бағдарламасын қолдану бастауыш сынып оқушыларының шығармашылық ойлауын ұсынуға және дамытуға қалай әсер ететінін қарастырамыз.

Таныстыру-бұл балалардың айналасындағы әлемді қабылдау және түсіндіру қабілеті. Scratch-ті пайдалану балаларға өз идеялары мен ойларын интерактивті түрде жеткізуге мүмкіндік береді. Олар қозғалыс, дыбыс және анимация сияқты әртүрлі мүмкіндіктері бар блоктарды дайдаланып өз жобаларын жасмай алады. Бұл балаларды өз идеялары мен тұжырымдамаларын белгілі бір формада ұсынуға үйрету, олардың өкілдік қабілеттерін дамытуға ықпал етеді.

Шығармашылық ойлау-бұл жаңа идеяларды қалыптастыру, стандартты емес шешімдерді табу және заттарды әртүрлі тәсілдермен көре білу. Scratch бағдарламасын пайдалану балаларға шығармашылық ойлауды дамытуға мүмкіндік береді, өйткені олар өздерінің қиялдары мен идеяларын қолдана отырып өз жабаларын жасайды. Олар әртүрлі түстермен, пішіндермен, дыбыстармен және қозғалыстармен тәжірибе жасай алады және ол үшін бағдарламалау бойынша сарапшы болудың қажеті болмайды. Scratch балаларға өз идеялары мен ойларын интерактивті түрде білдіруге және оны блоктармен жасауға мүмкіндік беріп, бұл процесті айтарлықтай жеңілдетеді.

Scratch қолданудың тағы бір артықшылығы-балалар командада жұмыс істей алады және бір-бірімен ынтымақтаса алады. Бұл балаларға коммуникация мен жобаларды басқаруды үйретеді және де оларға әлеуметтік дағдыларды дамытуға көмектеседі.

Scratch қолдану сонымен қатар балаларда ақпаратты талдау, синтездеу және бағалау сияқты жоғары когнитивті дағдыларды дамытуға ықпал етеді.

Түйін сөздер: Scratch, бағдарламалау, мотивация, шығармашылық ойлау, кодтау, жоба, дивергенция, конвергенция, сандық мазмұн, есептерді шешу.

Introduction. The definite opposite of creative thinking is creative thinking. According L.I.Shishkina's analysis of the works of foreign psychologists, it is revealed that creativity is not solely possessed by a limited number of exception geniuses who possess extraordinary talents and effortlessly break free from established norms. Instead, this aptitude is present in almost all individuals to different extents.

The opposite of creative thinking is standard thinking. It is associated with a typical (standard, algorithmic) solution to the problems at hand. It should be noted that this is how a person performs the

vast majority of actions and solves their problems – thanks to the standardness of situations, it is possible to develop skills for solving them and further "automated" actions performed on a reduced indicative basis.

Creativity of thinking is manifested in a non-standard approach to solving typical situations. In particular, such a situation can be a learning task, and, therefore, the development of creative thinking (as opposed to creative) is actually possible in the learning process.

Mastering standard approaches essentially boils down to learning "similarity actions" – patterns that the teacher demonstrates and the student repeats. This type of training should be considered quite acceptable, since it provides students with the necessary actions and, consequently, competencies.

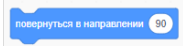
Solving the problem on a creative level involves deviating from the template. There are two types of creative thinking:

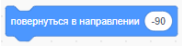
- divergent – the ability to come up with multiple solutions for the same problem;
- convergent – the ability to choose the best solution method from the available ones.

Usually, to develop students ' creative thinking, a certain set of specialized tasks is offered, the wording of which differs from the standard one. The development or selection of such tasks, of course, is carried out by the teacher, and in this sense, the development is non-systematic and artificial, since it depends on the desire (or unwillingness) of the teacher and the didactic tasks that he sets.

