

DEVELOPING THE ABILITY OF YOUNGER STUDENTS TO SELECT AND USE THE DIGITAL TOOLS

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Abstract:

The article defines the essence of the ability to select and use the digital tools as one of the groups of information and digital skills of younger students, which includes three types of abilities: the ability to choose the digital tools necessary for the performance of the educational task, the ability to select and use digital tools for online communication, the ability to create and edit a digital product; explains their structure (motivational, content, procedural and control components); suggests ways to form them in younger students.

Keywords: information and digital skills, ability to select and use the digital tools, motivational component, content component, procedural component, control component, younger students.

INTRODUCTION

Primary schools, like all levels of education, are currently undergoing digitalisation. The importance of implementing digital transformation is demanded by scientific and technological progress in general, as well as the need to form a personality whose knowledge, skills, experience and qualities will provide for his or her ability to fully realise his or her own needs in accordance with the requirements of such changes. This is reflected in the content of the State Standard of Primary Education and the Conceptual Framework for Secondary School Reform “New Ukrainian School”.^{1 2}

Primary school students should develop information and digital competence. Its structure includes information and digital skills, which are grouped into the following: the ability to search and evaluate digital information, the ability to select and use digital tools, the ability to interact online, the ability to independently identify and solve basic technical problems.³

Some aspects of this issue are reflected in the works of such scholars as: V. Stehantseva, V. Chaika, O. Chikurova, and others. However, the proposed topic has not yet been studied in its entirety.

Thus, the problem of developing primary education students’ skills in selecting and using digital tools is relevant and requires a comprehensive study.

The purpose of the article is to define the essence, structure and ways of forming primary school students’ skills in selecting and using digital tools.

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- 1 KABINET MINISTRIV UKRAINY. (2018, February 21). Derzhavnyi standart pochatkovoi osvity [State Standard of Primary Education]. (№ 87). (<https://zakon.rada.gov.ua/laws/show/87-2018-%D0%BF#Text>).
 - 2 MINISTERSTVO OSVITY I NAUKY UKRAINY. (2016, October 27). Kontseptualni zasady reformuvannya serednoi shkoly „Nova Ukrainaska Shkola“ [The Conceptual Framework for Secondary School Reform „New Ukrainian School“]. (№ 10). (<https://mon.gov.ua/storage/app/media/zagalna%20serednya/nova-ukrainska-shkola-compressed.pdf>).
 - 3 SHYSHAK, A. The ability of younger students to independently identify and solve elementary technical problems: essence and characteristics [Vminnia molodshykh shkoliariv samostiino vyivliaty ta vyrishuvaty elementarni tekhnichni problemy: sutnist i kharakterystyka]. In: *Importance of Soft Skills for Life and Scientific Success: Proceedings of the 3rd International Scientific and Practical Internet Conference*. Dnipro, Ukraine, pp. 226 – 228, March 2024. P. 226.

THE ESSENCE OF THE MAIN CONCEPTS OF THE RESEARCH

Information and digital skills are “the ability to process digital information, including online communication, and to select appropriate ICT tools and algorithms for acting with them to fulfil one’s own needs”.⁴ This definition reflects the important role of students’ ability to select digital tools and use them productively to achieve their own goals.

The ability to select and use digital tools covers three types of skills: the ability to choose the digital tools necessary to complete an educational task, the ability to select and use digital tools for online communication, and the ability to create and edit a digital product. The grouping of these abilities into one group is due to the fact that all these information and digital skills are based on the selection and use of digital tools, but the purpose of these processes is different: to complete a learning task, communicate online, create and edit a digital product.

The ability to choose the digital tools necessary to complete a learning task is the ability of primary school students to “use computer software and hardware or online tools that allow them to complete a learning task with the least amount of time, effort and resources”.⁵

When choosing a digital tool to complete a task, one should take into account its direct purpose and functional potential. Therefore, younger students should realise that, for example, the Word text editor is best used for editing and formatting text fragments; the PowerPoint presentation application is best used for working with slides. By choosing digital tools to complete a task, primary school students exercise their personal ability to compare applications with the same functions and use the one that is more convenient or that will allow them to realise their plan more efficiently.

