

Modern Information and Innovative Technologies for Teaching Reading Literature

Olga Stadnichenko [†], Tetiana Pinchuk ^{††}, Liudmyla Danylenko ^{†††}, Olena Shulga ^{††††},
Svitlana Dobroskok ^{†††††}

zavadyakromann@gmail.com tulenkov_my@ukr.net vynnychuk_roksi@outlook.com gnapdep00@outlook.com
ChenQi551@outlook.com

[†] Zaporizhzhia National University, Zaporizhzhia, Ukraine

^{††} State Institution "Luhansk Taras Shevchenko National University", Ukraine

^{†††} Zaporizhzhia State Medical University Zaporizhzhia, Ukraine

^{††††} Zaporizhzhia National University, Zaporizhzhia, Ukraine

^{†††††} Zaporizhzhia National University, Zaporizhzhia, Ukraine

Summary

The main purpose of the study is to analyze modern trends and aspects of information and innovative technologies for teaching reading literature. The problem of introducing innovative methods of teaching reading into the practice of a modern primary school is also urgent. As a result of the study, the main types and mechanisms of information and innovative technologies for teaching reading literature in the primary school system were analyzed, as well as defining the role of the teacher and providing full training and informatization of the last existence and implementation of the most relevant information and innovative technologies for teaching reading literature.

Key words:

information and innovative technologies, teacher, primary school system, reading, literature.

1. Introduction

Teaching dynamic reading in the practice of modern primary school, in particular in the second cycle, is extremely important. This is a multifaceted and difficult process, because teaching students to read aloud well is only the first place to achieve the main goal - to teach children to read mentally, silently, at an acceptable level of dynamic reading as a basis for independent comprehension of the media space and the environment in general. One of the tasks of teaching younger students the technique of dynamic reading is the development of the ability to read simple authentic texts quickly and with their full understanding. The process of mastering this skill begins with learning to read, which ensures the automation of the perception of graphic images, their correlation with meaning and sound correspondences, as well as with their voice acting aloud or mentally. This is the most important

place for getting the skill to quickly comprehend the text in every literary reading lesson. One of the main problems of learning concerns the development of attention and the clear organization of the daily cycle of dynamic reading exercises. Indeed, quite often students are not interested in improving this skill. Therefore, the teacher should rely on the child's curiosity, at the same time developing this trait, manage the motivation for learning so that as a result of learning activities, children are happy to evaluate what they have read, correctly transform information and know how to use it expediently, represent, think creatively [1].

The rapid development of science, the growth of the volume of new information require from the modern school the preparation of active, independent people who would have high creative abilities and possess certain qualities, were able to think independently and creatively; competently processed the information; improved the development of personal morality, intelligence, cultural level.

It is the use of innovative teaching technologies in the lessons of the native language that creates the conditions for better assimilation of new material and the activation of the cognitive activity of students, where the student himself will discover, acquire and construct knowledge and his own competence in various spheres of life.

At the lessons of the native language, younger schoolchildren not only replenish their stock of special knowledge in phonetics and grammar, their vocabulary is enriched, the skills of oral and written speech are developed, but the students' ideas about the world around them deepen. This is an intense, scientifically-organized and effective work of all students in cooperation with the teacher, developing the creative abilities of students; contributes to the acquisition of knowledge by students by independent work of thought; differentiates and

individualizes the learning process; stimulates work on additional literature; develops analytical thinking, the ability to generalize; forms students' skills of self-assessment and self-control of their learning activities.

The use of innovative technologies contributes to the achievement of the goals and objectives of the educational process in primary school.

At the same time, the educational process takes place with constant, active interaction of all students. This is coeducation, mutual learning (collective, group, learning in cooperation), where both the student and the teacher are equal, are equal to the subjects of learning, understand what they are doing, reflect on what they know, can and do. The use of information and innovative methods contributes to the intensification of the educational process.