The development of information technologies creates favorable and natural conditions for the development of creative thinking. Modern software is built on the principles of an object-oriented approach, providing several alternative ways to change the properties of objects on the screen and execute commands [1]. For example, to copy a selected fragment in MS Word, you can use the context menu that appears after right-clicking; you can also left-click on the corresponding icon on the formatting panel or use the keyboard shortcut Ctrl+C or Ctrl+Fn+Ins. The teacher should pay attention to the availability of these opportunities. Then some students begin to independently search for and use such "alternative" solutions, other than the commands or schemes shown by the teacher. To encourage such searches and stimulate non-traditional solutions, an incentive system may be introduced, although over time it may become superfluous, since students become interested and willing to offer their own options other than those taught. Thus, divergent thinking develops, the ability to come to non-standard solutions. At the same time, convergence, i.e. the search and selection of the optimal solution is manifested in the development of "hot keys" - combinations of keys on the keyboard that allow you to execute commands faster than using the menu or toolbar, as do professional specialists in the field of information technology. It is important to note that such development is not limited to a certain discipline and is not limited in time, but occurs throughout the entire process of mastering information technologies.

Furthermore, through the utilization of the Scratch program, students have the ability to bring their imaginative ideas to life by designing games. As illustrated in Figure 1, an engaging game called Elefun can be presented as an example, specifically tailored for primary school students. This game involves coding and enables the players to control the chosen character's movement both in a straightforward manner 

and by employing code blocks to move right 

or left 

. Such activities foster the development of critical thinking skills.

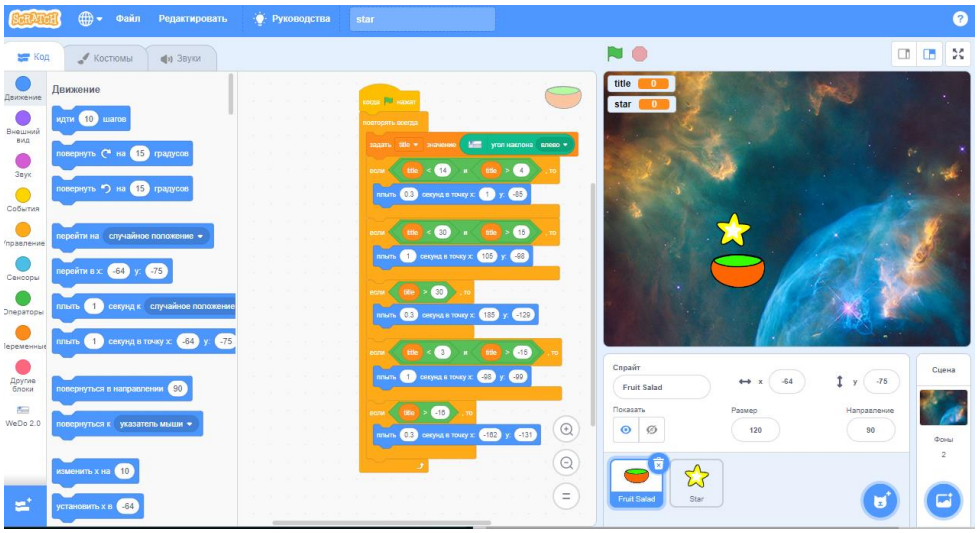


Figure 1. Encoding on Scratch

Coding as the main trend of the modern world occupies a leading position in education. It was revoked by the Decree of the Government of the Republic of Kazakhstan dated March 28, 2023 No. 249. In the Concept of Education development of the Republic of Kazakhstan for 2022-2026, free courses will be organized, for schoolchildren on the development of digital skills, one of them is coding, including programming, robotics, 3D printing and others[2].

Computer programming is perceived as an important competence for developing skills and creative thinking in addition to logical reasoning. Consequently, its integration at all levels of education, as well as at an early age, is considered valuable, and scientific research is being conducted to study this phenomenon in more detail. In the context of these facts, this study examines the impact of Scratch learning on the development of algorithms and the development of creative thinking skills.

It is important to teach students programming at an early age, so that they do not have difficulties understanding the logic of programming when they reach the age of undergraduate. To achieve this goal, Scratch, a visual two-dimensional programming tool, was developed.

For novice programmers, Scratch is the most popular block-based software to facilitate learning programming around the world[3]. In addition, Scratch is widely used in Kazakhstan and was chosen as a block-based coding tool for developing problem-solving abilities, self-efficacy, motivation, and interest[4]. Despite such widespread use, there is not enough scope to understand how information and communication technology (ICT) teachers adopt and use Scratch to teach programming.

