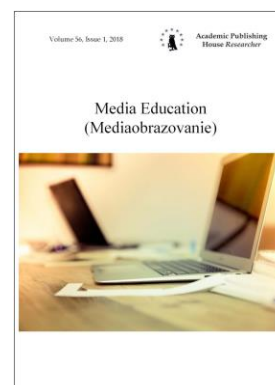




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Developing Critical Thinking Skills of Students in the Media Environment

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Abstract

As the title implies the article dwells upon development of critical thinking skills of students in the context of digital content dominance. The article aims to provide the reader with information on the features of developing skills required for working with historical texts. The study points to the weaknesses in developing students' critical thinking at Nizhnevartovsk State University (KhMAO-Yugra, Russia). The author discusses theoretical contributions and practical implications. The main idea of the paper is that critical thinking skills cannot develop without information literacy. These skills are closely aligned with information literacy, which has declined because of media environment. Much attention has been drawn to the problem of development of history students' critical thinking skills. The author has read a number of papers and now presents this information as a background of the research. The study presents traditional ways of working that have been transformed in the media environment. This analysis illustrates the peculiarities of working with history students over the past 10 years. Given that over the years 2/3 of students failed to develop necessary skills, the author concludes that it is impossible for all students to develop these skills.

Keywords: critical thinking, skills, digital content, media environment, students, text, history, information literacy.

1. Introduction

The relevance of the research topic can be traced both in research papers and government documents. The digital environment has greatly changed the learning process. Scientists-psychiatrists talk about such a phenomenon as *Digital Dementia*, which means a violation of cognitive functions. Thinking is one of the most essential skills of all human characteristics. It is intrinsic to almost everything we do. S. Medvedev, director of the Institute of the Human Brain (Russia), spoke about the results of school education. The school should teach "to read and analyze texts. Preferably in more than one language. Be able to formulate and express your thoughts. Preferably in more than one language. One thing is important, the school should teach the child to think" (Strelnikova, 2019). What does it mean to think? This is to build cause-and-effect relationships see the logic in the sequence of events and predict consequences of your actions. In order to be able to think, you need to have a large knowledge base and good working memory which is regularly trained, so that later, by using it, we can establish causal relationships. We know that the results of school education do not satisfy society and the state. School leavers, who have not developed thinking skills in general education schools face great difficulties at the University.

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We have to take into account the characteristics of the digital generation and develop ways to train them in accordance with their clip thinking. Along with information literacy (hereinafter IL), the issue of developing critical thinking (hereinafter CT) among University graduates is also relevant. The information revolution in education has led to the need to rethink the traditional ways of developing CT skills among students. This is an urgent agenda not only for Russian but for the international educational community as well. According to a recent study evaluating CT skills, they are limited and the majority of students do not possess them sufficiently. We have studied development of CT skills for many years and designed a system developing students' CT skills. As part of the study, at the stage of the ascertaining experiment we analyze the ideas of junior students about the concept of "critical thinking" and identify their information skills. I conduct it while working with the second-year students while they are taking the course on methods of teaching history. In the process of teaching, I carry out the second stage of experiments in a natural setting. I concluded that only one in four 2, 3, 4 – year students could develop required skills, while other students have a lack of IL skills and form initial ideas only.

2. Materials and methods

The author references Russian and foreign articles, monographs, essays about CT and relies on the methods of theoretical analysis, synthesis, generalization and content analysis, as well as a survey, pedagogical observation and student questionnaire. The empirical base of the work is a generalization of the author's personal professional experience. In this case field experiment is preferable.

3. Discussion

First of all, *the scientists' discussion revolves around the concept of "critical thinking"*. The foundation for understanding the phenomenon of critical thinking was laid in the 1960-1970s. One of the first works was written by R.H. Ennis, "A Concept of Critical Thinking" ([Ennis, 1962: 161-178](#)). Many researchers attempted to provide the theoretical background of CT. In 1981, R. Paul published "Teaching Critical Thinking in the "Strong" Sense: A Focus on Self-Deception, World Views, and a Dialectical Mode of Analysis". He states that "critical thinking can successfully be taught as a battery of technical skills which can be mastered more or less one by-one without any significant attention being given to the problems of self-deception, background logic, and multi-categorical ethical issues" ([Paul, 1981: 467](#)). In 1989, the first comprehensive book was published in the United States by R. Paul, A.J.A. Binker, D. Martin, C. Vetrano and H. Kreklau. R.W. Paul was Director of Research and Professional Development at the Center for Critical Thinking, and has been widely recognized as a major leader in the national and international CT movements for a long time. Various definitions of CT are presented in the book ([Critical Thinking..., 1989: 279](#)). These works provided theoretical foundations for understanding the phenomenon of CT.