The problem of developing the skill of reading, teaching the perception and understanding of the text, as well as the formation of qualified reading is one of the most acute and constant problems of school education and its successful solution largely depends on the first steps of a child learning to read. The changed social conditions impose different quantitative and qualitative requirements for the volume and method of information perception than in the past. A weak-reading student, going to the middle, and then to the senior level of the school, will, if not drown, then drown in the flow of information. It is not worth hoping "at random," that over the years, reading fluency will come by itself. Younger schoolchildren are at that favorable age when optimal speed can be achieved; they have an almost inexhaustible reserve of improving their reading technique [2].

The question of how to teach children to read quickly, efficiently, effectively and consciously is of interest to every teacher. Experience has shown that students who read a lot tend to read quickly. In the process of reading, working memory and attention span are improved. Mental performance in turn depends on these two indicators. It is impossible to read aloud for a long time, since loud reading as a means of extracting information is irrational. When reading "to oneself", the reading speed increases significantly. At the same time, scientists and practitioners agree that the reading speed of 120 words per minute is quite accessible to most students. How to teach a child to read The rapid development of the information society of the XXI century increasingly determines the importance of such socio-cultural and economic trends as globalization, increased competition in the economy, automation, digitalization, the spread of the value system of network culture and, based on these trends, trends in modern education become[3]:

1. Individualization and personalization of education. Formation of individual trajectories of training and the necessary competencies for the needs of customers.

2. Pragmatization of education. Orientation of educational institutions to the needs of the economy and

society, the formation of educational programs based on the actual requests of the employer, the development of practice-oriented research.

3. Lifelong learning. Rapid change in the information and technological background as a factor ensuring the continuity of education, which accompanies a person throughout his life.

4. Teaching teams and project-oriented education in communities of practice. Due to the increasing complexity of work tasks, the key unit of the new economy is not a separate talented individual with one set of competencies, but a team with competencies from various fields of activity, capable of performing functional or project tasks, where each participant is responsible for his own area of work.

5 . Gamification of education. Game as a way to achieve goals in joint activities that unfold in specific conditions according to certain rules consciously and correctly, to form the skill of working with different types of texts, to determine the level of reading comprehension? How to lead students in general to understand the meaning of the text, to understand and memorize the conditions of an arithmetic problem, grammatical rule and assignment in a single reading, to teach how to isolate the main thing in a scientific and cognitive article, an educational text? How can you make reading lessons and reading enjoyable for students? Probably, every teacher thinks about these questions and everyone tries in his own way to solve the problem of improving reading skills, strives to ensure that reading lessons leave a noticeable mark in the minds of every student, are aimed at moving children in their ideological, moral, mental, emotional, aesthetic and speech development, developed in schoolchildren an interest in books, a love of reading, instilled in them skills and abilities useful for life and further study.

The purpose of the article is to review information and innovative technologies and theoretically substantiate their implementation in the educational process, taking into account the psychophysiological characteristics of primary school children, as well as the implementation of a detailed consideration of the complex of information and innovative exercises for teaching the technology of dynamic reading of literature.

2. Methodology

Different research methods were used to solve the tasks in the study, namely:

- theoretical: general science (analysis, synthesis, classification, comparison, systematization and generalization) - to analyze the state of the research problem in psychological and pedagogical theory and practice, clarify the essence of basic research concepts,

substantiation of criteria, indicators and main aspects of innovative reading learning technologies literature.

- specialized-logical generalization and scientific abstraction;

- research-statistical and analytical - to study the prerequisites and aspects of the main types and mechanisms of information and innovative technologies for teaching reading literature in the primary school system;

- induction and deduction - for the formation of conclusions and practical recommendations for the implementation the main types and mechanisms of information and innovative technologies for teaching reading literature in the primary school.

3. Results

The speech activity of children especially develops during the period of schooling. The teacher's address to the class, clarifications, instructions, remarks, questions, corrections - all this is conveyed in the language. To write the first stick in a notebook, a student must listen to the teacher's instructions: what task to perform, how to take a pencil, which line to find, where and where to start writing. Further, by reading fiction, newspaper texts, children master the wealth of their native language. By grades 3-4, the vocabulary of understandable words among students grows sharply. At the same time, it is replenished with figurative sayings that children hear when listening to poetry and fiction.

