

Short Review

# The use of modern sources of information in shaping the geographic literacy of Russian school students

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## Abstract

The use of information and interactive technologies in the formation of geographic literacy is discussed in the article. Special attention is paid to the sources of information posted on the Internet with the aim of applying these resources in teaching geography.

**Keywords:** *geographical literacy, scientific and methodological approaches, the source of geographic information, web-quest, the state final certification, information resources.*

## Introduction

The comparative analysis of the results of the unified state exam (USE) and basic state exam (BSE) on geography in 2016 and in 2017 in the Moscow region of the Russian Federation revealed that the most difficult thing for examination participants is to solve those tasks which demand interdisciplinary knowledge and analysis of the obtained information. Generally, these tasks concerning the control measuring materials (CMM) are aimed at explaining geographical features of territories, natural and social objects and phenomena where a source of geographical information (the map fragment, statistical data, drawings and so forth) is used.

In the draft of the Concept of development of geographical education in Russia the importance is attributed to the issues of training competent experts in the sphere of geography, the public and municipal administration, territorial planning, rational environmental management, engineering, international relations, journalism, tourism, ecology, etc. Geographic information for providing activities in these directions is a base necessary for identifying and solving economic, social and environmental problems arising from interactions between the human social system and ecosystem (Russian Geographical Society [RGS], 2017).

Civic consciousness, respect for national origins, responsibility, initiative, creative ap-

proach to fulfilling educational and practical geography-related tasks may be referred to as basic characteristics for promoting geographical literacy at primary and secondary schools.

Geographical literacy is students' ability and readiness to apply geographical knowledge, skills, experience of engagement in creative activity and emotional value orientations for overcoming typical and specific geographic challenges, forecasting geographic trends and taking reasonable decisions under actual social and economic conditions in the present stage of development of our society.

The process of promoting to geographical literacy is defined by key scientific and methodical approaches: an integrative (intersubject) approach; a competence-based approach focusing on educational results; an activity approach reflecting present-day methods of educational activities, providing of interdisciplinary training activities; a student-centered approach relating to the defining and solving of current geographical, social and economic problems and appealing to students' personal characteristics (Solodukhina, 2016).

Let us consider one of scientific and methodical approaches of promoting to geo-

**39** На рисунке показаны геологические слои скалы, содержащие ископаемые остатки. Слой F – самый верхний, слой A – самый нижний.

Какое утверждение о возрасте ископаемых остатков, скорее всего, является верным?

(A) Ископаемые остатки в слое A самые старые, потому что они находятся в самом нижнем слое.

(B) Ископаемые остатки в слое C самые молодые, потому что они выглядят похожими на существующие организмы.

(C) Ископаемые остатки в слое D старше, чем ископаемые остатки в слое A, потому что ископаемые остатки в слое D крупнее.

(D) Ископаемые остатки в слое E такого же возраста, как в слое F, потому что они выглядят одинаковыми.

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Figure 1. International research TIMSS. Notebook (the eighth-grade curriculum).

graphical literacy – an activity approach. The success of performing geographical tasks aimed at developing such learning activities as independent search for geographic information, its analysis, selection, transformation, storage, transfer, presentation of processed data depends on a teacher's ability to systemically use various sources of information at a lesson and during extracurricular activities (Sumathokin & Kalinova, 2016).

Let us give examples of using available sources of information on the Internet and interactive technologies in teaching geography (Solodukhina, 2017).

In 2015 according to the program of the International comparative monitoring research of education quality in mathematical and natural science (TIMSS) educational level of eighth-grade students in mathematics and natural sciences was studied. Geographic tasks in the research are referred to the section "natural sciences".

In demonstration notebooks where tasks and assessment criteria are presented there is a number of non-typical tasks many of which are to check students' interdisciplinary abilities. Even test questions are interesting (Sumathokin & Kalinova, 2016). Such notebooks are available in the section "Publications" on the website of the Education Quality Assessment Center (Education Quality Assessment Center).

As an example, we note a question related to geographical subject matter - it is connected with the obtaining of geographic information from the data shown in the image (Fig. 1).

The State Final Examination on geography includes tasks with use of images therefore teachers can use this resource of knowledge assessment international researches for promoting to geographical literacy.

Fragments of maps with questions for assessing correct data are used in Geography Assessment Book tasks.