In modern science, there is no single definition of "critical thinking". Researchers are very active in defining the essence of CT. It is most commonly described as a skill set that promotes critical engagement with different types of texts. Many scholars have considered this issue. The ground-breaking book on CT "The Palgrave Handbook of Critical Thinking" edited by M. Davies and Ronald Barnett was published in 2015 ([Davies et al., 2015](#)). The handbook covers the following questions: definitions of CT from its origins; approaches to teaching CT; ways of incorporating CT into a curriculum; the relationship between CT and culture, the cognitive sciences and professions; as well as various social perspectives on CT.

The literature on CT has roots in two academic disciplines: philosophy and psychology. This is a classic approach. In addition, there is a CT strand within the field of education. The technology for developing CT through reading and writing is especially popular. Many scientists consider that the main skill training takes place during the entire study period at the University. Each teacher uses their own subject to develop students' CT skills. The task of improving CT skills in students at many universities has typically been addressed by offering an additional course in CT. We agree that training students to be able to think critically is one of the key goals for many professionals in higher education ([Changwong et al., 2018: 37](#)). It is a long-standing tradition that a person with a higher education is a critical thinker.

We are engaged in the training of historians, both educators and researchers. Our students are future history teachers. Having mastered CT, they will be able to shape it in their students. It should not be forgotten that CT is a necessary condition for a critical citizen. It is difficult to

manipulate a person with CT. History is a fundamental science that develops CT skills. On November 26, 2019 the meeting of the Council of Ministers of Education of the Council of Europe was held in Paris. The agenda included issues related to the use of digital technologies in the educational process and the development of CT, as well as approaches to teaching history. In the context of the rise of populism, teaching history that promotes multiple perspectives and CT becomes particularly relevant. Seventeen Member States of the Council of Europe have decided to establish an Observatory on History Teaching in Europe as an Enlarged Partial Agreement. The Observatory's main purpose will be to collect and make available, through a series of regular and thematic reports, factual information on the ways in which history is taught in all participating countries.

However, in practice, schoolchildren and students do not always have critical thinking skills. Most of the world's educational systems are concerned with this situation. Many scholars in Russia and abroad have also discussed the importance of CT skills in the context of 21st century education. Directives of the European Union mention the urgent need for high-quality knowledge, skills, and competencies developed through life-long learning, which focuses on learning outcomes for employability, innovation, active citizenship, and well-being.

Let us consider a number of other definitions of "critical thinking". M. Fahim and N.S. Masouleh suppose that "Critical thinking refers to the use of cognitive skills or strategies that increase the probability of a desirable outcome" (Fahim et al., 2012: 1371). S. Aboukacem gives a broader interpretation. According to him, CT should be applied not only to the information source, content, thinking and format, but also to the medium itself (Aboukacem et al., 2018: 41).

M. Davies and R. Barnett specifically considered the question of what CT is at the University. They highlighted CT in a scientific discussion by American philosophers in 1990 (Davies et al., 2015). In a new article, M. Davies writes that universities are far from the problem of forming CT among students (Davies, 2019: 18-27). He believes that universities do not exercise control over the promotion of CT. He explains this by saying that universities are afraid of discovering the true state of affairs (Davies, 2019: 18-27). E.B. Shiraev and D.A. Levy presented a broad interpretation of the essence of the CT phenomenon. They write that CT is an active and systematic cognitive strategy to examine, evaluate, and understand events, to solve problems, and to make decisions on the basis of sound reasoning and valid evidence. More specifically, they emphasize that CT involves maintaining an attitude that is both open-minded and skeptical; recognizing the distinction between facts and theories; striving for factual accuracy and logical consistency; objectively gathering, weighing, and synthesizing information; forming reasonable inferences, judgments, and conclusions; identifying and questioning underlying assumptions and beliefs; discerning hidden or implicit values (Shiraev, Levy, 2017: 143-144). In addition to the above, E.B. Shiraev and D.A. Levy highlight the following features of CT: perceiving similarities and differences between phenomena; understanding causal relationships; reducing logical flaws and personal biases, such as avoiding oversimplifications and overgeneralizations; developing a tolerance for uncertainty and ambiguity; exploring alternative perspectives and explanations; and searching for creative solutions (Shiraev, Levy, 2017: 144).

