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**SMART TECHNOLOGIES IN THE PROCESS OF LEARNING
KOMI IN ELEMENTARY SCHOOL**

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Abstract

The relevance of the problem under study is determined by the insufficient development of modern textbooks, manuals and electronic educational resources in the Komi language, which would be directed to the formation of communicative, linguistic and informative- communicative competencies (ICT competence) of elementary school students. The purpose of the article is to consider the didactic possibilities of SMART Notebook technology based on the textbook on Komi as a non-native language for first grade students. The leading method of studying this problem is the design of an electronic educational resource based on monitoring of the topic “The implementation conditions of the Ethnocultural Education Concept in the Republic of Komi by ICTs”. The article presents the forms, means, methodological techniques of Smart-technologies based on the subject “Komi as a non-native language”, discloses the practical significance of using this technology and describes the technological features of creating and maintaining didactic units of the textbook. The developed materials can be used by primary school teachers, the Komi language teachers, the teachers of additional education, by parents and methodological services. In the process of creating an electronic educational resource, we solved the problem of an effective combination of didactic tasks and technical solutions. SMART Notebook has virtually unlimited possibilities for preparing complex interactive lesson scripts.

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Keywords: Didactic conditions, Smart technologies, SMART Notebook tools, ICT competence, primary school, Komi as a non-native language.



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1. Introduction

One of the tasks of primary general education is “the preservation and development of cultural diversity and linguistic heritage of the multinational people of the Russian Federation, the right to learn their native language, the possibility of obtaining primary general education in their native language, mastering the spiritual values and culture of the multinational people of Russia” (Federal State Educational Standard of Primary General Education, 2010, p. 4). All educational areas implemented in primary school can solve this problem. Let us consider the possibility of accomplishing this task through the lessons of the Komi language as non-native.

2. Problem Statement

Along with the progressive development of ethnocultural education in the general education system of the Komi Republic, a number of significant problems can be identified related to the study of the Komi language by children who do not speak it.

Some of them are:

- children’s unwillingness to learn a given language, since it is not always possible to use it in everyday life;
- children’s lack of understanding of the material in the Komi language class;
- the impossibility of parents who don’t speak Komi to assist their children in doing homework;
- the insufficient number of developed modern textbooks, manuals and electronic educational resources in the Komi language, taking into account the Federal State Educational Standard of Primary General Education (FSES PGE);
- the insufficient use by primary school teachers and teachers of additional education of informative-communicative technologies, taking into account the age characteristics of primary school children in the educational process, which affects the quality of teaching in various disciplines.

3. Research Questions

We believe that to make the approach to teaching Komi as a non-native language and it’s high-quality learning effective, it is necessary to organize the educational process in such a way as to form not only subject skills of the students, but also their informative-communicative competence (ICT competence).

4. Purpose of the Study

On the basis of the system-activity approach, a project of an electronic educational resource was developed, aimed at the formation of communicative, linguistic and ICT competencies of the first-graders at the lessons of Komi as a non-native language.

5. Research Methods

In the process of research, the following methods were used: theoretical (analysis; synthesis; specification; generalization; design); diagnostic (interviewing; testing); empirical (the study of regulatory and educational documentation).

5.1. Experimental research base

The experimental base of the study was “Syktyvkar State University named after Pitirim Sorokin”, Secondary School No. 18 Syktyvkar, Secondary School No. 36 Syktyvkar, Secondary School No. 38 Syktyvkar, Secondary School Secondary School No. 2 of Yemva, Secondary School of Izhma, "Storozhevskaya Secondary School", Secondary School of Nivshera, Secondary school of Kortkeros, Secondary School of Loima of the Komi Republic.

5.2. Stages of research

The study of the problem was carried out in two stages:

- at the first stage, a theoretical analysis of existing methodological approaches in the normative and pedagogical literature was carried out, aimed at highlighting the problem, an empirical study of teachers' activities in the use of ICT technologies, in particular Smart-technologies in their practice, and also the purpose, research methods and stages work on the design of electronic educational resources were determined;
- at the second stage the design of the electronic educational resource and the choice of the necessary didactic conditions for the realization of the research were carried out (see Table 01).

