

**Е.К. Kalimbetova** , **А.В. Ilesbay**

<sup>1</sup>Al-Farabi Kazakh National University, Kazakhstan, Almaty,  
e-mail: elmira.kalymbetova@mail.ru, e-mail: asemailes@gmail.com

## INFOGRAPHICS AS A MEANS FOR TEACHING YOUNGER SCHOOL CHILDREN

This article focuses on a theoretical review of infographics as a teaching aid for elementary students. In particular, much attention was paid to the concept of the influence of infographics on children, their peculiarities and concepts. And also the main current characteristics of the main concepts are highlighted as describing training as a process, analyze infographic effectiveness as a way of learning information, draw the conclusion of the conducted lesson, determine the influence of teacher competence on the effective use of infographic in the lesson use information technology equipment systemically, Assessing its positive impact on a child of primary school age, not excluding traditional means and methods, Technological approach is implemented, determining an effective method in the system of training in the subject, it is noted that children become more active, cognitive autonomy is strengthened. The information below allows not only to update and consolidate lexical-grammatical skills, but also to produce universal educational actions, because the student gains skills of reading, speaking, writing and understanding the text. Additionally, it is written about availability of receipt of already finished information and about possibility of students to independently extract material and interpret it. Thus it can be noted that it is the verbal and graphic components of infographics together that make it a convenient and interesting object of study in modern school.

**Key words:** infographics, information and communication technologies, graphs, diagrams, diagrams, tables, school education, teenagers, school children, e-book.

Э.К. Қалымбетова, Ә.Б. Ілесбай

Әл-Фараби атындағы Қазақ ұлттық университеті, Қазақстан, Алматы қ.,  
e-mail: elmira.kalymbetova@mail.ru, e-mail: asemailes@gmail.com

### Инфографика бастауыш сынып оқушыларына арналған оқу құралы ретінде

Бұл мақала инфографиканың бастауыш сынып оқушыларына арналған оқу құралы ретінде теориялық шолуға арналған. Атап айтқанда, инфографика ықпалының балаларға, олардың ерекшеліктері мен ұғымдарына үлкен көңіл бөлінді. Сондай-ақ негізгі ұғымдардың негізгі өзекті сипаттамалары: оқытуды процесс ретінде сипаттау, ақпаратты меңгеру тәсілі ретінде инфографика тиімділігін талдау, өткізілген сабақтың қорытындысын шығару, мұғалімнің құзыреттілігінің сабақта тиімді қолдануға әсерін анықтау, ақпараттық-техникалық жабдықтарды жүйелі түрде пайдалану, оның бастауыш мектеп жасындағы балаға оң әсерін бағалай отырып, дәстүрлі құралдар мен әдістерді қоспағанда, пән бойынша оқыту жүйесінде тиімді әдісті анықтай отырып, технологиялық тәсілді іске асыруы балалардың белсенді болып, танымдық дербестік сезімдері күшейтіледі. Төменде берілген ақпарат лексика-грамматикалық дағдыларды өзектендіру және бекіту ғана емес, сонымен қатар әмбебап оқу іс-әрекеттерін жасауға мүмкіндік береді, өйткені оқушы оқу, сөйлеу, жазу және мәтінді түсіну дағдыларын меңгереді. Қосымша дайын ақпаратты алуға қол жетімділік және оқушыларға материалды өз бетімен алуға және оны түсіндіруге мүмкіндік туралы жазылған. Осылайша, инфографиканың вербалды және графикалық құраушылары оны заманауи мектептегі сабақтарда оқытудың ыңғайлы және қызықты нысаны етіп жасайды.

**Түйін сөздер:** инфографика, ақпараттық коммуникативтік технологиялар, графиктер, диаграммалар, схемалар, кестелер, мектеп білімі, жасөспірімдер, оқушылар, электронды кітап.