Today, there are a huge number of types of programming languages. Each of them is used to perform different tasks. One of them is the Scratch programming language. This language is the easiest visual language to learn programming and the easiest way to start programming. Scratch is a program that allows to create by playing, using blocks of colored code to combine them, rather than writing instructions like other programs. Scratch is simple and easy to use, and yet it's a great language for teaching us the basic ideas of other programming languages that we need to use, through the game. Scratch-makes the process of writing code easy, diverse, and fun.

The solution of many modern applied problems related to the need to visualize the results of scientific research presentation is impossible without graphical implementation.

When teaching programming is considered, as a rule, students of higher educational institutions come to mind as the target audience. However, programming teaching has been integrated into the curriculum of secondary schools and even primary school and kindergarten classes, along with various applications for obtaining 21st-century qualifications in education[5].

Scratch, a free visual programming tool, was initially created at the Massachusetts Institute of Technology (MIT) in 2003. Through its website, users can share and communicate prepared projects

with others[6]. This programming tool supports multiple languages and employs a user-friendly, block-based approach that appeals to individuals unfamiliar with programming. Research has been conducted on Scratch programs to facilitate training in algorithm development and programming. Several studies, including those by Begosso, Silva, Maloney and colleagues focused on teaching algorithm development and programming to students aged 8 to 16 using Scratch. Additionally, Ozoran and colleagues instructed college students in algorithm development and programming with the Scratch tool[7]. Although Scratch has primarily been utilized for research on its impact on programming learning, there is a limited body of work exploring its potential to enhance students' computational and creative thinking skills, specifically in programming and algorithm development.

In recent years, it has been demonstrated that a tool like Scratch has made a great contribution to teaching programming to children (no coding errors or simple detection, no syntax errors, easy debugging, project development using multimedia tools, reduced cognitive load, simple and intuitive interface, etc.) and has become widespread. These programming tools have a structure that makes it easier for beginners to understand and use basic algorithmic forms, and also prevents syntax complexity in programming by demonstrating the visual aspects of programming[8].

In recent years, it has been demonstrated that a tool like Scratch has made a great contribution to teaching programming to children (no coding errors or simple detection, no syntax errors, easy debugging, project development using multimedia tools, reduced cognitive load, simple and intuitive interface, etc.) and has become widespread. These programming tools have a structure that makes it easier for beginners to understand and use basic algorithmic forms, and also prevents syntax complexity in programming by demonstrating the visual aspects of programming[9].

Basic provisions. The main points of the article can be summarized as follows:

• Scratch is considered an effective tool for teaching children the fundamentals of programming. It aids in the development of creative thinking among children.

• Representation is highlighted as the ability of children to perceive and interpret the world. Using Scratch allows children to express their ideas interactively through projects using various blocks with functions like motion, sound, and animation. This concrete representation contributes to the development of children's representational abilities.

• Creative thinking, defined as the ability to generate new ideas and see things differently, is emphasized. Scratch enables children to develop creative thinking by creating projects that reflect their own imaginations and ideas. The platform allows experimentation with colors, shapes, sounds, and movements without requiring expert programming skills.

• The use of Scratch is linked to the development of higher cognitive skills, including analyzing, synthesizing, and evaluating information.

Materials and methods. Coding is a whole series of commands written to provide communication between electronic and mechanical devices, computers, phones, tablets, and other devices, as well as people, and, as a result, to perform tasks step by step[10]. In other words, coding is a collection of programs written using programming languages, algorithm methods, codes, and code blocks to solve one or more problems between the user and the computer, in which the coding is primarily based on one or more problems. To solve this problem if there is a problem, the computer should provide the user with feedback. Communication is done by using programs written using encoding to get this response. The step-by-step program is solved using algorithmic methods for solving the problem. Then coding is performed using any programming language, and the solution to the problem is found. As shown in Figure 2, coding tools are divided into text and block tools. People who write a program in text coding write the program in text form according to the language they use. On the other hand, in block coding, there are blocks corresponding to each code. These blocks are continuously queued using drop logic, creating a program.

