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INFOGRAPHICS AS A MODERN METHOD OF TEACHING ENGLISH

Abstract. The purpose of this paper is to acquaint the reader with infographics as the modern method of education and teaching English based on a review of scientific articles on this topic. Infographics is a graphical way of presenting information that allows to convey data in a concise form while carrying significant visual material in the form of illustrations, graphs, charts, and diagrams. In addition, the use of infographics in teaching increases the creative potential of the teacher, diversifying the possibilities for conducting lessons. The infographic method significantly improves the quality and efficiency of the lesson, in particular the English lessons, which was demonstrated by the authors of the reviewed studies. A scoping review of 10 articles written for the period from 2014 to 2022 was carried out. The documents were analyzed, and the elements of the research were distributed according to such classifications as the level of education, the level of students' knowledge, the number of students, the form of studying, skills for the development of which infographics and research results were used. Case studies were conducted by the authors in both online and blended classrooms at various educational institutions. The document also includes feedback from students, as well as suggestions for developing the use of infographics in the future. The paper will be useful to anyone interested in modern methods of teaching English and the introduction of infographics in education.

Keywords: infographics, data visualization, visual literacy, modern teaching methods, teaching the English language.

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ИНФОГРАФИКА – АҒЫЛШЫН ТІЛІН ОҚЫТУДАҒЫ ЗАМАНАУИ ӘДІС

Аннотация. Бұл мақаланың мақсаты – оқырманды осы тақырып бойынша ғылыми мақалаларға шолу жасау негізінде ағылшын тілін оқытудың қазіргі заманғы білім беру және оқыту әдістемесіндегі инфографиканың рөлімен таныстыру. Инфографика – материалды тасымалдау кезінде деректерді иллюстрациялар, графиктер және диаграммалар түрінде беретін ақпаратты ұсынудың графикалық әдісі. Сонымен қатар, оқытуда инфографиканы пайдалану мұғалімнің шығармашылық әлеуетін арттырады, сабақты өткізу мүмкіндіктерін әртараптандырады. Инфографиялық әдіс сабақтың, атап айтқанда, ағылшын тілі сабақтарының сапасы мен тиімділігін айтарлықтай арттырады. 2014-2022 жылдар аралығында жазылған 10 мақалаға ауқымды аналитикалық шолу жасалды. Құжаттар зерттеу элементтері оқушылардың білім деңгейі, оқушылар саны, білім беру формасы, сондай-ақ жетілдіріле түсуі үшін инфографика және оның зерттеу нәтижелері пайдаланылған дағдылар сияқты классификациялар бойынша бөлініп сарапталды. Тақырыптық зерттеулерді авторлар әртүрлі оқу орындарында, онлайн және аралас аудиторияларда жүргізді. Сондай-ақ құжатта студенттердің пікірлері мен болашақта инфографиканы қолдануды дамыту бойынша ұсыныстары бар. Мақала ағылшын тілін оқытудың заманауи әдістеріне және білім беруге инфографиканы енгізуге қызығушылық танытатын кез келген адамға пайдалы болады.

Тірек сөздер: инфографика, деректерді визуализациялау, визуалды сауаттылық, заманауи оқыту әдістері, ағылшын тілін оқыту.

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ИНФОГРАФИКА КАК СОВРЕМЕННЫЙ МЕТОД ОБУЧЕНИЯ АНГЛИЙСКОМУ ЯЗЫКУ

Аннотация. Цель данной статьи – ознакомить читателя с ролью инфографики в современной методологии образования и преподавания английского языка на основе обзора научных статей на данную тематику. Инфографика – это графический способ подачи информации, позволяющий передавать данные в сжатой форме, при этом несущий в себе богатый визуальный материал в виде иллюстраций, графиков, диаграмм и схем. Кроме того, применение инфографики в обучении повышает творческий потенциал учителя, диверсифицируя возможности проведения уроков. Метод инфографики значительно улучшает качество и эффективность проведения урока, в частности уроков английского языка, что и было изложено авторами обзора исследований. Был проведен аналитический обзор предметного поля на основе 10 статей, периода с 2014 по 2022 гг. Документы были проанализированы, элементы исследований были распределены по таким классификациям, как уровень образования, уровень знаний учащихся, количество учащихся, форма обучения, навыки, для развития которых применялась инфографика и результаты исследований. Тематические исследования проводились авторами как в онлайн-классах, так и в классах со смешанной формой обучения, в разных образовательных учреждениях. В документе прилагаются также отзывы студентов, а также предложения по развитию использования инфографики в будущем. Статья будет полезна всем, кто интересуется современными методами преподавания английского языка и внедрением инфографики в образование.