Э.К. Қалымбетова, Ә.Б. Ілесбай

Казахский национальный университет им. аль-Фараби, Казахстан, г. Алматы,  
e-mail: elmira.kalymbetova@mail.ru, e-mail: asemailes@gmail.com

### Инфографика как учебное пособие для учащихся начальных классов

В статье проводится теоретический обзор инфографики как учебного пособия для учащихся начальных классов. В частности, большое внимание уделено влиянию инфографики на детей, их особенностям и понятиям в этой сфере. Были отмечены наиболее актуальные характеристики основных понятий, охарактеризующих обучение как процесс, проанализирована эффективность инфографики, как способа усвоения информации, сделан вывод проведенного урока, установлено влияние компетентности учителя на эффективное использование инфографики на уроке в виде использования информационно-технического оборудования, оценивая положительное влияние его на ребенка младшего школьного возраста, не исключая традиционные средства и методы, реализуется технологический подход, определяется эффективность метода в системе обучения по предмету, отмечается, что дети становятся более активными, усиливается познавательная самостоятельность. Представленная ниже информация позволяет не только актуализировать и закрепить лексико-грамматические навыки, но также производить универсальные учебные действия, ведь ученик приобретает навыки чтения, говорения, письма и понимания текста. Дополнительно в статье говорится о доступности получения уже готовой информации и возможности учащимися самостоятельно добывать материал и истолковывать его. Таким образом, можно отметить, что именно вербальная и графическая составляющие инфографики в совокупности делают её удобным и интересным объектом изучения на уроках в современной школе.

**Ключевые слова:** инфографика, информационные коммуникативные технологии, графики, диаграммы, схемы, таблицы, школьное образование, подростки, школьники, электронная книга.

#### Introduction

It is known that the human brain is arranged in such a way that most of the external information it processes is visual. In other words, we perceive the world around us more than 90% with our eyes, and the rest of the senses play only a supporting role communication is the transmission of information using visual forms. Infographic as an element of visual communication (Badarcha,2013:200-204). There are lots of useful tools that can be taught to students in order to help them develop their memory. In fact, some children develop their own unique set of memory tools. However, whether they are writing things down, studying out loud or drawing sketches, all of them respond to visual teaching aids incredibly well. Various colors, different fonts and creative shapes can all be used together to help students to learn more efficiently, but they can also help educators keep their students focused on the topic at hand, without the need for wasting any extra energy on warnings and reestablishing order in the classroom.

As a result of the survey methods (conversation, questionnaire), we came to the conclusions that primary school teachers

– Use ICT equipment systemically, assessing its positive impact on a child of primary school age, not excluding traditional means and methods;

– Implementing a technological approach, determining an effective method in the subject training system;

– Note that children become more active, cognitive autonomy increases;

At the same time teachers realize the need to improve Information communication technologies – competences through self-education, study on programs of additional professional education online and offline address questions to specialists on profile (Azimov,2012:55-58).

One of the modern learning tools is infographics. In the modern communication process, the presence of infographics increases the quality of the presented material, as well as its importance and visibility. Infographic is particularly illustrated information, which is presented simultaneously in the form of texts, as well as charts, graphs, various drawings. Experts have noticed that the text with a volume of about 6000 characters fits in only one graphic figure (Kuchma, Stepanov, Alexandrov, 2016:22-24). The development of telecommunications and modern computer technologies, soon gave a new impetus to the development of infographics, and expanded the range of applications, and provided new options for presenting infographic objects. This circumstance – allowed to create new dynamic, managed objects of infographics, it allows today to reconstruct events and processes, as well as to create three-dimensional

structures, which come to life when interacting with users, for example, in training.

It is very important to take into account the fact that a modern person, who is a representative of any specialty, needs to process and transmit a lot of information, so learning to read, understand and, above all, create infographics is a practical-oriented method.

The numerous introduction of training, control equipment, informatics and computers into the educational process required a significant change in traditional methods of training and the application of information and communication technologies.