We adhere to the definition that CT is something that includes a set of analytical skills used to work with various sources of information. They are formed by in-depth analysis of the text and systematic work. These skills are formed over a long period of time. During the studying, students develop only the basics of the most necessary skills. Improving these skills takes place in the future, related to professional activity (teacher, researcher).

The scientists' discussion revolves around methods and technologies, techniques and means of forming critical thinking skills as well. As we know, and it has been repeatedly noted in the research, quite a large scientific and methodological arsenal for CT skills development has been accumulated in Russia and abroad. N.C. Burbules and R. Berk claim that the prime tools of CT are the skills of formal and informal logic, conceptual analysis, and epistemology (Burbules, Berk, 1999). CT means that the critically-minded person has not only the capacity (the skills) to seek reasons, truth, and evidence, but also that has a drive (disposition) to seek them. Criticality is a practice, an indicator of what we do, of who we are, and not only how we think.

Eric B. Shiraev and D.A. Levy claim that educators rightfully profess that learning how to think critically is one of the most vital and indispensable components of learning; yet specific tools for CT are rarely, if ever, provided to us. Thus, although we may be convinced of the value of CT, we are left not quite knowing what to do about it. The thought principles or metathoughts (literally,

“thoughts about thought”) are cognitive tools that provide you with specific strategies for inquiry and problem solving in cross-cultural psychology. In this way, they serve as potent antidotes to thinking, which is often prone to be biased, simplistic, rigid, lazy, or simply sloppy (Shiraeu, Levy, 2017: 78-79).

Researchers look for evidence in the educational experience of different countries. There are various models for the making of C.K. Changwong, A. Sukkamart and B. Sisan identified the key steps in thinking critically. These models include describing, reflecting, analyzing, critiquing, reasoning, evaluating (Changwong et al., 2018: 41).

N.G. Holmes, C.E. Wieman and D.A. Bonn presented the methodology of teaching CT. They argue that the key element for developing CT ability is repeated practice in making decisions based on data, with feedback on those decisions. They demonstrate a structure for providing suitable practice that can be applied in any instructional setting that involves the acquisition of data and relating that data to scientific models. In this case, they are talking about quantitative CT (Holmes et al., 2015). Researchers try to establish the facts and hope they will bear out or support their hypothesis.

We absolutely agree with B. Markowski, L.F. McCartin and S. Evers who link the formation of CT to IL. They designed an elective course with a broad focus on reading, writing, critical thinking, and communication skills. Course objectives include using effective research skills to retrieve and evaluate information from a variety of sources (Markowski et al., 2018: 128-149).

There are publications revealing the influence of digital content on the students' CT development in the conditions of the Internet and media technologies dominance. It is widely believed in the scientific literature that the Internet and new media technologies have led to changes in society and the learning environment. Many scientists came to the conclusion that digital content dominates in the modern educational space. The abundance of information and the widespread use of distance learning have created conditions where students burnt out and overwhelmed with information. S. Aboulkacem and L. Haas wrote in detail about it (Aboulkacem et al., 2018: 46). Students do not have time to read, understand and comprehend new information. Therefore, they need texts selected by the teacher.

Researchers pay attention not only to the problem of forming critical, but analytical and creative thinking as well. M.A. Ivanov writes about the danger of creative thinking degradation. It is related to the overabundance of information (Ivanov, 2012: 61). We observe a consumer attitude to information, there is no in-depth study of the material. This leads to a decrease in factual knowledge and, as a result, to a low level of CT.

