Digital technologies element : mobile application , scientific progress development impact and effect

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Abstract : This scientific article uses a mobile application as an element of digital technologies. In this article, a simple and understandable method of creating a program based on the visual programming method and an example of an assessment method via messengers is presented. The results of this method can be seen in the form of a statistical analysis in the form of a diagram.

1 Introduction

With the development of digital technologies , in particular, mobile applications play an important role in the modern educational process. Mobile applications create new opportunities in the field of education and help make the process of acquiring knowledge more effective and interesting for students. Diversification of teaching and learning methods, as well as the ability to meet the individual needs of students, require the use of mobile applications in education. Mobile applications, in addition to influencing the development of science, turn the educational process into an interactive and convenient environment for learning. They provide students with the opportunity to consolidate their knowledge, assimilate new information and self-assessment. At the same time, mobile applications serve as a convenient tool for teachers to plan lessons, monitor and assess student progress. Knowledge and skills acquired through mobile applications in education serve as a solid foundation for students' future scientific activities. Mobile applications , as well as teaching methods innovative in a way to update help They give students certain topics study in the process interactive elements add through mastery level to increase service For example , the game using elements (gamification) education process interesting and attraction doer to do It is possible . It is yours . In turn , the students motivation increases and knowledge to take was their interests Also , mobile applications education to resources to enter makes it easier . Students and teachers desired at any time , at any time in place necessary to the information has to be to the possibility has Students own their time effective management to the possibility has to be , to be knowledge reinforcement and expansion for additional from materials uses possible .

Mobile applications also help students social interactivity to increase help gives . Students each other with idea exchange , problems together solution to do and mutual help to give to the possibility has They will be . This is their own in turn , collective work skills to develop service does this and modern work in the market very important . Of these all mobile applications through education process efficiency increase , individual needs of students satisfy and to the development of science positive impact show for important are factors . Therefore , mobile applications education in the field strategic accordingly application necessary , because they not only knowledge to take process makes it easier , but students in the future successful activity to conduct prepares .

2 Materials to take technology and research method

This pilot test, in which an innovative method of using mobile applications (telegram bots) and social media networks was used in the teaching of one of the specialized subjects in higher education institutions, "Introduction to Web Programming", was conducted with the group of KI2201S07A students of the correspondence course, one of the subjects under the Department of Computer Engineering, Faculty of Information Technologies, Tashkent University of Applied Sciences. An example of an innovative teaching method is given below:

Visual Programming Method : Visual programming tools allow students to develop algorithmic skills based on basic knowledge.

Using the visual programming method sample

Topic : Working with strings, arrays, and files in PHP

 Lesson Objective :

1. Developing Algorithmic Thinking: Using visual programming tools to develop students' understanding of algorithms.

2. Motivation: Increasing students' motivation to learn programming, using social media interfaces.

3. Practical Skills: Learn how to work with strings, arrays, and files in PHP.

Required resources:

- Visual Programming Tool: A platform that supports visual programming for PHP (e.g. Scratch, Blockly, or a dedicated web interface).

show the visual programming interface and examples .

- Computers: One per student or group, with access to a PHP development environment.

Lesson Structure

1. Organizational structure (10 minutes)

- A brief explanation of how visual programming helps you understand complex concepts.

- A discussion about the importance of PHP in web programming and how it can be used on social media platforms.

2. Theoretical part: Demonstration of Visual Programming (20 minutes)

Show students how to create simple PHP scripts using a visual programming tool :

```php
$firstName = "Ali";
$lastName = "Valiyev";
$fullName = $firstName . " " . $lastName; // "Ali Valiyev"
```

- String manipulation: concatenation, length determination, and substring replacement :

```php
$string = "Salom, Dunyo!";
$length = strlen($string); // 14
```

Substrings Substring Replacement:

- Inline known one part change for From the str_replace ( ) function we use :

```php
$originalString = "Men O'zbekistonlikman.";
$newString = str_replace("O'zbekiston", "Qozoqiston", $originalString);
```

Show array operations : create, access , and modify arrays :

```php
$fruits = array("Olma", "Banan", "Apelsin");
```

Accessing Array Elements :

- Array to the elements indexes through entrance possible .

```php
$firstFruit = $fruits[0]; // "Olma"
```

The array Modifying Array Elements :

- Array elements change for index we use .

```php
$fruits[1] = "Qulupnay"; // Massiv endi: ["Olma", "Qulupnay", "Apelsin"]
```

3. Creating a Simple PHP Script (30 minutes)

Tasks for the group :

- Create a visual program that accepts a string and an array entered by the user.

- Perform operations such as finding the length of a string, reversing it, and sorting an array.

- Display results in a social media interface.

5. In this lesson, students were introduced to the basic principles of working with strings and arrays in the PHP programming language. We covered string manipulation operations such as concatenation, length determination, and substring replacement, as well as the processes of creating, accessing, and modifying arrays. These skills will make it easier for students to understand and apply the programming process, and will also help develop algorithmic thinking.

One of the important aspects of the final part of the lesson is to activate the students. The teacher can ask open-ended questions to encourage questioning and discussion, for example:

- "What do you think is the importance of string manipulation in programming?"
- "In what situations can you use arrays?"
- "In your opinion, what are the advantages of the PHP programming language?"

Such questions allow students to discuss and apply what they have learned.

Discussing how the skills learned in class can be applied to real-world projects, especially those related to social media platforms, encourages students to put what they have learned into practice.