Ключевые слова: инфографика, визуализация данных, визуальная грамотность, современные методы обучения, обучение английскому языку.

Introduction

Nowadays, the amount of information in the world continues to grow, which requires the use of visual means to transmit data in all areas of life. The widespread use of infographics is the result of its application in modern education. Teachers are increasingly looking for new ways to present material in their lessons. The growing popularity of the use of the infographic method makes it necessary to pay attention to it from the point of view of teaching foreign languages. An infographic is a visual presentation of a variety of textual, statistical, grammatical and other types of information. This study provides an analytical review of the literature on research conducted in the field of using infographics in teaching English. We intend to determine the level of effectiveness of integrating infographics into modern methods of the English language teaching based on this review. We also hope to inspire our colleagues to use infographics as a modern teaching tool to develop digital education in our country and in the world.

Materials and methods

The research method of this study was based on a review of related literature involving 10 articles published from 2014 to 2022. The examples of review articles were observed and the search method proposed by Arksey and O'Malley was elected (Arksey, O'Malley, 2005). The survey was focused on the articles that were dedicated to the use of infographics in education and taken from Google Scholar database. The methodological framework consisted of identification of the research questions, selection of the key words with the terms “infographics”, “infographics in education”, “infographics in teaching the English language”, charting the data, summarizing and reporting the results. The selection process is presented in Figure 1.