A third debate has addressed the question of the conditions for developing critical thinking skills. Many researchers emphasize that these skills are more difficult to develop in the modern environment. There are many publications revealing the correlation between IL and CT. Among foreign scientists, we can distinguish the works of A. Silverblatt. He repeatedly emphasized great attention to the problem of studying IL and CT in the media environment (Silverblatt, 2018: 66-71). Moreover, the author claims that IL applies CT skills to the assessment of information (Silverblatt, 2016: 55). Most proponents emphasize this connection to CT (Bulger, Davison, 2018: 3). We believe that IL and CT are interrelated as well. Low level of student information culture is a serious obstacle in their educational and research activities. This problem is typical both for Russian and foreign University students. Our previous research indicated that 84 % of the first-year students experienced difficulties working with information (Alekseeva, 2020: 198-210). For example, Paul Green is writing that students in American higher education are currently not improving their CT skills also (Green, 2015: 107-121).

A large number of studies have been devoted to the phenomenon of clip thinking and clip perception of information in the modern environment. This requires new techniques and tools for working with them along with the traditional ones. L.V. Astakhova draws attention to the fact that the level of training of modern specialists is not very satisfied in the business community. She writes: “However, employers are still not satisfied with how graduates process information and gain new knowledge for the implementation of professional activities” (Astakhova, 2017: 15). This phenomenon is common to the training of history teachers, which leaves much to be desired. For example, A.Ya. Schennikov and A.S. Shepyreva justified the need to review the content of educational materials, their structuring in the form of digital stories and visual images (Schennikov, 2018: 200-204; Schennikov et al., 2019: 190-194).

We hypothesize that the media environment provides opportunities for developing CT. N.G. Holmes, C.E. Wieman and D.A. Bonn state: “Demonstrating the critical thinking process, of course, is insufficient for students to use it on their own. Students need to engage in the critical thinking process themselves, and this practice should be deliberate and repeated with targeted feedback” (Holmes et al., 2015: 3). A. Bergstrom, M. Flynn and C. Craig remark: “As students are spending more time with media, faculty have noted the lack of preparedness of students entering higher education, and their tendency to be limited in their media literacy skills beyond the ability to simply access content” (Bergstrom et al., 2018: 114).

A significant advance in the theoretical understanding of the phenomenon of CT was the development of a universal model. M. Davies and R. Barnett suggested six distinct components in it: core skills in critical argumentation; critical judgments; critical thinking dispositions and attitudes; critical being and critical actions; societal and ideology critique; critical creativity (Davies et al., 2015).

Overview on the importance of CT skills above shows that the researchers sought out to conceptualize a learning management model of the factors important for the enhancement of students' CT skills and give practical recommendations.

4. Results

Our practical experience covers working with the students at three levels of higher education: Bachelor's, Master's, and postgraduate studies. There is no special discipline that focuses on CT development at the University. This does not mean, however, that CT skills are not formed. It is partially developed in the educational process and research work. 25 % of the students have this type of thinking towards the end of the bachelor's studies. Other students do not have it (they have a low level of IL). This is data for the last 10 years, when we see a decline in the quality of graduate training. Teaching students, I adhere to the well-known principle “from general to particular”. It helps with information processing.

The first stage of the work is related to identifying students' ideas about CT and start making on basic techniques. We form theoretical knowledge about this type of thinking as well. We carry out diagnostics of the IL level. The students learn to analyze and critically assimilate information. At the same time I take into account the level of students' training.

I conduct an express survey to find out what students know about CT.

Questions:

1. *What is critical thinking?*

Answer: ability to criticize something or someone (50 %).

None of the students have told me that CT is a free, independent, responsible one.

2. *Have you had any experience using the following techniques: cluster, text marking, table “I knew, I learned, I want to know”, scheme “fishbone”, thick and thin questions?*

The answers show that here is no concept of “critical thinking”. The ability to think critically is interpreted as looking for flaws. At the same time, the survey shows that 25 % of the students had experience using techniques for developing CT through reading and writing during school period.

Practice shows that school graduates actually have a low level of information culture, culture of working with text (reading and writing). This is the feature of working. I conducted a survey aimed at assessing students' skills in working with information (search, processing, text formatting). The results are presented in Table 1. There are sophomore survey results for 2008, 2012, 2016, 2020 (at the beginning of the school year). 55 students took part in the survey.

Research shows that the students overestimate their own information searching skills when working with texts. The main source of information for them is the Internet. The dominant form of presenting the results of working with information is a presentation. Half of the students believe that they know the rules of text formatting. In fact, this is not the case. There is a situation of unconscious incompetence. There is a lack of continuity between general secondary and higher education in the development of information and CT skills.