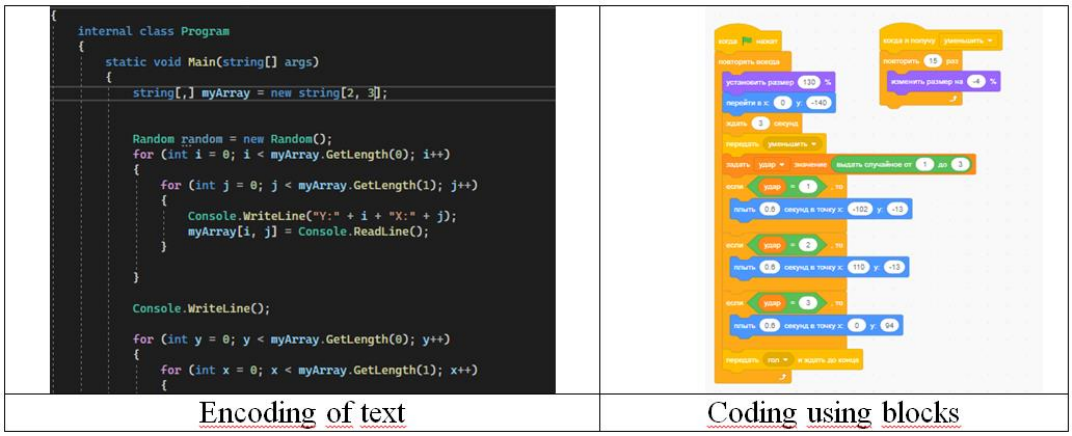


Figure 2. Encoding Types

Incorrect use of programming tools in teaching students programming leads to the fact that students are biased towards programming. To avoid this bias, you need to choose a programming tool that is suitable for all age levels. To make learning programming easier for students, you should use simple programming tools. Programming is divided into text-based and block-based programming. Since learning to program is compared to learning a new language, students may be suitable first to him with prejudice. To do this, first of all, it is preferable to use visually weighted programming tools when coding. Block programming tools make learning enjoyable and also increase student motivation. Abstract concepts are visualized using block tools, which makes programming easier for anyone new to coding. It's easier to use blocks than to write code, especially at the beginner level. Block tools allow students to visualize and understand some situations and problems that they cannot implement. This makes writing code more fun and easier to understand. Among the main block coding tools is Scratch. The most important features of this tool are also that it is free and has visual effects that will make it easier for people at all levels to learn coding.

On Scratch when programming, each child gets to show the abilities of their creativity. Because in the environment Scratch programming can make different cartoons, games, animated postcards, presentations. Also, by inserting various photos into their graphic characters and with sound, they can create interesting fictional fairy tales. These activities are carried out by students through the capabilities of a multimedia program. In the programming environment

In the Scratch programming environment, every child can show their creativity. Because in the Scratch programming environment, you can prepare various cartoons, games, animated postcards, and presentations. He can also create interesting stories and fairy tales with the help of sound, creating a variety of drawings, performing graphic processing of his characters. All this is done by students using the multimedia capabilities of this program. It promotes creative thinking in the programming environment by setting your characters in motion, drawing, and working with different sounds.

This research endeavors to enhance pedagogical approaches in alignment with the requisites of Educational Research for the progression and ongoing enhancement of educational methodologies.

The principal objectives of this inquiry encompass:

-Furnishing students with a common medium for communication: object-oriented programming.

-Ensuring the operational viability and evolution of endeavors connected to programming originating from a rudimentary level.

-Fostering creative ideation through the resolution of challenges utilizing the Scratch programming environment.

This research was conducted involving two distinct cohorts of primary school students at the 'Bakdaulet' institution located in the city of Shymkent. As a result of the class division, the study encompassed a cumulative cohort of 47 students, comprising 21 females and 26 males. The mean age of the student participants was 9 years.

In the present action plan, denoted as "Figure 3", a tripartite approach was employed. The initial stage, designated as the first phase, entailed a comprehensive assessment of various methodologies germane to the preliminary utilization of Scratch. Subsequently, the second phase was dedicated to the development of miniature gaming applications and fostering educational engagement within compact learning cohorts. The third and final phase was dedicated to disseminating the accomplished work to a wider online audience of users.