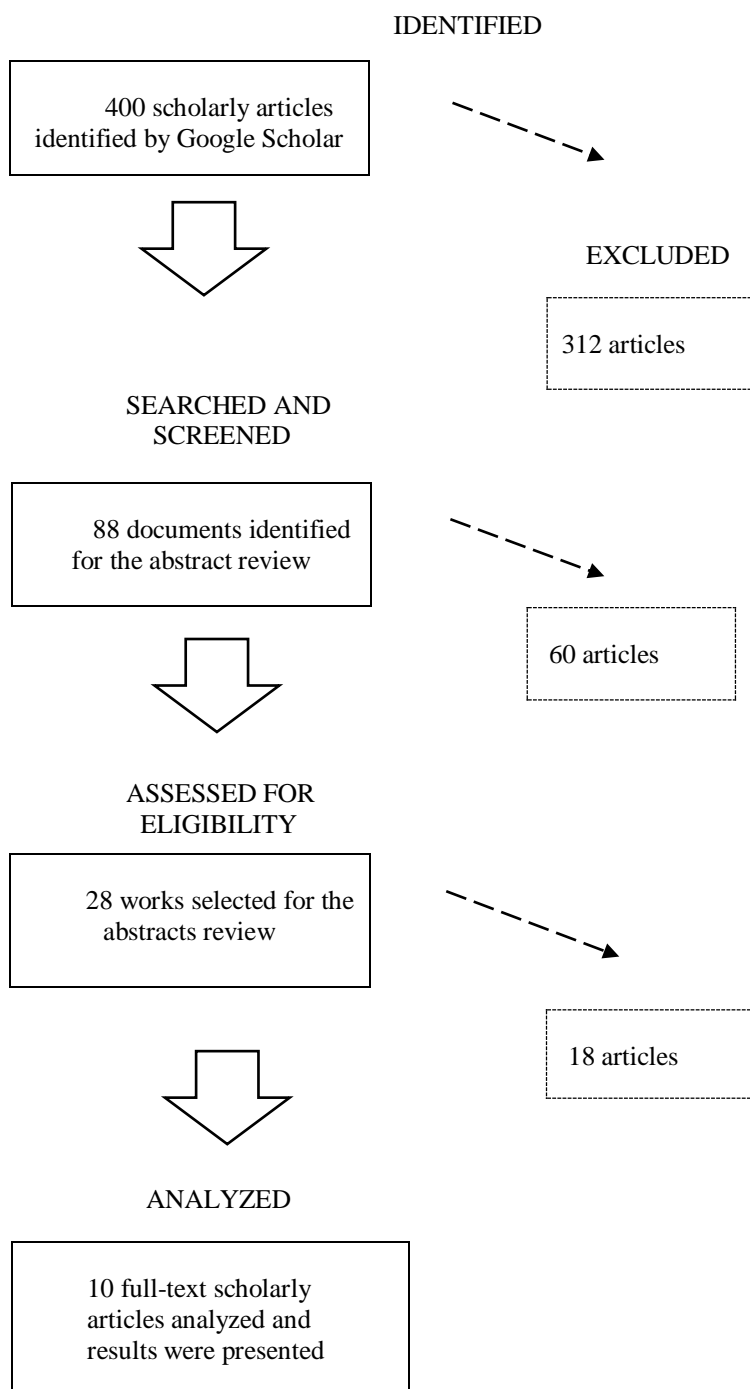


Figure 1. – The flowchart of the scholarly articles selection process for the review.

Literature review

The first articles and researches in the field of infographics were started with the development of computer technology. We summarized the findings of the reviewed articles in this section in Table 1 and substantiated the reasons for infographics integration, based on the researches. The earliest work which we have selected appeared in 2014 (Martix, Hodson, 2014). It investigates the infographics as a teaching tool in the college classrooms, both in the online class and in the class studying in campus, through examining 2 university courses at different institutions. The article demonstrates how the assignment involving the use of infographics can be incorporated in the lessons and its benefit in encouraging students’ digital literacy. The authors also detail some challenges and

issues involved in the integration of infographics in education. Researchers note that the use of graphic information has been developed in late 2011 due to the rapid growth of online courses. It is rightly noted also that today the amount of literature on the use of infographics in education is still limited. The lack of digital sources with the use of infographics perplexes the way to achieve the students with visual learning style (Smiciklas, 2012). The authors conducted a study based on two teaching cases. The first teaching case was held at Queen's University in Canada, in online summer course. Students of post-secondary education were tasked to create infographics on the given topic and to write an essay, to evaluate each other's work, leaving comments, wishes and questions to the completed tasks. In textual information, despite the greater number of symbols, more plagiarism and texts with reference to Wikipedia were revealed, as a result of which students received more criticism from peers. Infographics, on the contrary, aroused interest among students, many admitted in their feedback that they improved their skills in Adobe Photoshop, where infographics were created. The making of infographics was a creative process that stimulated students to study the topic more thoroughly, motivated them to compete and create more interesting diagrams and schemes using vibrant colors and illustrations.

Among other investigations that we reviewed was the study which took place in the Language Center with Level Six students (Hosni, 2016) The theme of the lesson was presented in infographics for the experimental group and in printed text for the second control group. The results and assessments for the comprehension and retention quizzes of the experimental group were higher than the second group's, which we demonstrated in the Table 1.

The next step of our research was to find out the works on the use of infographics for developing certain skills of the students, including writing skills. The chosen study was held at the eleventh grade involving 36 students (Hamer, Hakim, Laksono, 2022). The main idea of this work was to promote writing abilities of the students involving teacher's activity, students' activity and the use of infographics. An interesting questionnaire took place also and students had the positive responses on the use of infographics (Rezaei, Sayadian, 2015). From the educational practices observed we highlighted the developing of perception in learning English grammar (Tantawy, 2021), positive outcomes in improving listening (Manowong, 2017), reading (Surketi, Sitawati, 2019) and speaking skills (Yarbrough, 2019). The papers analyzed also demonstrated students' preferences for infographic design (Kongwat, 2019), explored conceptualizing of students' ideas through infographics. The investigations were held not only in groups with advanced or upper-intermediate English, but also in an elementary level group (Tsai, Huang, Chang, 2022).

Results and discussion

Table 1. – Summary of educational practices with the use of infographics in teaching the English language.