Table 1. Students' self-Assessment of Working with Texts

| Parameters | Students' assessment | | |
|--|--|---|---|
| Information searching skill | As "very good" – 61 % | As "good" – 29 % | As "insufficient" – 10 % |
| The main resource to find information | Using the Internet – 90 % | Working with books and magazines in the library – 3 % | Using dictionaries, encyclopedias, and reference books in the library – 7 % |
| Form of submission of information after its processing | Presentation – 75 % | Abstract – 15 % | Report – 10 % |
| Requirements to the text design | "I know the requirements well and can draw them up" – 21 % | "I don't know very well and I don't always make out correctly" – 28 % | "I don't know the requirements, I can't make out the text" – 51 % |

Our experience shows that the ability to work with information, to transform and present it in a required form is mainly developed via individual student support. Student research activities are guided by a supervisor (Alekseeva, 2020: 204). Another way of working is to organize students' activities in training courses, however not through specific courses devoted to CT skills development across history curriculum. I work on developing information skills and CT skills are developed. The students have a low level of information culture. Our research has shown that first-year students who entered the University in 2012 – 10 %; 2016 – 20 %; 2020 – 30 % have basic information skills.

Typical mistakes made by students:

- Simple and excessive generalizations, stereotyped words, clichés, unsubstantiated assumptions;
- Use of the words "all", "none", "always", "constantly";
- Construction of generalized assumptions in speech: "Teachers do not understand children", "after the war, everyone lived poorly in the USSR", "everyone was against", etc.

Our observations show that the students use unverified data. The most popular resource is Wikipedia. There is no need to find out unknown words or names in the text, or to find objects on the map. The text is read superficially, meanings are not established, knowledge is not formed. The students don't know how to take notes, and rewrite the text. I ask questions about text that should be answered (reproductive level) and written in other words (by using synonyms). The first task is easier for students than the second one. I teach them how to make a plan based on the text. It is possible to determine the main idea, but it is very difficult for students to formulate and write it. They give short and simple answers to the questions and present weak arguments. Graphic skills of information processing are virtually absent.

Now we turn to the question of the CT technology. Scientists presented various methodologies for developing CT skills. Many Universities have special courses. In the United States, since 2002, 134 colleges and universities have conducted an exam that primarily evaluates CT. (Volkov, 2016: 200). We have a methodology for developing basic skills in working with text. The aim is to select necessary information, focusing on the main material. The task is to teach students the following knowledge: to identify cause-and-effect relationships; to consider new ideas and knowledge in the context of existing ones; to reject unnecessary or incorrect information; to make a conclusion about interests and ideological attitudes which the text reflects; to avoid categorical statements; to separate the main from the secondary in the text; to formulate questions about the text.

Information to study is limited. The problem for the students is localized. The task is performed according to the algorithm (list of questions). The work is written by hand (as a result of manual playback, information is remembered significantly better). *For example, the task:* to separate the main from the secondary in the text. This skill is essential for a future history teacher. It is no secret that school history textbooks suffer from excessive information. The task given to students is to identify the main facts and concepts of the lesson, to structure the material as a plan based on the paragraph from the textbook of the Ancient world history (grade 5) "Attica

Farmers Lose Land and Freedom” (Goder et al., 2020) using structural and functional analysis. Only a fifth of the students’ group can complete the task. We have a few classes where students work independently, thus this skill has no. Some students don't know how to separate the main thing from the secondary to the end of their undergraduate studies.

The new skill is demonstrated by the Professor. Reasoning is carried out aloud as a sample of logical thinking. The students get an idea of a new way of working and form the algorithm.

Visual materials occupy a large place. The students don't know how to analyze educational paintings or historical ones. Also, they don't know how to analyze a photo or caricature. We gradually develop these skills as well, using illustrations and info graphics in the classroom. Mind map is not frequently used in the organization of the educational process. Students are not used to writing it. Our attempts to use a mind map in the classroom and in research cover a small part of the time. Work is also slowly progressing on forming ideas about multi-level network concept maps. We'll see below that IL has been a major factor.