At the same time, the concept of an electronic textbook is being actively developed at the sites of the largest Russian publishing houses of educational literature, within the framework of which the attraction of multimedia technologies and the introduction of illustrative material corresponding to the era is being discussed. One effective way to visualize information to help you learn about it is through infographics. The need to process and transmit a large stream of data has made it one of the most demanded ways of transmitting information in business, advertising, media (Ssyoyeva, 2016:126-129). Quality infographics, in addition to the content and design that provides ease of perception, has meaning (its history) and is allegorical, which distinguishes it from standard graphs and illustrations. Using small text blocks, graphs, diagram block, pictograms, and other tools, information graphics employ a person's figurative and associative thinking, promotes the development of the ability to interpret information into different forms. In this regard, infographics has become important in the educational process. Thus, it can be concluded that the visualization of information by means of infographics can act as an assistant in learning at all stages of the educational process. It not only facilitates the process of learning information, but also forms the ability to generalize facts, build logical schemes, read non-verbal texts. And most importantly, it can stimulate cognitive interest. Various types of infographics (schedules, charts, schemes, tables) throughout a long time are used as illustrative material in educational book publishing (Golodov, Grotskaya, Belchenko, 2011:86-89). Special attention should be paid to text (should be extremely accessible and concise), graphics (infographic should not be similar to poor quality video game) and transitions (should be clear to the user).

In a situation of changing the principles of information consumption, it is very important to

develop an interdisciplinary approach to the creation of school textbooks, expanding the range of related disciplines. In this regard, it is necessary to involve not only teachers, psychologists, book makers, but also designers, infographics, programmers, etc., in the creation of textbooks. This will allow to use different ways of giving information and, accordingly, channels of perception of students, in turn, will contribute to fulfillment not only of educational standards, but also to development of abilities of school children.

Use of visuals like infographics can be quite beneficial to both student and teacher. They allow you to create your lessons around a central image, something that the entire class can be focused on as you speak, so you do not have to check your notes every couple of minutes to make sure you did not forget something. The brain can see images that last for just 13 milliseconds.

It is quite important that the entire school system improves and becomes a part of the age of technology. Like it or not, schools and universities will have to go through a serious technological overhaul sooner or later, so it is better that we introduce changes one by one, not all of them together. If you want your students to listen, and not only hear what you are saying, but ask questions and engage in discussions, it is quite important for you to find a way to intrigue them and spark their curiosity. You should definitely try to use their desire to know everything – when a student is curious about your subject, they will pay attention, and that additional interest they show will help them store all the facts that they have heard in their long-term memory later on.

Spread in print and online media, the infographic recently became known in a new capacity – as a creative method of learning in school lessons. The organization, convenience, technicality and other advantages of the infographic have already been appreciated by teachers, as the infographic allows to present a large amount of information in an organized form, which will be convenient for the student viewing it. The effectiveness of these tools is clearly related to literacy, systematization and the resulting feasibility of their application.

Quite effective is simple use of templates and repetitions at the organization of content. This allows to develop in the user useful cognitive habits of working with educational resources, to teach to «learn.» Objects of information graphics increase information saturation and visibility of educational materials, and metadata embodies the idea of functioning of visual-cognitive scenario of students «work with text blocks of electronic

manuals. Infographic allows students to work with information and master it through its dominant type of intelligence.

Today, infographics are used as a verbal and graphical way of submitting information. The visibility of language instruction has been used for a long time. Still the first printed bookies in addition to text information contained illustrations in the form of drawings. The issue of visibility is devoted to a large number of works both in domestic and foreign pedagogy. The father of pedagogy Jan Amos Komensky in the 17th century considered clarity to be a principle that facilitates learning: «Who, himself once closely observed the anatomy of the human body, will understand and remember everything rather than if he reads the most extensive explanations, not the kinds of everything (Levites, 2016:337-340).

In Russian language lessons, teachers and pupils operate on large volumes of information, which it is very difficult for a modern student to learn in text form. The submission of facts about Russian in compact form can solve this problem, because the rules of spelling and punctuation or material for study will be given compressed, interesting and available.

The infographic differs from the usual presentation in that it is only one slide, which contains all the necessary information on the topic. Complex material, presented in the form of infographics, is absorbed quickly and clearly by the student, because graphic information, according to many scientists, is more easily understood than text. Infographics contribute to the development of speaking skills, as the student does not have a ready text, but only information with which to build his statement (Bryksina, Galanjina, Smirnova 2015:208-211). Consequently, infographics are not read in the usual sense, but are studied, draw conclusions and create their own text. This method allows not only to broadcast information, but performs this use in infographic formation is an excellent “new old” technology, but performs analytical, constructive, adaptive, expressive and aesthetic functions.