1. Creating content for social media:

- Students can use their PHP skills to create applications to manage posts on social media platforms or to interact with users. For example, using arrays to store and display comments submitted by users.

2. Data analysis:

- PHP allows you to create programs to analyze social media data using strings and arrays. For example, analyze user comments to determine which posts are generating the most interest.

3. Interactive web applications:

- Students can use PHP to create social media interfaces and use arrays and files to manage user data. This will allow them to improve their programming skills and solve real-world problems.

This hands-on experience provides students with new opportunities to apply their skills in practical projects, stimulating their interest and motivation in the programming process.

Rating:

- Group Presentations: Each group presents their visual program and provides a logical explanation of their code.

This course design integrates visual programming to make learning PHP fun and practical, encouraging students to apply their skills in real-world settings.

3 Results of experiments conducted at Tashkent University of Applied Sciences

Table 1

|	Indicator	Experiment groups				Control groups			
		Experience at the beginning student number	%	Experience at the end student number	%	Experience at the beginning student number	%	Experience at the end student number	%
Tashkent practical sciences university	Excellent	42	16 , 9	48	29.6	13	17.6	14	18.9
	Good	43	30 .9	48	59.1	24	3 2 , 4	25	33.8
	Satisfactory	25	36 , 7	37	11. 3	29	39 , 2	31	41.9
	Unsatisfactory	11	15.5	0	0.0	8	1 0 , 8	4	5.4
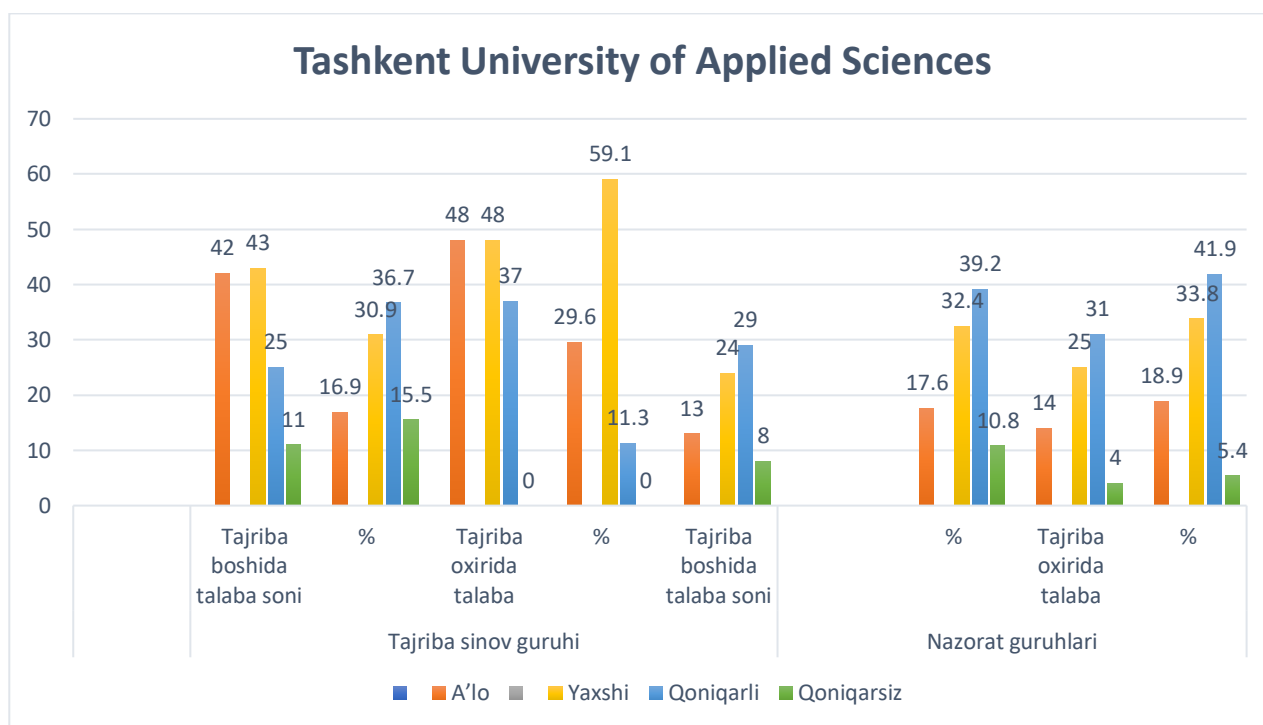
Figure 1. Diagram of the results of the experimental tests conducted at the Tashkent University of Applied Sciences

4 Conclusion

In an era of rapid development of digital technologies, the importance of educational tools is high: the use of mobile application-based systems in the implementation of tasks allocated for independent learning in the subject of introduction to web programming provides effective approaches to involving students in practical programming, forming project instructions through the creation of small programs. This develops students' practical skills and leads to the strengthening of their independent thinking and creative approaches in the field of information technology.

Based on the emerging trend in the development of computer and information and communication technologies, the organizational and technological conditions for teaching general professional subjects in higher education institutions, and the study of educational regulatory requirements for the mastery of general professional subjects, the following number of contradictions were identified in higher education institutions related to the need for students to master modern technologies:

One of the main goals of the program, created for the social network Telegram (messenger), is to create great opportunities for improving modern educational technologies based on scientific views on student assessment. The results of the experimental tests obtained will contribute to the improvement of science and the development of innovative pedagogical and technological skills of teachers, as well as the development of students' information literacy skills.

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