Table 01. The stages of the project implementation (Gabova & Poberezkaya, 2017)

Stages of research	Stages of project implementation (model)	The content of the stage
Theoretical analysis of the existing methodological approaches and an empirical study of teachers' activities in the field of ICT-technologies application	Stage 1. Preparatory work. The choice of the research topic, stating the problem. Setting the goals and objectives of the study	The formulation of the initial idea. Registration of documentation for the development of EER. Evaluation of existing items. Drawing up a list of necessary and existing specialists necessary for project implementation.
	Stage 2. Collecting the necessary information. The choice of research methods.	Reviewing the state of the issue on the research topic in literature and practice; analysis of the collected material. The selection of the main didactic goal. The justification of the need for a new one. Stating the hypothesis.
	Stage 3. Preparing the content.	The setting of didactic sub-goals, didactic units of the electronic educational resource. Drawing up a work plan. Presentation of content as a model.
Designing of the electronic educational resource	Stage 4. Resource Design. Design	The concept development. The choice of media (sound, image, video). Script

		writing (methodical support of lessons). Detailed design and the connection with interactivity.
	Stage 5. Production	Programming and digitizing of the content. Creating images and sound. The layout of the finished materials in the modules. The product navigation overlay.
	Stage 6. Testing. Formulation of the conclusions	Product Testing and it's evaluation
	Stage 7. Legal	Registration and Certification of EER

6. Findings

6.1. Stating stage

The goal of this stage is a theoretical analysis of the existing methodological approaches and an empirical study of the teachers' activities in the field of ICT technology applications.

The investigation covered 208 teachers, among them 159 primary school teachers, 32 the Komi language teachers, 17 additional education teachers.

We came to the conclusion that:

- it is necessary to take into account didactic conditions in the process of designing an electronic educational resource using Smart-technologies on the example of a textbook in Komi as a non-native language for Grade 1;
- the use of informative-communicative technologies at the lessons of Komi as a non-native language is essential, as they enhance the intellectual and creative potential of schoolchildren, and also allow the teacher to form the following skills:
 - skills of critical thinking in the process of working with information;
 - skills of independent work with educational material using information technologies;
 - group work skills;
 - ability to formulate tasks and solve them;
 - self-control skills;
 - skills in designing small messages, including the addition of illustrations, video and audio fragments;
 - skills in finding information for project activities.

These skills are formed in accordance with the requirements of the Federal State Educational Standards PGE in the section "Requirements for the results of mastering the basic educational program of primary general education", which defines the requirements for information competence of an elementary school graduate: "active use of speech and informative-communicative technology (ICT) to solve communicative and cognitive tasks" (Savinov, 2013, p. 2). In an exemplary program on the Komi language (as non-native) (Terentieva, 2015a), metasubjective results of studying this subject in elementary school are described:

- to extract information presented in different forms (solid text, illustrations, tables, diagrams), use symbolic means of presenting information;

- to use various methods of searching, collecting, processing, analyzing and transmitting information;
- to use the language in order to find the necessary information in various sources to solve educational problems;
- to use logical actions of comparison, analysis, synthesis, generalization, classification, establishment of analogies and cause-effect relationships, construction of reasoning.

Subject results of the study of Komi as a non-native language in primary school are communicative, linguistic and cultural competence. We suppose that the successful formation of these competencies is possible in conjunction with the ICT competence by means of SMART Notebook tools.

By ICT competence, we mean students' ability to use informative-communicative technologies for accessing to information, its search, organization, processing, evaluation, as well as its production and transmission (distribution), which is sufficient to live and work successfully in the conditions of the modern information society.

For the formation of these competencies, the teacher needs a combination of active teaching methods and modern information technologies.

Its goal is to design an electronic educational resource based on a textbook on Komi as a non-native language for grade 1 (Vyazova, Sizova, & Terentyeva, 2016).

We have created an electronic educational resource using SMART Notebook technology. The content of the textbook is designed taking into account the individual psychological and age features of first-graders and is built on a situational-game basis, where most of the pages are occupied by plot illustrations and dialogues (Terentyeva, 2015b). Together with the assistant - the hero bear (Oshpi), first graders can be included in the active speech environment, traveling through the pages of the textbook. The Bear invites children to participate in various activities: listening to Komi speech and speaking in the Komi language, analyzing words and sentences, reading, disclosing the lexical meaning of a word, writing sentences, dialogues, stories.

The process of formation of the above mentioned competencies of primary school children can be represented in the form of several interrelated components: cognitive, motivational and value, activity and reflexive-evaluative.