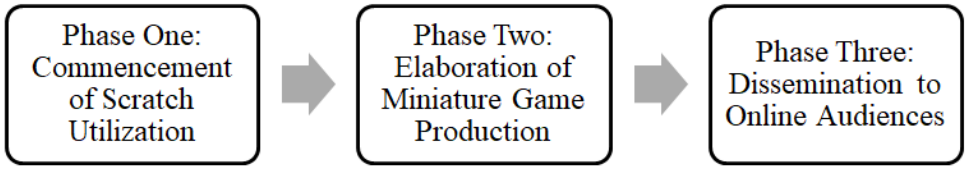


Figure 3. Phases of the plan

In the initial phase of the study, a comprehensive assessment of various methodologies for implementing Scratch software within the classroom setting was conducted. Subsequently, a curriculum comprising six introductory lessons, as detailed in 'Table 1', was devised. Each lesson was designed to encompass hands-on practical exercises, as illustrated in 'Figure 4', intended for individual students to actively engage in during classroom sessions.

Table 1 - Activities plan

Lesson	Activities
1,2	Introduction to Scratch
3,4	Activities 1,2,3,4,5,6
5,6	Explore Evaluate

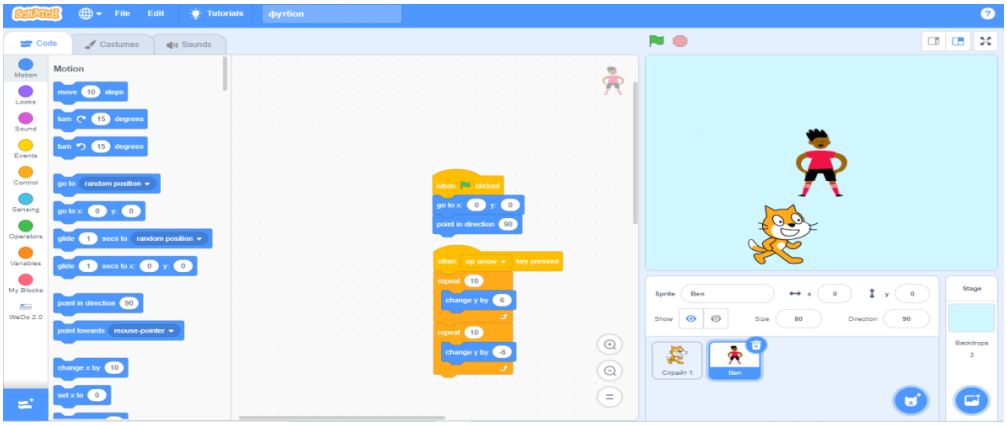


Figure 4. Phases of the plan

In the initial phase, denoted as the adaptation to Scratch, each student successfully completed the prescribed activities. It was noteworthy that the students exhibited a high level of motivation within the classroom setting during this phase. Some students demonstrated swift task completion, affording them additional time to generate supplementary examples and expand their creative prowess. Notably, all students exhibited a strong affinity for learning with Scratch and expressed enthusiasm for manipulating the 'sprites' within the Scratch environment. Moreover, students derived substantial educational benefit from peer interactions within the class, gaining valuable insights from their classmates. This phase also revealed that students recognized the potential of seeking assistance from their peers rather than solely relying on the instructor, as peers of similar age often offered unique and creative problem-solving approaches and novel narrative concepts that surpassed those of the teachers.

In the subsequent phase, encompassing six lessons documented in 'Table 2', the focus was directed toward the creation of a miniature game. In classroom 1, a template provided in 'Annex I' served as a reference point, prompting students to conceive and execute a miniature game grounded in their imaginative capacities.

Table 2 - Activities plan

Lesson	Activities
1,2	Mini game 1
3,4	Mini game 2
5,6	Explore Evaluate

In this study, all participating students successfully generated their own mini-games, with some of them demonstrating a propensity to create multiple mini-games. Notably, the students exhibited considerable enthusiasm throughout the game creation process, fueled by the prospect of their games being actively played. Upon completion of this phase, they eagerly engaged in showcasing their independently crafted games to their peers.