The ability to select and use digital tools for online communication implies “the ability of primary school students to determine which ICT tools will best contribute to the realisation of the goal of their communication request and use

4 CHAIKA, V., SHYSHAK, A. Information and digital skills of primary school pupils: essence, types, and content characteristics [Informatsiino-tsyfrovi vminnia uchniv pochatkovoi shkoly: sutnist, vydy, zmistovi kharakterystyky]. In: *Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika*, № 1, Ternopil, 2023, pp. 69 – 77. P. 71.

5 CHAIKA, V., SHYSHAK, A. Information and digital skills of primary school pupils: essence, types, and content characteristics [Informatsiino-tsyfrovi vminnia uchniv pochatkovoi shkoly: sutnist, vydy, zmistovi kharakterystyky]. In: *Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika*, № 1, Ternopil, 2023, pp. 69 – 77. P. 73.

them both for learning and in everyday life”.⁶ V. Stehantseva notes that first-graders (82% of respondents) mostly use the Internet to communicate with their peers.⁷

For online communication with classmates and teachers, younger students most often use text messaging applications on a computer network - messengers. These include Viber, Telegram, WhatsApp and others. These apps provide fast communication: a student receives a response to a question within minutes or even seconds. If you need to send an assignment to your teacher for review, you should use email. And to communicate at a distance, a younger student should be able to use video communication tools: download such an application, turn it on and use its basic options.

The ability to create and edit a digital product covers “the ability of primary school students to produce and make changes to digital files”.⁸ To work on the development of digital products, it is necessary to know what ICT tools are available, the functionality of which allows you to complete the task, be able to use them; be able to predict, plan, make an algorithm of actions, follow the points of the plan, etc.

When treating images, younger students use photo editors installed on a computer, smartphone or online. Most video clips are shot by students aged 6-10 using a smartphone; if necessary or desired, the video can be edited using video editors or social media (e.g. TikTok). Younger students produce text documents in Word or Notepad and prepare presentations in Microsoft PowerPoint.

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- 6 CHAIKA, V., SHYSHAK, A. Information and digital skills of primary school pupils: essence, types, and content characteristics [Informatsiino-tsytrovi vminnia uchniv pochatkovoi shkoly: sutnist, vydy, zmistovi kharakterystyky]. In: *Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika*, № 1, Ternopil, 2023, pp. 69 – 77. P. 73.
 - 7 STYEHANTSEVA, V. Diagnostics of initial level of primary school children information and digital competence formation [Diahnostyka vykhidnoho rivnia sformovanosti informatsiino-tsytrovoi kompetentnosti molodshykh shkoliariv]. In: *Humanizatsiia navchalno-vykhovnoho protsesu*, №1 (100), Sloviansk, 2021, pp. 118 – 128. P. 122.
 - 8 CHAIKA, V., SHYSHAK, A. Information and digital skills of primary school pupils: essence, types, and content characteristics [Informatsiino-tsytrovi vminnia uchniv pochatkovoi shkoly: sutnist, vydy, zmistovi kharakterystyky]. In: *Naukovi zapysky Ternopilskoho natsionalnoho pedahohichnoho universytetu imeni Volodymyra Hnatiuka. Ser. Pedahohika*, № 1, Ternopil, 2023, pp. 69 – 77. P. 74.

THE WAYS OF FORMING PRIMARY SCHOOL STUDENTS' OF COMPONENT STRUCTURE SKILLS TO SELECT AND USE DIGITAL TOOLS

To promote the development of primary school students' skills in selecting and using digital tools, special measures, methods and means of teaching should be implemented. All of this should be aimed at ensuring that primary school students develop a motivational and value orientation to mastering the skills outlined, a system of knowledge, actions and their algorithms related to this area, as well as the ability to reflect and control their activities. Therefore, it is necessary to ensure the implementation of the component structure of primary school students' information and digital skills, including the ability to select and use digital tools, which includes four components: motivational, content, procedural and control.