The *second stage of the methodology is critical evaluation of information*. This is the fundamental technique. The students are more used to obtaining answers within minutes of formulating a question. They are used to trust the information they receive. Therefore, they are not critical of it. Our aim is to develop CT skills, which means being able to analyze information, compare it in different sources, and interpret it. For the history students, these skills are essential. These skills should be developed in order for historians to be professionally fit. S. Cottrell notes: “Students, too, are expected to develop skills in using evidence, even if drawn from other people's research, to support a detailed line of reasoning” (Cottrell, 2005: 9). Evaluation criteria: reliability; interpretation based on a methodological approach, theory, concept; interpretation of information through the prism of their own experience.

For example: different points of view are given. The students should review them critically and provide an argument. Consequently, they form the ability to identify their own position. Recommendations for students could include a link to a source, resource, quote, thesis, question, form of work, its design. We use competence-based tasks. One of the universal competencies provides for “the ability to search, critically analyze and synthesize information, apply a systematic approach to solving tasks”. The development of this competence requires CT skills. The following task is designed for 4th-year students, during the discipline “Agricultural History of Russia”. The task is to study the issue “Decisions of the March Plenum of the Central Committee of the CPSU in 1965 on the Development of Agriculture” identify the goal and main directions of agricultural reform. Students should take the following steps: 1. To study the documents “Resolution of the Plenum of the Central Committee of the CPSU”, March 26, 1965; “On Urgent Measures for the Further Development of Agriculture in the USSR” (Decisions ... 1968: 607-608). 2. To study educational texts V.P. Motrevich. “Agrarian history of Russia (IX-XX centuries)” (Motrevich 2012: 312); N.L. Rogalina. “Power and agrarian reforms in Russia. XX century” (Rogalina 2010: 165-167). 3. To compare the interpretations of the official document and of the historians (highlight the coinciding and differing assessments in the works of historians). Half of the students have completed the task. An important stage of work is reflection. There is a self-assessment of his/her own work, identification of strengths and weaknesses.

The skill of comparing events, phenomena, and processes is essential in historical material. *The students receive the following recommendations*: “When comparing and contrasting any two phenomena, ask yourself: “In what ways are they similar?” and “In what ways are they different?” Before beginning your evaluation, ask yourself: “What is the aim of this analysis?” Asking this question will help you choose the most appropriate and relevant dimensions and sorting variables. Carefully select the dimensions on which you will evaluate various phenomena. The dimensions you choose will ultimately determine the degree of “similarity” or “uniqueness” that they display. Despite what may appear to be an overwhelming number of similarities between two events, always search for and take into account their differences; conversely, regardless of what may seem to be a total absence of commonalities between two events, search for and take into account their similarities” (Shirayev, Levy, 2017: 93-94). One of the reasons for unsatisfactory results is that the students do not attend classes regularly. This is mainly due to the fact that many of them have to work. In fact, their training turns into an external course.

The third stage of methodology is creative processing and use of information. Media content plays an important role in modern education. Many researchers note such a feature as the formation of a mosaic picture of the world. Clip thinking is increasingly amenable to analysis. This

type of thinking is understood as simplified. With this mindset, information is not comprehended. Consequently, generations of superficially informed people are being formed. A.Y. Gubanova draws attention to this phenomenon (Gubanova 2017: 156). For this purpose we create electronic training modules. They contain a lesson plan, text fragments, illustrations, links to video resources, library sites, examples and exercises, algorithms to develop a new skill, as well as the home assignments the resources to use, and detailed instructions for completing the task. All materials are posted on the University website on the special Web portal.

For example: task for 3rd-year students. It is aimed at developing the ability to extract information from photos and analyze the material. The purpose of the work is to teach the students, as future history teachers, to organize work in the classroom using photos. Since the beginning of the 19th century, photographs have provided a large number of plausible visual images related to various aspects of history, including social life, wars, portraits, technical inventions, political events, etc. as visual sources, photographs offer the students information in a more attractive way compared to texts, since they are perceived much easier than long and complex written sources. Preliminary work showed that the students are not able to analyze photos as a document of the era. To eliminate knowledge gaps, it was necessary to firstly organize theoretical training and then to organize the development of admission by students. This was done in the course of the discipline “Facilitating interaction between individuals in the learning environment”. The electronic module for classes includes theoretical text of domestic & foreign scientists and history teachers (Bivsheva 2013; Ludtke, 2010; Mironova 2019; Stradling, 2001; Ushan 2018), a selection of photos on the topic "World War I", links to Internet resources. In addition, this module includes a lesson plan, questions for study, practical tasks, and comments on them. As a result, the students concluded that photos are probably the most attractive source in the lessons on modern and contemporary history. As a basis for analyzing the photo, they chose an algorithm compiled by a German specialist A. Ludtke (Ludtke, 2010). Without careful analysis, even the most interesting photos may remain closed and not provide the necessary information. In other words, you need to put questions and tasks that would help the photo “tell a story”.