An important place in the speech development of primary school students is given to the formation of the skills of oral dialogical and monologic speech (speaking). Working on a dialogue involves the following stages[4]:

- 1) reproduction, enactment of a dialogue from a listened or read text;

- 2) drawing up a dialogue based on a situational drawing, reliance on auxiliary material, as well as independently, observing the rules of etiquette, culture of communication.

Formation of oral monologue speech should be carried out by[5]:

- 1) translation of read or listened to texts;

- 2) building your own statements based on what you have seen and experienced.

Reading is one of the most important types of speech activity in primary school. In the lessons of the reading language, it should also be an object of educational activity, the specificity of which is to focus the attention of students on:

- 1) the correct pronunciation of words in accordance with the orthoepic literary norms and awareness of their lexical meaning;

- 2) intonation of sentences that are different in structure and purpose of the statement;

- 3) meaningful separation of sentences using pauses, melodies, etc.

For the successful implementation of the specified content of primary language education, it is necessary to select effective communication-oriented methods, techniques and forms of organizing educational activities. The most consistent with the modern tasks of the language school course, in our opinion, is the classification made by I. Ushakova. It is based on the correspondence of teaching methods to the content and the general purpose of teaching. Depending on the specific goals and objectives of training, the scientist divides all methods into three groups [6]:

- methods of obtaining theoretical knowledge (cognitive);

- methods of formation of speech skills and abilities (training);

- control and verification methods.

Cognitive methods include: explanatory and illustrative, problematic or search, partially problematic, or the method of heuristic conversation. The division of these methods is based on the level of mental activity of a student of primary school age.

Training methods are determined on the basis of the nature of the speech activity of students in the process of forming certain skills. These include: imitative, or imitative, operational and communicative.

Control and verification methods of teaching include: survey, control and operational and control and communicative.

Each method has a corresponding teaching technique. In addition to general didactic ones (explanation, comparison, analysis, generalization, systematization of knowledge, etc.), in the practice of teaching a language, subject methods are used, determined by a specific topic and the purpose of the educational material. For example, when studying texts, the following subject techniques are used: dividing a text into structural parts, restoring a deformed text, defining a topic, a goal, building various types of text, etc.

The modern method of reading in elementary school has accumulated a rich arsenal of methods and techniques of innovative teaching - from the simplest ("Working in pairs", "Rotational (replaceable) troikas", "Carousel", "Microphone") to complex ("Brainstorming", "Mosaic", "Analysis of the situation"), as well as simulation games, discussions, debates. The use of interactive technologies is not an end in itself, but a means of creating an atmosphere of goodwill and mutual understanding, removing the feeling of fear from the child's soul, a way to make him liberated, instill confidence in his abilities, set him up for success, and show the ability to be creative [7].

At the present stage of development of education, children really learn due to the fact that they can fully

realize themselves. They are not afraid to express their opinion, criticism, they are not afraid to be heard. In such lessons, the teacher must become an invisible conductor who knows how to hear, notice, and support each student in time. When children work together, they develop the skills they need to live independently.

In the context of the reformation of the educational process, innovative methods of teaching reading and teaching in primary school practice were developed by such scientists as O. Decroli, M.A. Zaitsev, G. Doman. According to O. Decroli's methodology, play should be an organic and integral part of the learning process. The teacher argued that the process of teaching reading is subject to clarity: "The mother teaches the child to speak not with sounds and letters, but with words and short phrases." Therefore, the subject that was discussed or studied, he marked with a card: the picture has a card "PICTURE", at the table - "TABLE" [8].

M.O. Zaitsev invented a unique method of teaching counting and reading based on cubes. Original cubes of different shapes need to be filled with material depending on the sound (loud - with copper coins; deaf - with wood; voiced - with glands). And for certain letters, colors are assigned, which, at the associative level, help to understand the rules of phonetic parsing.