Whether we have primary or advanced design skills, we can create infographics for education. We will look closely at the process, whether we want to try a homemade approach or prefer to work with a professional team.

First, we need to pick a theme for our infographics. Take care to select an area that will resonate with our audience, whether it is a grade in seventh grade, students attending an online course, or your company’s customer base. To choose the

right topic, consider the latest news in your industry, the key findings you’ve collected, or an important question in your niche.

For additional inspiration, let try to see summaries of excellent educational infographics (Manzhura,2017:72-74). We will try not to repeat the topic, which has already been touched upon by another teacher or brand. Naturally, our content won’t have that much impact unless it’s original.

Then we carry out the research necessary to create our infographics. If we tell a story about an item that is near the house, such as our classroom or school, we may have all the necessary data at hand. In this case, our study can be as simple as analyzing numbers and an interesting interpretation of statistics.

However, if we tell a story with wider coverage, we will need external data sources. There are some of these public resources:

- Google Public Data Explorer: This resource includes datasets from more than 100 vendors, including the World Trade Organization, the World Bank, the International Monetary Fund and many others.
- Data.gov: This resource offers all open U.S. government data, including numerous education-related data sets.
- HealthData.gov. This U.S. Department of Health and Human Resources website offers health-related datasets at the national, state, and community levels.
- World Factbook: This Central Intelligence Agency resource provides data on the people, government and culture of countries and territories around the world.

Once we have done the research and collected the data, we can imagine what our infographics will look like. Even if our design skills are relatively limited, we can draw up a story and develop a story. Try converting your data to visual components to better understand patterns and key points. For example, we can use apps like Wordle to create word clouds, or Hohli to turn numbers into graphs and charts (Easel.ly,2015).

Identify the most important pieces of information, and then use the research we have collected to write short explanations on each item we want to cover. We will soon have a draft outline of your infographic, which we will be able to use to choose the right layout and design platform to complete.

Having completed all preliminary work, we will be ready to choose a design platform and create our infographics. While we can choose from dozens of

apps, some stand out as the most user-friendly, even if we have limited design skills or a non-existent budget. Consider one of these design platforms (Copypress.com,2019).

- **BeFunky:** If we are looking for a relatively simple option that can be used to edit images, create simple charts and create colorful infographics, we will try BeFunky. Let 's start with the finished template, add your text, and select a few icons. We can customize colors and some layout elements to make our design popular.

- **Canva:** One of the most popular applications for online design, Canva can help us create an attractive infographic by education or virtually any other topic. Start by selecting from a large library of templates, then add your text and change the layout if necessary. This application allows you to customize almost every item so that we can change orientation, increase text, customize colors, and more.

- **Easel.ly:** This basic design application allows easy and simple infographics. Layout options are somewhat limited and may not allow for complex storylines, but Easel.ly works well for simple visual stories that have several key points.

- **Infogram:** This program requires more design skills than many other online applications, but Infogram can be a great choice for data-intensive infographics. View the library to see the many chart, graph, chart, and map options available to tell your visual history.

- **Piktochart:** This convenient design application allows you to select ready-made templates or create your own infographics from scratch. To access all options and features, we may consider upgrading to a paid version that also allows you to download your own graphics.

- **Snappa:** One of the simplest tools for design, Snappa is a basic application for graphic design, allowing you to create simple infographics for education. Layout and icon library options may be relatively limited, but in this case, fewer choices mean a more streamlined design process. This app can help you create an infographic in as little as 10 minutes.

- **Venngage:** This free app suggests you start by choosing an informational, chronological or statistical infographic template. We can easily add charts, graphs and maps to include data and improve our history. With so many items added, Venngage is a good choice to showcase statistics and data.

- **Visme:** If we want to create a presentation or infographic for educational purposes, this design tool is a reasonable choice. Visme 's font and image library is extensive, so we 'll have plenty

of opportunities to create visual content that really stands out. We can even add video and audio to take our content to the next level.