The third phase of the study encompassed four instructional sessions, as delineated in 'Table 3'. During this phase, students were tasked with the responsibility of disseminating their work over the Internet. To this end, each student accessed the Scratch website (scratch.mit.edu), where they created individual accounts and proceeded to share their respective mini-games with fellow online peers. It is noteworthy that some students demonstrated such high levels of motivation on the website that they not only played and enjoyed games created by their peers but also continued to produce additional games for the same online platform.

In light of the aforementioned observations, it becomes evident that the Scratch website serves as a pivotal tool for these students. It functions as a conducive space where they can construct interactive activities, distribute their creations to a wider audience, and actively engage in a learning process that commences from the ground up.

Table 3 - Activities plan

Lesson	Activities
1,2	Create an account (scratch.mit.edu) Share their projects
3,4	Create a project on-line Explore the site on-line Evaluate

Results. In result, this article emphasizes the importance of using Scratch software for the development of creative thinking of primary school students. The presented research and practical examples clearly demonstrate that Scratch not only contributes to mastering the basics of programming but is also a powerful tool for stimulating creative thinking and awakening the imagination of students.

Scratch software provides a unique opportunity to create interactive projects, games, and stories, which allows students to implement their ideas digitally. It promotes the development of key skills such as problem thinking, logical reasoning, collaboration, and creative problem-solving. Students become active participants in the learning process, which contributes to their independence and motivation.

In addition, the use of Scratch allows you to differentiate training, adapt tasks to the level of each student, and ensure the individual development of their creative potential. This helps to create an inclusive educational environment where every student has the opportunity to reveal their abilities and achieve success.

In light of the rapid development of information technology and digital literacy, the use of Scratch software is becoming increasingly relevant for primary schools. By giving students the opportunity to be

creative and proactive, we prepare them for the challenges of the modern world, where the skills of analysis, problem-solving, and innovation are in demand.

Discussion. This report presents significant findings derived from the research investigation.

During the initial phase (referenced as “Figure 5”), a subset of students exhibited their creative abilities.

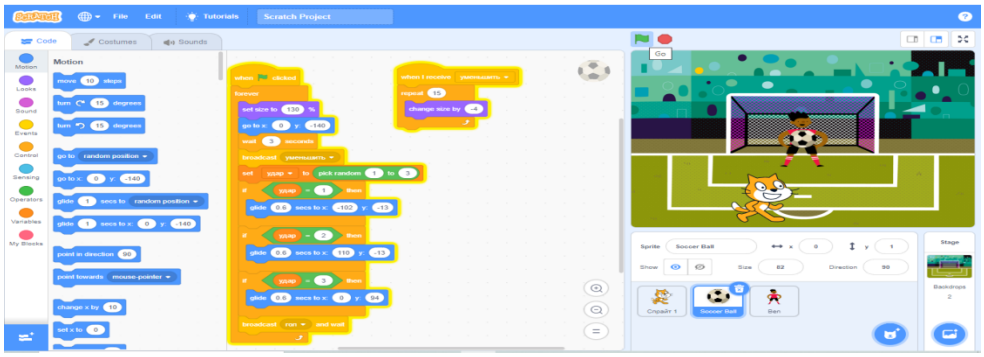


Figure 5. Some results of the 1st phase

In the subsequent phase (referenced as 'Figure 6'), there was observable development in the manifestation of this creativity.

Figure 6. Some results of the 2nd phase

In the third phase (indicated as 'Figure 7'), the activities created were made available online, and it was observed that these activities were highly engaging and enjoyable to all participating students. During this phase, some students faced challenges in completing their assigned tasks, requiring additional time to conclude the activities.