In G. Doman's program, special attention is paid to cards with combinations of bright points, images of different objects, with words. The main postulate of the technique: "The brain grows only when it works." That is why, from an early age, a child's brain needs to be downloaded like files to a computer. The teacher should alternate such classes with special exercises of a physical nature, because the development of the brain becomes impossible without proper physical activity. The author believed that working according to these principles, any child can be raised as a genius.

Reading competence is an integrated personality-activity result of the interaction of skills, abilities, knowledge and value orientations of children, acquired in the process of introducing all aspects of the "Reading" subject. In the standard of primary general education, reading competence is revealed as a communicative, generic cognitive activity aimed at perceiving, comprehending and reproducing what has been read.

Guided by this statement, the teacher should take into account the cognitive and physical capabilities (for example, in an inclusive classroom), the interests of the students, and also anticipate and prevent difficulties. It is known that a child who cannot read quickly and at the same time understand what he has read will not master letters and will have difficulties in completing work in the classroom or homework. Such a student will not be interested in the classroom, his cognitive activity will be at a low level, as well as the need to communicate with the book. The sooner the child masters reading skills, the

faster he will feel pleasure from his own achievements, and this aspect directly relates to the concept [9].

The analysis of psychological, pedagogical and methodological literature allows us to assert that it is appropriate to introduce the techniques shown in Fig. 1 in literary reading lessons [10].

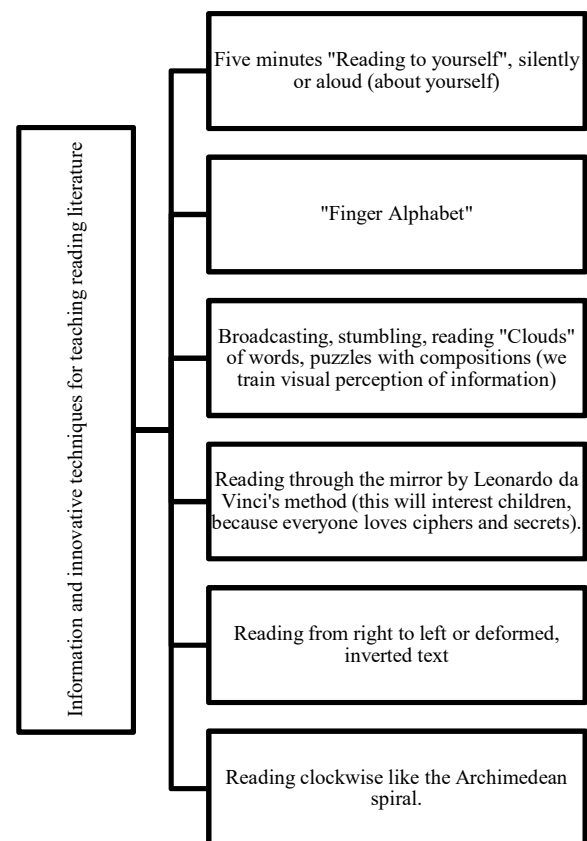


Fig. 1. Information and innovative techniques for teaching reading literature

An extracurricular reading lesson is an integral component in the formation of reading competence. The purpose of this lesson is to foster a positive attitude towards reading to taste (on one's own initiative). Therefore, developing cognitive interests, a positive attitude towards the book, and not any information source, should form an independent reader from the first days at school. By the end of the first link, all fourth-graders should have the basic skills and abilities of working with paper, should be aware of the hygienic requirements for reading, and most importantly, they should develop a need

to learn about the world around them through a book. This curiosity will be a great start on your road to high school.

Consequently, the formation of the reading competence of a student in grades 1–4 should begin with the first lesson in school. During training, the formation and development of the qualities of a child-reader, capable of self-education, independent reading and creative activity, takes place. Reading allows the child to develop intellectually, moral and aesthetic concepts and ideas, literary taste, a critical attitude to information are formed, vocabulary is enriched, love for the native word is brought up, the need for a systematic cognitive process is growing. Dynamic reading is visual, quick, conscious and creative reading, characterized by the fact that the reader perceives information through the visual channel, bypassing the language and auditory.