The aim of the research (why infographics were integrated)	Class characteristics (level of education, number of students, language level, offline/online learning)	Educational process (how infographics were integrated)	Main results of investigation (was the use of infographics effective or not)
Practicing digital competency and visual literacy	Post-secondary 500 students in the 1 st group, 120 in the 2 nd Advanced Online and blended learning	Students created infographics and wrote an essay on the given topic, posted them in the learning management system and left each other	The average grade on the assignment with using infographics in the first class was 75% (B+) and in the second class 80% (A-) which was higher than assessment for ordinary writing assignments. This study showed that most students have a visual learning style expressing more information

		feedback and comments	and feedback through infographics and charts.
The use of infographics as a means of cognitive visualization	High school Not mentioned Upper Intermediate Online learning	Students were given infographics on a specific topic and related exercises with filling in the gaps.	The author highlighted the positive aspects of using infographics in educational process during the COVID-19 Pandemic: <ul style="list-style-type: none"> - Reducing the level of information noise in the process of education; - Successful conceptualization of the main topic of the information; - Easy to use in class (infographics can be displayed on the screen); - Infographics in the educational process allows students to master subjects substantially, in particular the English language, and memorize learning material effectively; - infographics as a means of cognitive visualization can be characterized as the most convenient and the fastest way of presenting information.
The use of infographics as a learning tool to enhance students' comprehension and memory retention	Language center 13 students in the experimental group, 14 students in the control group Upper Intermediate Offline learning	The teacher in the experimental group used the infographic related to the main text of the lesson. In the control group the printed version of the text was used. The students of each group had a comprehension quiz and a retention quiz one week later.	The results of the experimental group for comprehension quiz: 15,2 Results of the control group for comprehension quiz: 12,9 The results of the experimental group for retention quiz: 11,2 The results of the control group for retention quiz: 3,8 The research has proved again, that the most of the students are visual learners and infographics can be successfully applied to improve students' comprehension and memory retention
The use of infographics to teach and promote English writing skills	High school (11 th grade) 36 students Not mentioned Offline learning	Students were tasked to work with infographic worksheets involving writing assignments. After lesson the students were given a questionnaire about their perceptions on the use of infographics.	Some of the main questions from questionnaire: <ul style="list-style-type: none"> Is English learning by using infographic media more interesting? Yes: 97.2% No: 1.8% Do infographics help you to improve your writing skill? Yes: 75% No: 27 25% Do the elements in infographic make you interested to develop your English writing skills? Yes: 80.6% No: 19.4%
The use of infographics for effective English Grammar learning	60 participants aged between 14 and 24 Low Intermediate Offline learning	Participants were divided into 2 groups, in experimental group grammar rules were presented via infographics. The students were tasked to make sentences according to the	The statistics of the posttest (Experimental Group): 10 (minimum), 18 (maximum) 14.33 (mean), 2.368 (standard deviation) The statistics of the posttest (Control Group): 7 (minimum), 15 (maximum) 10.30 (mean), 2.168 (standard deviation) We can see that grammar was more efficiently memorized in experimental

		infographics. In the control group grammar was given in the traditional instructional approach, explaining rules and giving exercises. At the end of the study students were given test, concluding all grammar rules.	group which corresponds to the aim of the research.
Identifying the effect of using interactive infographics on developing listening skills	High school 38 students in the experimental group, 38 students in the control group Not mentioned Offline learning	The content of the lessons was presented with the use of interactive infographics via Telegram application.	The statistics of the test (Experimental Group): 55.763 (arithmetic mean), 2.583 (standard deviation) The statistics of the test (Control Group): 50.474 (arithmetic mean), 4.434 (standard deviation) This confirms that using interactive infographics in the English lessons has a large effect on developing listening skills
Applying of online tools including to develop reading skills for English learners	Post-secondary 27 students Not mentioned Offline learning	Students were assigned to read the texts and create their own infographics in Canva or in other tools, to present what they had learned from the texts.	Infographics increased students' motivation to read: 4.15 (mean), 0.662 (std) Agree (students' interpretation).
Mastering speaking skills using infographics in project-based learning	Post-secondary 19 students Advanced Offline learning	Students prepared projects on the theme "Green energy" with the use of their own infographics, and presented them orally in class.	Project based work with the use of infographics motivated students to gain knowledge on a particular topic, and inspired them to use lexis related to the topic. After the presentation the students shared only positive responses on a work which were represented in the research.
Indicating students' preferences in infographics' design	Post-secondary 43 students divided into 2 sections Advanced Online learning	Each week students had a course lecture, discussion, readings and a written assignment. At the end of the week the teacher posted an infographic for one section of the students as a summary. Students had true/false quiz related to the weekly content.	Final grades: Section with infographics 34 (A) 8 (B) 1 (C) 0 (D) Section without infographics 27 (A) 16 (B) 2 (C) 1 (D) At the end of the course students admitted that they prepared quiz tasks after observing infographics with ease and high motivation.
Revealing of the effects of collaborative reading instruction using infographics on	Grade 11 18 students Elementary Offline learning	Students were instructed to perform a collaborative reading through pre-reading, while-reading, post-reading steps, group	Pre-test results: 8.50 (Mean) 6 (Min) 10 (Max) 1.10 (SD) Post-test results: 14.89 (Mean) 13 (Min) 17 (Max) 1.57 (SD) These results show that students' post-test scores after collaborative reading with the