The cartographic materials which are freely available give a chance to teachers to use informational resources for building up a task/assignment bank aimed at developing skills for working with interactive maps, geographic phenomena and troposphere

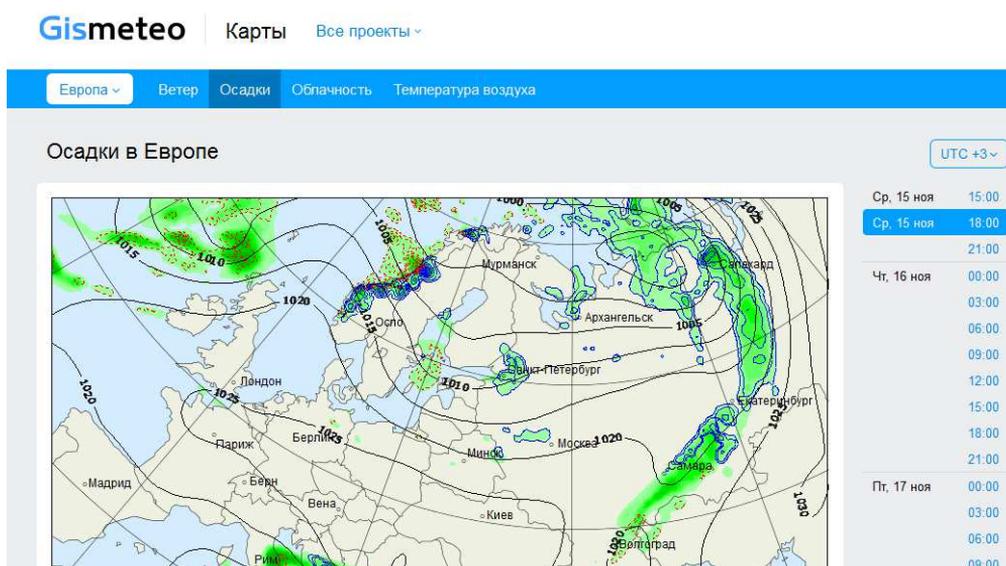


Figure 2. Website Gismeteo, section "Maps".

processes. The most interesting source of cartographical information is a website Gis-meteo, section "Maps" (<https://www.gismeteo.ru/maps>) (Fig. 2).

In the teaching practice an educational accent has turned from traditional forms of training to the use of e-learning meaning learning utilizing electronic technologies.

Use of present-day information technologies for teaching geography allows organizing learning activities in a new way. It is possible to make a fascinating educational trip at a lesson or during extracurricular activities in the framework of training geographical web quest by means of various services. For example, many famous museums of the world give an opportunity to make a virtual tour around the museum. Smithsonian National Museum of Natural History lets people visit various ages of the Earth and different parts of the world (Fig. 3) (Smithsonian National Museum of Natural History).



Figure 3. Smithsonian National Museum of Natural History.

Virtual geographic travelling gives positive results as to developing skills for selecting sources of geographic information, having a good understanding of how to use them, finding necessary information, defining and comparing quality and quantitative indices characterizing geographical objects, processes and phenomena and their position according to different maps and other sources; revealing missing, complementary or contradictory geographic information provided in one or several sources (Solodukhina, 2016a).

Promoting to geographical literacy by means of various sources of information, services and technologies allows teachers to train students for performing higher complexity level tasks for assessing school students' educational achievements. Nowadays teachers are to be able to apply information technologies in the classroom because according to the educational standards "development of competences in using information technologies, development of motivation for acquiring skills of active use of searching systems" takes an important place for mastering the main educational program.

## References

Education Quality Assessment Center ISRO RJSC. <http://www.centeroko.ru/Gismeteo>, section "Maps". <https://www.gismeteo.ru/maps/>

- Russian Geographical Society (2017). *The concept of development of geographic education in Russia*. Retrieved from <http://www.rgo.ru/ru/article/koncepciya-razvitiya-geograficheskogo-obrazovaniya-v-rossii>
- Smithsonian National Museum of Natural History. [http://naturalhistory.si.edu/VT3/NMNH-FH/z\\_NMNH-FH-002.html](http://naturalhistory.si.edu/VT3/NMNH-FH/z_NMNH-FH-002.html)
- Solodukhina, N.N. (2016). Scientific-methodical approaches to the formation of geographic literacy of students / N.N. Petrova, N.N. Solodukhina // Materials of interregional scientific-practical conference Modern geographical education: problems and prospects. – M.: Publishing house "Eco-inform" on November 25, 2016.
- Solodukhina, N.N. (2016a). The use of geographic educational web-quest in the implementation of the teaching model "Flipped classroom" / N.N. Solodukhina, AS. Narewska // *Pedagogical education and science*, 6: C39-44.
- Solodukhina, N.N. (2017). Analysis of the results of the state final attestation on educational programs of secondary education in academic subjects in the Moscow region in 2017: a collection of teaching materials. – M.: asou. – 332 p.
- Sumatokhin V.S., Kalinova S.G. (2016). Biology Studies in Russian Schools. *Journal of Subject Didactics*, 1(2): 127-132. doi: 10.5281/zenodo.438179.

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