4. Discussions

The literary reading program for grades 1-4 of secondary schools says that the main goal of lessons in primary school is to form a literate reader, i.e. “Such a person who has a persistent habit of reading, a mental and spiritual need for him is formed as a means of knowing the world and self-knowledge. This is a person who owns both reading technique and reading comprehension techniques”.

Achieving this goal involves solving several problems, including[11]:

- the introduction of children through literature into the world of human relations, moral values;
- familiarizing children with literature as the art of words, to understand what makes literature fiction - through the introduction of elements of literary analysis of texts and practical acquaintance with individual theoretical and literary concepts;
- the development of oral and written speech (including a significant enrichment of the vocabulary), the development of the creative abilities of children.

The subject results of mastering the basic educational program of primary general education in literary reading are also highlighted:

- understanding of literature as a phenomenon of national and world culture, a means of preserving and transmitting moral values and traditions;
- awareness of the importance of reading for personal development; the formation of ideas about the world, Russian history and culture, initial ethical ideas, concepts of good and evil, morality; the success of training in all academic subjects; formation of the need for systematic reading;
- understanding the role of reading, the use of different types of reading (introductory, studying, selective, search); the ability to consciously perceive and evaluate the content and specificity of various texts, participate in

their discussion, give and substantiate a moral assessment of the actions of the heroes;

- achieving the level of reading competence necessary for continuing education, general speech development, i.e. mastering the technique of reading aloud and to oneself, elementary methods of interpretation, analysis and transformation of artistic, popular science and educational texts using elementary literary concepts;

- the ability to independently choose the literature of interest; use reference sources for understanding and additional information.

The problem of developing the skill of reading, teaching the perception and understanding of the text, as well as the formation of qualified reading is one of the most acute and constant problems of school education and its successful solution largely depends on the first steps of a child learning to read. The changed social conditions impose different quantitative and qualitative requirements for the volume and method of information perception than in the past. A weak-reading student, going to the middle, and then to the senior level of the school, will, if not drown, then drown in the flow of information. It is not worth hoping “at random,” that over the years, reading fluency will come by itself. Younger schoolchildren are at that favorable age when optimal speed can be achieved; they have an almost inexhaustible reserve of improving their reading technique[12].

By innovation in education, we mean the process of improving pedagogical technologies, a set of methods, techniques and teaching aids. Currently, innovative pedagogical activity is one of the essential components of the educational activity of any educational institution. And this is no coincidence. It is innovative activity that not only creates the basis for creating the competitiveness of an institution in the educational services market, but also determines the directions of the teacher's professional growth, his creative search, and really contributes to the personal growth of pupils. Therefore, innovative activity is inextricably linked with the scientific and methodological activities of teachers and educational and research students.

Innovation in education is an innovation designed to resolve an urgent problematic situation (in order to optimize the educational process, improve the quality of education or organize favorable conditions for the assimilation of material), significant changes in one or several points: the content of education, teaching methods, forms of quality control of education.

The literary reading program for grades 1-4 of secondary schools says that the main goal of lessons in primary school is to form a literate reader, i.e. “Such a person who has a persistent habit of reading, a mental and spiritual need for him is formed as a means of knowing the world and self-knowledge. This is a person who owns both reading technique and reading comprehension techniques”.

Achieving this goal involves solving several problems, including [13]:

- the introduction of children through literature into the world of human relations, moral values;
- introducing children to literature as the art of words, to an understanding of what makes literature fiction,
- through the introduction of elements of literary analysis of texts and practical acquaintance with individual theoretical and literary concepts;
- development of oral and written speech (including significant enrichment of the vocabulary), development of the creative abilities of children.

As a rule, the teacher, teaching students to read and understand a literary text, uses the following traditional methods and techniques of teaching reading: expressive reading aloud, reading silently - "to oneself", retelling what was read, vocabulary work, conversation.

However, every creative teacher has in his arsenal a set of modern teaching methods that promote active learning and development of critical thinking in students. It is those reading lessons in which pupils ask, create, decide, interpret and argue about the content of the work, and bring up a child's keen interest in the book. Research shows that it is in active classes on the technology of developing critical thinking that students master the material most fully and with benefit for themselves.