In-depth study of the text leads to understanding. The students are expected to develop CT skills so that they can dig deeper below the surface of the subjects they are studying and engage in critical dialogue with its main theories and arguments. This is usually done through engaging them in a critical debate in seminars, or scientific work produced for assessment or publication.

Applying skills to working with texts of different types (educational, documentary, scientific, etc) is of utmost importance. The proposed methodology is aimed at developing the following students' skills necessary for critical analysis of information:

1. Mastering the skills of functional reading.
2. Applying skills to working with texts of different types: educational, documentary, scientific, etc.
3. Independent structuring of the text in accordance with the task.
4. Creating a culture for creating links and footnotes.
5. Presenting a text in the required form.

We conducted a survey among students when they were working with texts. It focused on their selection of priority activities. The survey was conducted in 2012, 2016, 2020. It was attended by undergraduate and graduate students. The number of participants is 49. Consider Table 2 which shows results of students' selection of priority activities.

Table 2. The Students' Choice of Priority Activities

| Type of activity with information | Number of priorities for activities specified in the list | Preferences of students |
|-----------------------------------|---|--|
| Search | 15 | Top five in the ranking: 1. Identification of ways to obtain information. 2. Selection of information in accordance with the task. 3. Planning. |

| | | |
|------------|----|---|
| | | 4. Search for information on the Internet. 5. Reading in Russian. |
| Analysis | 9 | Top five in the ranking: 1. Analysis of information reliability. 2. Discovery of the missing information. 3. Separation of essential information from non-essential information. 4. Critical consideration of different points of view on the problem. 5. Definition of the problem. |
| Estimation | 6 | Top three in the ranking: 1. Evaluation of information in terms of its reliability. 2. Interpretation of information through the prism of one's own experience, value system, and worldview. 3. Interpretation of information based on a methodological approach / theory/concept. |
| Recycling | 12 | Top four in the ranking: 1. Providing information in the required form. 2. Preparation of the text for publication. 3. Preparation of the report. 4. Preparation of presentations on research work. |
| Reflection | 10 | Top four in the rating: 1. Analysis of your own results. 2. Reasoning process. 3. Self-Esteem (the ability to see achievements and find problems in their own work, ways to solve them). 4. Intellectual integrity. |

The survey showed the following results. This structure led to a significant and sustained improvement in students' CT behavior. Half of the students showed an understanding of how to work with a text, whereas only 25 % of students demonstrated actual skills.

It is important to emphasize that a qualified historian is the one who has studied thousands of pages of classical and modern historical sources. Without such profound studies, the knowledge of history will stay superficial, and a historian will never be able to appreciate what he or she is reading to judge the qualities of his or her own written work.

Final year students demonstrate the following critical thinking skills: 1. an analytical strategy for the material; 2. understanding of the wider context; 3. an evaluation and selective approaches; 4. being self-critical about your own understanding, interpretation and evaluation. The results in the diagram show the dynamics of the development of certain skills by the years of graduation from the University: 2012, 2016, 2020 (see [Figure 1](#)).