Describing the motivational component of the ability to select and use digital tools, it should be noted that it covers the goals, needs and interests of primary school students related to the selection of digital tools necessary for the performance of educational tasks, selection and use of digital tools for online communication, creation and editing of a digital product.

In order to form the motivational component of the ability to select and use digital tools, it is worth using situation analysis in the educational process of primary school. The content of the situations should provide for the achievement of a positive result by the individual from the fact that he or she has the outlined abilities. For example, to stimulate intrinsic motivation, it is advisable to use the following stories:

- The third-form pupils need to quickly recall a short rule in the Ukrainian language. Maryna used her smartphone to do this, and her friend Nadiya used a computer. Maryna managed to complete this task in two minutes, while Nadiya took much longer. Think about this situation. Would you have done what Maryna or Nadiya did? Why? Is it important to be able to choose the most effective digital tool to complete a learning task? Explain your answer.

- Ihor and Andrii are fourth- form pupils. They were given the task of developing a project for the integrated course "I Explore the World". After they had done this, they sent the files to their teacher: Ihor used Instagram, and Andrii used Gmail. Think about this situation. Would you have done what Igor or Andrii did? Why? Is it important to be able to select and use the most appropriate digital medium for online communication? Explain your answer.

- Galyna and Oleg want to talk to their friends about their summer holidays.

Galyna suggests telling their stories, and Oleg suggests editing a video on TikTok. Think about the situation. Do you agree with Galyna or Oleg? Why? Is it important to be able to create and edit a digital product? Explain your answer.

The formation of motives is related to the essence of digital tools: they allow for interesting processing of vivid information, and the general tendency of society to increase interaction with such devices or applications stimulates external positive motivation for primary school students to learn to work with them (approval, prestige).

The content component of the ability to select and use digital tools requires primary education students to have knowledge related to the selection of digital tools necessary to complete the learning task, the selection and use of digital tools for online communication, the creation and editing of a digital product. Such knowledge includes the characteristics of digital tools important for completing a learning task; norms for selecting and using digital tools for online communication; definition of digital products, their types; knowledge of algorithms for selecting digital tools for completing a task or online communication, creating and editing a digital product; awareness of the values of knowledge, safety, conformity, self, personal success, hedonism, independence, time, etc.

To develop all this knowledge in younger students, teachers should create information materials (presentations, videos, posters, images, etc.) to equip the educational and developmental environment of the classroom, and use didactic games (computer and real-world interaction) in the educational process. The development of such products must be accompanied by a conversation, diversified by modern interesting methods: “Associative bush”, “Senkan” (“Senkane”), “Cubing”, “Gallery walk”.⁹

Specially designed online services can be used to acquire knowledge of digital tools and work with them. An example is the electronic educational resource “My Class”, which contains materials for studying the informative educational field in grades 2-4 of the New Ukrainian School “Informatics NUS”. The theoretical material of the topics “Creating a Graphic Object in Microsoft Paint”, “Graphic Objects of the MS Word Processor”, “MS PowerPoint Presentation Editor”, etc. should be used to clarify knowledge in the structure of information and digital

9 BORYSOV, V., LUPINOVICH, S., BORYSOVA, S. Strategies for the development of critical thinking in primary school students in the course „I’m in the world“ [Stratehii rozvytku krytychnoho myslennia uchniv pochatkovoï shkoly na urokakh «Ia u sviiti»]. In: *Naukovyi zhurnal Khortytskoi natsionalnoi akademii (Seriia: Pedahohika. Sotsialna robota)*, vol. 1(1), Zaporizhzhia, 2019, pp. 49 – 59.

competence as a key competence.¹⁰

The procedural component of the ability to select and use digital tools involves the ability of a primary school student to carry out a system of steps to implement their own request: to apply methods of using the most optimal computer software or hardware or online tools for performing an educational or communication task; to use ICT tools to develop digital products; to predict, plan, draw up an algorithm of actions, follow the points of the plan; to create and edit a digital product.