The dynamic reading speed range is 300-800 wpm. To prepare students in the first cycle for such reading, it is necessary, starting from the second grade, to systematically apply exercises to increase the angle of view. Based on observations and the study of advanced pedagogical experience, we can assert that the following methods of teaching dynamic reading are effective through the prism of cyclicity and repetition of the actions performed [14]:

1. In the morning circle, during "Reading for yourself" or in a literary reading lesson, you can start with the following task: read at least 300 words per minute with a patten, tapping with a pen, while reading should definitely, with a change in mood, intonation and without tearing eye from text. Gradually increase the passage for reading a tongue twister to half a page.

2. During the lesson, instead of finger gymnastics, children should be offered, reading a familiar (at the initial stage) text quickly and in a chain with them, alternately put their hands with the palm up, with the index finger of one hand press on the first flank of the fingers of the other hand, raising and lowering and smoothly squeezing outstretched fingers into a fist, etc. The pace of the exercise gradually increases to maximum, then decreases again. The element of competition that is present will attract students.

3. "Count and Read" can be used in place of an active break. The teacher, showing a card with a written word,

invites students to count out loud: 1, 2, 3, 4, 5 and at the same time look at the words, memorizing them.

4. "Lightning" adjusts the upper limit of the individual speed range. The exercise is carried out as follows: the teacher prepares the text for reading in silence; at the command "lightning" children quickly read the passage with understanding; at the command "thunder", students stop and count the number of words read. Next, we determine who read like lightning and who read like thunder. 6. "Window" prevents eye regression and re-reading during fast reading. During the activity, students place a small strip of paper on a page of a book or textbook, approximately 30 x 100 mm, in which a window has been cut out. Children use this inventory as an indication, shifting the lines and reading the words in the window.

7. "Sky-throw" promotes orientation on the pages of a textbook or book, trains the skill to instantly find the desired paragraph, and then any place of reading. After the command "Throw" the children read the text in a whisper for 10-20 seconds, then the teacher gives the command "Sky". Children perceive this as a signal to raise their heads, lower their hands and "ruin" the readable sentence (text); after the "Throw" signal, the students look for the "lost" place and continue reading; the exercise is repeated 3-4 times.

8. "Tug" is used to correct reading about oneself and reading aloud in compliance with intonation and semantic stress. The teacher reads aloud, and the children - silently (with eyes only) or in a whisper, keeping up with the teacher. After reading one or two sentences with the leader, the children continue to read independently (silently). Then again with the teacher reading the text out loud. We repeat this several times; checking reading comprehension - a matter of content.

9. Exercise "Reading in pairs at desks", during which the teacher offers to read the text, dialogue is better, two students, one of which is weaker. He will, of course, lag behind. The psychological aspect is important here, so the teacher must set the major scale to maintain the atmosphere of competition [15].

10. To expand the angle of view at the literal stage of teaching literacy, pyramids formed from the compositions and exercises with Schulte tables, performed by children in grades 3-4 in 12-25 seconds, are used. We write numbers on a Whatman paper 21x30 in size, the tables are different for each student. The numbers should be written differently for each student. The order of the exercise is as follows: the child must grasp with his eyesight all five numbers from each row, memorize them and perform certain mathematical operations on them, or count from 1 to 15, without taking his eyes off the central point of the table.