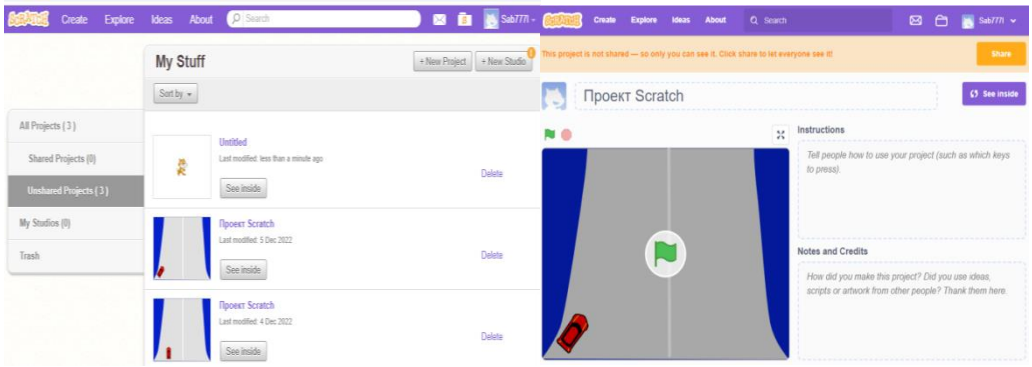


Figure 7. Some results of the 3rd phase

In general, the use of Scratch software in primary school is an effective tool for the development of creative thinking of students. It not only teaches programming but also promotes the development of creative skills, research thinking, communication, and independence. By supporting students in their research and creative efforts, we help them become strong and independent thinkers, ready for future challenges and achievements.

Conclusion. This research demonstrates the feasibility of incorporating Scratch into the information and communication technology (ICT) curriculum through a structured, progressive pedagogical approach.

In conclusion, the use of Scratch software to develop the creative thinking of primary school students proves to be a highly effective and beneficial approach. Throughout this term, we have explored the various aspects of this innovative educational tool and its impact on young minds.

Firstly, Scratch software fosters creativity by enabling students to design, create, and share their interactive stories, games, and animations. This process empowers children to think outside the box, encouraging them to explore their imaginations and express their unique ideas in a digital format. By engaging with Scratch, students develop problem-solving skills as they encounter challenges and find innovative solutions to bring their visions to life.

Moreover, the platform's user-friendly interface makes it accessible to students of all skill levels, ensuring that even those without prior coding experience can participate and thrive. This inclusivity fosters a sense of confidence and achievement among students as they witness their projects evolve from simple concepts to fully functional creations. As they gain familiarity with coding concepts and logical thinking, children are better equipped to tackle complex challenges in other subjects and future endeavors.

Furthermore, the collaborative nature of Scratch encourages teamwork and communication. Students can work together, share ideas, and learn from one another. This cooperative learning environment not only enhances creative thinking but also instills essential social skills, preparing them for success in a rapidly evolving world where teamwork and adaptability are highly valued.

In addition to the cognitive benefits, integrating Scratch into the primary school curriculum can significantly enhance engagement and enthusiasm for learning. The interactive and enjoyable nature of coding motivates students to actively participate in their education, fostering a positive attitude towards learning and boosting overall academic performance.

As educators and parents, it is crucial to recognize the significance of nurturing creative thinking from an early age. By incorporating Scratch software into primary school education, we can lay a strong foundation for the future generation's success in various fields. The skills developed through this process transcend mere coding proficiency; they form a solid basis for critical thinking, problem-solving, and innovation, preparing students to become lifelong learners and active contributors to society.

In conclusion, using Scratch software to develop the creative thinking of primary school students is a valuable and forward-thinking educational approach. By embracing technology as a tool for creativity, we can empower young minds to become the innovators and problem solvers of tomorrow, shaping a brighter and more promising future for all.

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DENVER II AND OTHER DEVELOPMENTAL SCREENING TESTS' SIGNIFICANCE IN ASSESSING CHILD DEVELOPMENT

Abstract

Developmental screening tests are critical tools for assessing children's cognitive, motor, language, and social-emotional development, allowing for the early detection of potential developmental delays. Early identification is essential as it enables timely intervention, which can prevent prolonged developmental issues, improve children's long-term outcomes, and enhance their quality of life. This article presents a comparative analysis of widely recognized developmental screening tests, including the Denver II, Ages and Stages Questionnaires (ASQ), Bayley Scales of Infant and Toddler Development (Bayley-III), Griffiths Mental Development Scales, and the Ankara Developmental Screening Inventory (AGTE).

Denver II evaluates personal-social, fine motor, language, and gross motor skills in children aged 0-6. It has been widely adapted across various cultural contexts, including Turkey, where it is frequently used by healthcare professionals to assess developmental milestones and identify delays. The ASQ is a practical, parent-completed tool, which has been culturally