reading comprehension		discussion and using infographics, to demonstrate visually information from the text.	use of infographics were higher than the pre-test scores. It demonstrates that students' reading skills were developed after the experiment.
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The cases reviewed demonstrated that infographics can be suitable for the development of main learning skills such as listening, reading, writing, and speaking while teaching the English language. The educational process is based on the transfer of information, so many scientists have paid attention to the role of the visual presentation of information in learning (Krum, 2013). The principle of visibility is one of the leading rules in the teaching process. Using tables, diagrams, and drawings promotes rapid memorization and comprehension of any material being studied or presented. The cases reviewed illustrated that infographics help students to integrate new knowledge, properly organize and analyze information, allow you to link the received information in a coherent structure about a particular phenomenon or object, and develop critical thinking, which goes in line with the findings indicated by Deslauriers et al. (Deslauriers, et al., 2019) The findings from the practices reviewed proved also that infographics can be suitable for the development of main learning habits and a set of important skills including creativity, visual and digital literacy, communication, and research skills. This also accords with the earlier conclusions made by Jonassen (Jonassen, 2000), (Jonassen, 2011). The findings of the development of digital skills were also reported by Jones et al. (Jones, 2019). While making this scoping review we observed that infographics may be successfully applied not only at high, middle, or primary schools but also in higher education methodology at universities which goes in line with the results of scientific papers by Alyahya (Alyahya, 2019), Hsiao et al. (Hsiao, et al., 2019) and other researchers.

We have also interviewed several students at Al-Farabi Kazakh National University about the benefits of infographics. One of the students claims: "In the process of obtaining new information, I perceive the text accompanied by infographics better. That is, in addition to pure infographics, I need more detailed information in text format". Meanwhile, the second student says: "In pictures (in the form of infographics), the information is very convenient. For me, as a visual learner, information is better perceived when it is presented visually (in graphs, and charts), especially when it comes to numeric data. If the text refers to the components of one process or phenomenon, then infographics will be indispensable, since with the help of arrows and diagrams, you can decompose the whole picture into components and indicate feedback or demonstrate cause-and-effect relationships". Another student wishes to get more information in infographics rather than in texts: "...Even from an environmental point of view, the use of online infographics would reduce the production of paper for printing books. So, it would be a great idea for eco-activists too".

The use of infographics has been incredibly grown during the COVID-19 Pandemic while the traditional methods of teaching subjects from the school curriculum changed. Training began to be conducted online, using visual aids and new technologies, including infographics. After sets of exercises conducted in high school and at universities, built based on various thematic infographics, the authors from our research came to the conclusion that infographic illustrations positively influence language skills by developing language guesswork. This corresponds to the essence of infographics as a means of cognitive visualization. If the usual visualization is a representation of a physical phenomenon or process in a form convenient for visual perception, cognitive visualization also refers to a specific illustration of the subject but suggests at the same time its subsequent rethinking and comprehension.

Conclusion

To sum up, we may declare that infographics can be efficiently integrated into all levels of the English language teaching. The cases reviewed confirmed that infographics might be effectively and profitably used for educational purposes in teaching the English language. The contribution of this

review can become a guideline for using infographics in education, particularly in teaching English. This study can be also used as information to further research in developing infographics as a modern teaching tool. It is hoped to be beneficial for educators, students, and other reviewers.

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