Let us for look at how to implement the infographic method in Russian language lessons. For example, when you study the name of a noun in the third class, you can use infographics. On this infographic to the simplified image is brief engaging information. Students are invited to study infographics, choose to describe any part to create their text based on the image, operating on these drying devices, changing them on the falls. You can use infographics when studying very many topics in Russian language lessons (Mikhailova, 2016:336-340).

For example, the infographic allows you to create the following tasks:

1. Write down the words in 3 faces.
2. Change the names of plural nouns.
3. Write all real nouns from the infographic.
4. Using infographics, restore gaps in the text.
5. Create text from an infographic.

Almost any infographic allows to solve educational problems. The tasks presented above allow not only to update and consolidate lexical-grammatical skills, but also to produce universal educational actions, because the student gains skills of reading, speaking, writing and understanding the text (Simonov, 2016:180-182). Infographic makes it easier to get ready information and allows students to extract material and interpret it on their own. Thus, it can be noted that it is the verbal and graphic components of infographics together that make it a convenient and interesting object of study in lessons in modern school.

Summing up our research states, we can conclude that the process of working with infographics involves all levels of thinking and especially such as analysis, synthesis, evaluation. And then infographics acts not just as a tool of individualization of education, but as a multifunctional tool, the field of application of which in education can be quite wide: lesson, project, research activity, self-education. Visual technologies have an important developing potential, which lies primarily in the development of visual thinking of the student.

We can also say that the information technologies -competence of the teacher can include knowledge of electronic manuals on the subject, such as electronic textbooks, collections of digital educational resources on the Internet (Bryksina 2012:157-159). The ability to find, evaluate, select and demonstrate the necessary information in accordance with the training objectives is also an integral part of the content. In order to

find and select information, it needs to be presented correctly to students, and before it is necessary to be able to install programs on a computer, to use a projector and an interactive board, to be able to create own electronic didactic material.

“To keep up to date”, the teacher needs to be engaged in continuous self-education, self-education, self-training. Based only on traditional

pedagogical technologies, it is impossible to meet the high demands of education. In order to address this problem, it is necessary to find new approaches to the organization of education for younger schoolchildren, based on information and communication technologies. A modern teacher must put the task of building ICT competence at the forefront (Rukvinsky 2018:261-268).

### References

- Azimov E.G. (2012) Slovar' metodicheskikh terminov [Dictionary of methodical terms]. M: Book resource, 58 p.
- Badarcha, D. (2013) Informatsionno-kommunikatsionnyye tekhnologii v obrazovanii [Information and communication technologies in education]. M: Academy handbook, 204 p.
- Bryksina O.F. (2012) Interaktivnaya doska v nachal'noy shkole v nachal'noy shkole [An interactive board at elementary school at elementary school]. M: Teaching manual: Drofa, 356 p.
- Bryksina O.F., Galanzhina Ye.S., Smirnova (2015) M.A. Informatsionno-kommunikatsionnyye tekhnologii v nachal'noy shkole [M.A. Information and communication technologies in primary school]. M: Academy, 208 p.
- Copypress.com, creative illustration website, Realtime, 2019. Retrieved from: <https://www.copypress.com/kb/infographics/the-benefits-of-infographics-for-education/> (29.01.2020).
- Easel.ly, Infographic Design and Data Visualization Blog. Retrieved from: <https://www.easel.ly/blog/the-futureof-teaching-infographics-and-their-advantages/> (29.01.2020).
- Golodov Ye., Grotskaya I., Bel'chenko V. (2011) Interaktivnaya doska v shkole [Interactive board at school]. M: Teaching manual, 356 p.
- L.I. Rukvinskiy (2018) Vvedeniye v spetsial'nost' [Introduction to the specialty]. M: Enlightenment, 268 p.
- Levites D. G. (2016) Uchebnaya praktika: sovremennyye pedagogicheskiye tekhnologii [Training practice: modern educational technologists]. Voronezh: Educational manual/team auto, 340 p.
- Manzhura L.N. (2017) Infografika kak odin iz metodov vizualizatsii uchebnogo materiala [Infographics as one of the methods for visualizing educational material]. M: Electronic Science Article, 126 p.
- Mikhaylova N. N. (2016) Chto dolzhny znat' uchitelya. Sbornik statey pod redaktsiyey D. Dilla [What teachers should know]. M: A collection of articles edited by D. Dill, 340 p.
- Kuchma M.I. Stepanov I.Ye. Aleksandrov A. (2016) Gigiyenicheskiye trebovaniya k ispol'zovaniyu interaktivnykh obrazovatel'nykh tekhnologiy v shkole [Hygienic requirements for the use of interactive educational technologies in the school]. M: Educational manual/team auto, 214 p.
- Simonov V.P. (2016) Pedagogicheskaya praktika v shkole: metodika obucheniya. posobiye dlya uchiteley i studentov [Pedagogical Practice at School: Educational Method. grant for teachers and students]. M: Educational manual, Moscow psikhologo-social institute, 253 p.
- Soyeva M. Ye. (2016) Pedagogicheskaya praktika: Uchebno-metodicheskoye posobiye [Pedagogical Practice: Educational and Methodological Manual]. M: Handbook: People 's Education, 129 p.
- Vinogradova N.F. (2011) Uchebno-metodicheskaya i uchebno-metodicheskaya kompleksnaya obrazovatel'naya sistema «Nachal'naya shkola 21 veka» [Curriculum and Teaching and Methodical Complex Educational System Primary School of the 21 Century]. M: Information and publishing house 'Fillin', 35 p.