The motivational-value component reflects an actively positive emotional attitude to the cultural heritage of the indigenous people of the Komi Republic and forms the need for it, a system of knowledge, interests, motives and beliefs.

Let's consider in more details the cognitive component. Under the cognitive component, we will understand the system of knowledge about information, information activities and sources of information.

The correspondence of the cognitive actions of schoolchildren with SMART Notebook tools is given in Table 02.

Table 02. IT tools (Burmakina, Zelman, & Falina, 2007)

Smart Notebook tools	Cognitive actions
Texts in the Russian and Komi languages	Integration, evaluation, creation
Checking grammar and spelling by means of a text processor	Evaluation, definition
Use of information search systems both in the program and in	Evaluation, access

external sources	
Spreadsheets, work with database	Integration, creation
Hypertexts in the document to the text, audio, video materials, external sources and the library of the program Smart	Evaluation, integration, management

The development of ICT competence in the process of learning the Komi language will be carried out if the above mentioned cognitive actions accompany ICT tools that involve all sorts of IT tools, in particular SMART Notebook.

Smart technology allows you to: 1) develop and implement electronic textbooks (manuals) in the educational process; 2) create on-line audiences and electronic systems for evaluating educational activities; 3) make extensive use of educational resources by all participants of the educational process; 4) improve the qualifications of teachers for wider application in SMART education.

SMART Notebook also allows you to create full-screen presentations, slides. On these slides it is possible to place pictures, texts, other objects that can be changed in size, can be copied, can become transparent, and so on. Smart designs that use Flash objects, training games, simulations, audio and video accompaniment of the characters from the Komi language textbook can be informative for schoolchildren. The use of SMART interactive boards will enable children to write with a special marker (stylus), to make written comments on top of the on-screen image on the demonstrated training material. In this case, everything written on the SMART interactive board is transmitted to learners on their personal computers currently connected via the local network, can be stored, printed and can be sent by e-mail to parents and teachers.

The electronic educational resource developed by us to the textbook is an interactive application on the SMART Notebook platform. Each lesson is presented as a separate accompaniment, which includes interactive didactic materials and tasks, for example: tests; logical assignment to establish matching and regularity; tasks for text recovery; tasks for the definition of "odd concept"; developing game tasks such as crosswords and fillwords; tasks for the development of phonemic hearing, etc.

In the process of creating an electronic educational resource, we solved the problem of an effective combination of didactic tasks and technical solutions. SMART Notebook has virtually unlimited possibilities for preparing complex interactive lesson scripts:

- increases the possibility of choosing the means of training, forms of organization of learners' activities at the lesson (individual, group, frontal);
- allows you to take into account the different proficiency levels of the Komi language and implement an individually-differentiated learning approach;
- provides access to a variety of information from the best sites, libraries, museums;
- increases interest to the subject under study due to visibility, entertainment, audio and video materials and assignments;
- allows students to perceive the audio text in the Komi literary language, reproduce by heart small poetic works, describe the picture using phrases learned at the lesson;
- increases the motivation to self-study of the Komi language and develops critical thinking;
- contributes to the formation of step-by-step and final self-control of learners;
- ensures the activation of students' cognitive activity.

To help a practicing teacher of the Komi language, we have also developed guidelines and lesson manuals.

7. Conclusion

The study of linguistic and pedagogical literature allows us to state that the works of, Sizeva (2014), Fedina, Chemyshev, and Stepanov (2015), Vyazova, Sizova, and Terentyeva (2016), Ostapova (2017) focus on the problem of the formation of younger schoolchildren communicative, linguistic and cultural competences at the lessons of Komi as a non-native language. However, in accordance with modern requirements, school teaching complexes should be accompanied by electronic educational resources, and also according to the requirements of the FSES EGE, younger schoolchildren should have ICT competencies, so we offer the electronic educational resource for a textbook on Komi as a non-native language for grade 1. To implement the project (model) developed by us in the educational process, it is necessary to go through the final stages: testing, legal and support of this product.

In our opinion, the use of smart technologies at the lessons of Komi as a non-native language expands and confirms the subject and ICT competencies in accordance with the requirements of the Federal State Educational Standard, increases to a large extent the intellectual and creative potential of learners and contributes to enhancing cognitive interest in learning Komi as a non-native language.

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