Each of these tasks can be divided into detailed operations and actions. For example, to use an ICT tool to develop digital products, several operations are required: analyse the digital product as a predicted result of activity; take into account the characteristics of several ICT tools; determine the most effective digital tool; use the selected ICT tool to algorithmically create the required product.

To promote the formation of the procedural component of the ability to select and use digital tools, it is advisable to give students the opportunity to use devices and applications in a comprehensive manner. This is facilitated by the teacher's slightly modernised textbook tasks (for example, "I Explore the World")¹¹:

- Demonstrate the results of the practical work from the course "I Explore the World" (Grade 3) on the topic "How do human economic activities affect nature in your home country?" (p. 31 of the textbook) using digital tools. Describe in sequence the steps you took to achieve the result. Why did you choose this particular programme? How is it more appropriate for the task than others you know?

- Using the pictures on p. 109 of your textbook, have a 5 minute conversation with your desk mate in any messenger app about what kind of relationships you need to have at school to make it your second home. What app did you choose to communicate with? Describe the steps you took to choose it. Why did you choose this app and not another similar one?

- Create a table called My Home Library. It should contain the author's name, the title of the book, the year of publication and the genre (p. 68 of the textbook). What software did you use to complete this task? Describe in sequence the steps

10 NUS computer science [Informatyka NUS]. In: *Ukrainska elektronna osvitnia systema „MiiKlas“*. (<https://www.miyklas.com.ua/p/informatika-nush>).

11 ZHARKOVA, I., MECHNYK, L., ROHOVSKA, L., PONOMAROVA, L., ANTONOV, O. I explore the world: a textbook for the 3rd grade of general secondary education institutions, in 2 p., p. 2 [Ya doslidzhuu svit : pidruchnyk dlia 3-ho klasu zakladiv zahalnoi serednoi osvity, u 2 ch., ch. 2]. Ternopil : Pidruchnyky i posibnyky, 2020.

you took to achieve the result. Why did you choose this particular programme? How is it more appropriate for the task than other programmes you know?

The control component of the ability to select and use digital tools covers the ability to control the processes outlined through pedagogical influence (direct or indirect methods) and self-control of the student's activities.

The use of ICT includes the use of machine control, where the computer itself assesses the learner's knowledge and achievements, including in the digital domain, comparing their answers to a standard. This process contributes to the development of independence, as the primary school student works under the indirect supervision of the teacher, and the control is carried out invisibly. Hints and tips for primary school students are displayed through the dialogue windows of the curriculum, and the student can correct mistakes independently.¹²

The result of successful application of the ability to choose the digital tools necessary to complete a learning task, the ability to select and use digital tools for online communication, the ability to create and edit a digital product is a successfully completed task involving the use of digital devices or programs. If there are certain difficulties or the final product differs from the plan, it is necessary to carry out elements of reflection: analyse the materials, identify their strengths and weaknesses, correct the results, evaluate them.

Digital information (facts, hypotheses, concepts) or the performance of certain actions to process it (converting, editing, formatting, sending) can be "framed" in the form of digital applications themselves. Therefore, it is possible to monitor students' activities by performing interactive tasks developed on the basis of the proposed templates in Learningapps.org, Wordwall, Quizizz, Kahoot, etc. Correct completion of such tasks indicates not only the possession of knowledge and skills, but also the ability to reflect on it before, during and after the activity, depending on the content of the exercise and its didactic purpose. For example, in Wordwall, you can develop an interactive task in accordance with the "Open the Box" template: primary school students touch the boxes and perform reflective tasks that are placed there.¹³

Until the task is completed, the content of the control component of the ability

12 CHYKUROVA, O. The development of primary school students' selforganized learning ability by means of computer technologies: Thesis for the Doctor of Philosophy Degree, specialty 013 – Primary education [Formuvannia vminnia samoorhanizatsii navchalnoi diialnosti uchniv pochatkovoi shkoly zasobamy kompiuternykh tekhnolohii: Dysertatsiia na zdobuttia naukovooho stupenia doktora filosofii za spetsialnistiu 013 – Pochatkova osvita]. Ternopil: Ternopil Volodymyr Hnatiuk National Pedagogical University, 2022. P. 68 – 69.