### Литература

- Виноградова Н.Ф. Учебно-методическая и учебно-методическая комплексная образовательная система «Начальная школа 21 века». – М.: Информационно-издательский дом 'Fillin', 2011. – 345 с.
- Азимов Э.Г. Словарь методических терминов. – М.: Книжный ресурс, 2012. – 286 с.
- Сёева М. Е. Педагогическая практика: Учебно-методическое пособие. – М.: Народное образование, 2016. – 325 с.
- Бадарча, Д. Информационно-коммуникационные технологии в образовании. – М.: Руководство академии, 2013. – 204 с.
- Брыксина О.Ф., Галанжина Е.С., Смирнова М. А. Информационно-коммуникационные технологии в начальной школе. – М.: Академия, 2015. – 211 с.
- Брыксина О.Ф. Интерактивная доска в начальной школе в начальной школе: Учебное пособие. – М., 2012. – 159 с.
- Руквинский Л.И. Введение в специальность. – М.: Просвещение, 2018. – 268 с.
- Голодов Е., Гроцкая И., Бельченко В. Интерактивная доска в школе. – М.: Методика для учителей, 2011. – 189 с.
- Кучма М.И. Степанов И.Е. Александров В.Р. Гигиенические требования к использованию интерактивных образовательных технологий в школе. – М.: Учебное пособие, 2016. – 224 с.
- Левитес Д. Г. Учебная практика: современные педагогические технологии: Учебное пособие. – М., 2016. – 340 с.
- Симонов В.П. Педагогическая практика в школе: методика обучения. пособие для учителей и студентов: учебное пособие. – М.: Московский психолого-социальный институт, 2016. – 182 с.

Михайлова Н. Н. Что должны знать учителя. Сборник статей под редакцией Д. Дилла / Пер. с англ. / предисл. – М.: Прогресс-Традиция, 2016. – 340 с.

Манжура Л.Н. Инфографика как один из методов визуализации учебного материала. // Электронный ресурс: <https://cyberleninka.ru/article/n/infografika-kak-odin-iz-metodov-vizualizatsii-uchebnogo-materiala/viewer> (дата обращения: 26.01.2020).

Copypress.com. Творческий сайт иллюстрации, настоящее время // Электронный ресурс: <https://www.copypress.com/kb/infographics/the-benefits-of-infographics-for-education/> (дата обращения: 26.01.2020).

Easel.ly. Блог по инфографике и визуализации данных, настоящее время. // Электронный ресурс: <https://www.easel.ly/blog/the-futureof-teaching-infographics-and-their-advantages/> (дата обращения: 26.01.2020).