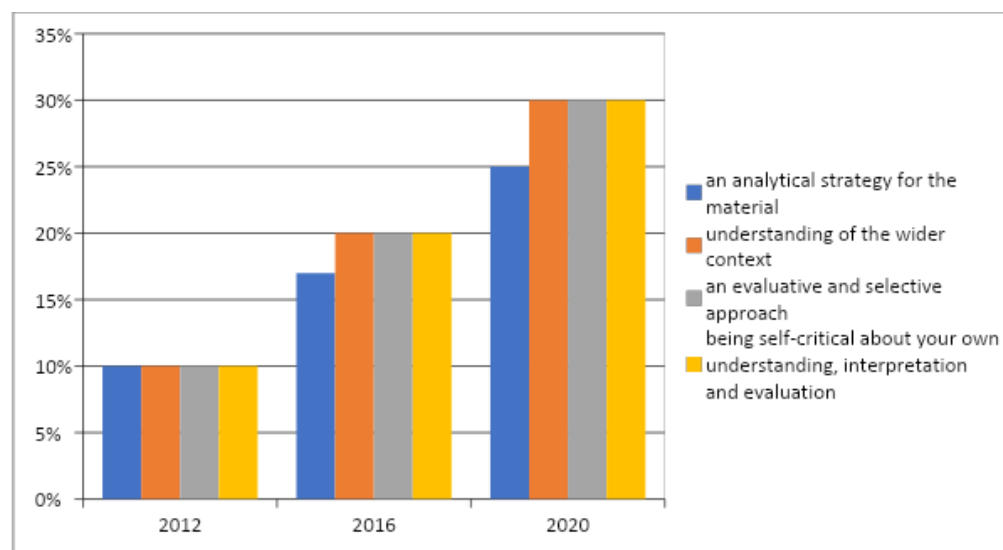


Fig. 1. Trends of the students' critical thinking skills development

According to the diagram, only 10 % of 2012 graduates demonstrate well-developed skills. 17 % of 2016 graduates demonstrate skill No. 1 and 20 % demonstrate well-formed skills No. 2, 3, 4; 30 % of 2020 graduate demonstrate skills No. 2, 3, 4 and 25 % demonstrate skill No. 1. [Figure 1](#) shows a positive trend. By the end of the undergraduate course, 25 % of students have developed analytical skills. These skills are aimed at developing critical thinking, which is manifested in the following actions of graduate students: to examine a historical issue or question and suggest possible lines of enquiry; to use sources to identify relevant information to help answer their questions; to structure information about particular event or situation into a sequence; to reach some conclusions about what happened and why and to provide reasons for them.

Students with clip thinking showcase features of content perception. They can't study and read a large amount of text. They have developed patterns of perception of the text. In this regard, we draw their attention only to the information that is necessary. N.S. Bastrakova came to a similar conclusion. She notes that the modern digital generation has information overload and, as a result, a decrease in the ability to acquire knowledge and use it to systematize information, consistently master it, build logical connections, and structure the material ([Bastrakova, 2018: 107](#)).

A statement often found in publications which says that the previous concept of teaching is unworkable. I would like to object to it, because with the new concept not only did learning outcomes not improve, but also got worse. It is not so much about the paradigm, but about who and what we teach, and how we do it. From the point of view of the meanings and purposes liberal arts education is disoriented. Should it give knowledge or teach to think, or educate a patriot and citizen? A weak humanitarian component played a role in the collapse of the USSR. Utilitarianism and technocracy in approaches ignore the most basic requests of an individual in the spiritual sphere. Thinking is developed through research work. We wrote about this in the previous article ([Alekseeva, 2020](#)). It is no coincidence that many publications are called CT scientific. The "lifestyle" factor plays an important role here. It's hard to supervise research if you don't do it yourself. "Teaching to learn is the most important task facing modern education. Most University teachers don't know how to do this," – I.D. Nevvazhay says ([Nevvazhay, 2020](#)). I agree with the author and would add that lessons of history are designed primarily to teach you to think critically.

5. Conclusion

To sum up, the problem of developing CT is rather relevant in modern society. Developing the type of thinking called "critical" is in demand in Universities. Over the years of working at Nizhnevartovsk State University, we have tested the methodology of developing basic CT skills, focusing on the following factors: identification of the level of information culture and taking into account characteristics of information perception. The article summarizes the experience of three student groups enrolled in Bachelor's degree programmes who entered the University in 2008, 2012 and 2016. The methodology consists of three stages: 1. installation; 2. forming the basic foundations; 3. developing skills. At all stages of the work, the primary means of training is an electronic module designed for the lesson, which contains basic material. CT skills could not develop without IL. These skills are closely combined with information literacy. The study shows that it is impossible to develop skills of all students. Over the years, 2/3 of students failed to develop the necessary skills. The students at all academic levels will clearly benefit from curricula steeped in CT strategies and practice. Indicators of critical thinking include ability to continue learning, problem solving, and teamwork that need to be improved throughout life.

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