13 The „Open the Box“ template on the website „Wordwall“. (<https://wordwall.net/about/template/open-the-box>).

to select and use digital tools is predictive. For example, a primary school student receives a learning task that involves creating an image. He/she creates a picture in his/her mind that he/she wants to create, plans which application to use, predicts the steps to be taken, anticipates difficulties that may arise and how to prevent them, etc. It is advisable to accompany this prediction with questions and instructions to guide the primary school student's activities.

In order to build the control component of the ability to select and use digital tools in an activity, it is important to promote situational analysis and reflection on the elements of the activity. Let's say a younger student wants to contact a classmate to discuss a task they have to do in pairs. They start sending text messages on Telegram. In the course of communication, the communicators realise that such a conversation takes too much time to type. So, after analysing their own activities, the peers decide to use video communication. It is clear that the teacher will not be able to be really present during such student reflection, but he or she can specifically create or offer such situations for analysis at school, promoting the understanding that at any time it is possible to change the direction of activity to optimise it.

To form the control component of the ability to select and use digital tools after the activity, reflective methods should be used, such as Bloom's Daisy, Reflective Circle, and POPS Formula.¹⁴ The content of the questions in these methods can be as follows: did you choose the right digital tool for the task? did you choose the right application for online communication with the teacher and peer? did you manage to fulfil the plan with the help of this online application? what did you succeed and what did you fail? what would you change? why?

CONCLUSIONS

Thus, the ability to select and use digital tools is one of the groups of information and digital skills of primary school students, which includes three types of abilities: the ability to select the digital tools necessary to complete a learning task, the ability to select and use digital tools for online communication, the ability to create and edit a digital product.

To promote the development of primary education students' skills in selecting and using digital media, special measures, teaching methods and tools should be

14 TOPOL, V. How can a teacher get feedback from students? Several proven techniques [Yak uchyteliu otrymaty zvorotnyi zviazok vid uchniv? Kilka perevirenykh metodyk]. In: "Nova Ukrainska Shkola". (<https://nus.org.ua/articles/yak-uchytelyu-otrymaty-zvorotnyj-zv-yazok-vid-uchniv-kilka-efektyvnyh-metodyk/>).

implemented. This involves the implementation of a component structure of such abilities, which includes four components: motivational, content, procedural and control.

The formation of the motivational component involves the use of situation analysis in the educational process of primary school. Motivation is also stimulated by the fact that digital tools make it possible to process vivid information in an interesting way, as well as by the general tendency of society to increase interaction with such devices or applications. To form the content component, information materials (presentations, videos, posters, images, etc.), didactic games (computer and real-world) should be used, accompanied by the use of methods such as “Associative Bush”, “Senkan”, “Cubing”, “Gallery Walk”, and the electronic educational resource “My Class”. The development of the procedural component can be promoted by making full use of devices and applications, using practical tasks, including those contained in primary school textbooks, the content of which involves the use of digital devices and applications for various purposes. The control component should be formed through the use of interactive tasks developed in Learningapps.org, Wordwall, Quizizz, Kahoot!; questions and instructions during specially created or proposed situations for analysis; reflective methods (Bloom’s Daisy, Reflective Circle, POPS formula).

The process of developing primary school students’ skills in selecting and using digital tools is complete. Therefore, by implementing one way of their formation, it is often possible to achieve several goals related to the development of motivational, content, procedural and control components. A conditional definition of the structure of such skills allows the teacher to direct the activities of primary education students to the comprehensive mastery of a specific aspect of the ability to choose the digital tools necessary to complete a learning task, select and use digital tools for online communication, create and edit a digital product.

We see prospects for further research in substantiating the essence of the skills of searching and evaluating digital information, interacting online, independently identifying and solving elementary technical problems; developing methods for their formation in younger students.

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