5. Conclusions

Thus, having analyzed the features of the use of innovative methods of teaching reading at the primary level, we can conclude that the formation of skills and abilities of dynamic reading among students of 1-2 training cycles will be effective with the correct and rational use of various methods and techniques. It is important that the students themselves choose the most successful and interesting exercises to improve their reading competence, because then the children will learn meaningfully and with interest. In addition, dynamic reading increases motivation for lessons in the native language and literary reading, activates the cognitive activity of students, optimizes the entire process of perceiving new and unusual things, expands the volume of the studied material and vocabulary, develops willpower, trains imagination, helps to creatively and creatively solve the task

References

- [1] Armstrong, V., Barnes, S., Sutherland, R., Curran, S., Mills, S., and Thompson, I., *Collaborative research methodology for investigating teaching and learning: The use of interactive whiteboard*, Educational Review, Vol. 57(4), pp.457-469, <http://dx.doi.org/10.1080/00131910500279551> (2005)
- [2] Beauchamp, G., *Teacher use of the interactive whiteboard in primary schools: Towards an effective transition framework*, Technology, Pedagogy and Education, Vol.3(3), pp.337-348, <http://dx.doi.org/10.1080/14759390400200189> (2004)
- [3] Cooper, J.R., *A multidimensional approach to the adoption of innovation*, Management Decision, Vol.36(8), pp.493-502, <http://dx.doi.org/10.1108/00251749810232565> (1998)
- [4] Cox, M., and Marshall, G., *Effects of ICT: Do we know what we should know?*, Educational and Information Technology Journal, Vol.12, pp.59-70, <http://dx.doi.org/10.1007/s10639-007-9032-x> (2007)
- [5] Donovan, M.S., and Bransford, J.D., *How students learn. History, Mathematics, and Science in the classroom*, Washington, DC: National Academic Press (2005)
- [6] E. Cushman. *New Media Scholarship and Teaching: Challenging the Hierarchy of Signs*. Pedagogy Critical Approaches to Teaching Literature Language Composition and Culture, pp. 63-79 (2011)
- [7] Fullan, M., *Whole system reform for innovative teaching and learning*, in *Microsoft-ITL Research (Ed.)*, Innovative teaching and learning research: 2011 findings and implications, Microsoft - Partners in Learning. Available from: <http://download.microsoft.com/download/C/4/5/C45EB9D7-7685-4AFD-85B3-DC66F79277AB/ITLResearch2011Findings.pdf>. (2011)
- [8] Glover D., and Miller, D., *Running with technology: The pedagogic impact of the large-scale introduction of interactive whiteboards in one secondary school*, Journal of Information Technology for Teacher Education, Vol. 10(3), pp.257-276, <http://dx.doi.org/10.1080/14759390100200115> (2001)
- [9] Glover, D., and Miller, D., *Optimising the use of interactive whiteboards: An application of developmental work research (DWR) in the United Kingdom*, Professional Development in Education, Vol. 35(3), pp.469-483, <http://dx.doi.org/10.1080/19415250902731553> (2009)
- [10] Kikis, K., Scheuermann, F., & Villalba, E. *A framework for understanding and evaluating the impact for information and communication technologies in education*. In Scheuermann, F., & Pedro, F. (eds.), *Assessing the effects of ICT in education*, 69-82. European Union/OECD: France. (2009)
- [11] Kulik, J. *The Effects of Using Instructional Technology in Elementary and Secondary Schools: What Controlled Evaluation Studies Say*. SRI International: Arlington, VA. (2003)
- [12] M. Škobo and B. Đerić-Dragičević, *Teaching English Literature in the Digital Era*, in *Sinergija 2019- XX International Scientific Conference*, Sinergija University, Bijeljina, Republic of Srpska (2019)
- [13] Pisanu, F., *Educational innovation and technology: A need for integration*, Perspectives of Innovations, Economics and Business, Vol.14(2), pp.103-108, <http://dx.doi.org/10.15208/pieb.2014.12> (2014)
- [14] Smith, F., Hardman, F., Higgins, S., *The impact of interactive whiteboards on teacher-pupil interaction in the National Literacy and Numeracy Strategies*, British Educational Research Journal, Vol. 32(3), pp.443-457, <http://dx.doi.org/10.1080/01411920600635452> (2006)
- [15] Wall, K., Higgins S., Smith, H., *The visual helps me understand the complicated things: Pupil views of teaching and learning with interactive whiteboards*, British Journal of Educational Technology, Vol. 36(5), pp.851-867, <http://dx.doi.org/10.1111/j.1467-8535.2005.00508.x> (2005)