Multiliterate Person: the View of Students and Teachers

Tatiana Galaktionova [a], [*], Olga Kazakova [a]

[a] Saint-Petersburg State University, Russian Federation

Abstract

The article presents the phenomenon of multiliteracy and its components as a component of modern pedagogical activity. At the theoretical stage of the study, a list of norms, skills and abilities characteristic of a multiliterate person was identified in the studied works. With the help of the survey, the participants of the educational process – teachers and high school students – have received ideas about the role these components of multiliteracy play in the educational process. Based on the data obtained, the authors draw a conclusion about the skills that students need and the role of multiliteracy in school education.

Differences in the attitude of students and teachers to the skills and abilities that determine the readiness of an individual to develop and apply multiliteracy in the conditions of modern communication have become apparent. The priority of the students was the ability to "promote" tests, to resist information manipulation, and the priority of teachers is the ethics of communication on the Internet, the ability to navigate media resources. At the same time, the entire range of skills offered was in demand, which indicates a meaningful attitude of respondents to the development of multiliteracy.

The prospect of developing multiliteracy requires the actualization of these skills in the minds of students and teachers and their inclusion in the practice of modern schools. Multiliteracy is a category of literacy that contains aspects necessary for understanding and creating texts of different modalities. By involving both teachers and students, we were able to analyze the positions of the participants in the educational process concerning the phenomenon of multiliteracy. Based on the totality of the survey results, we believe that multiliteracy skills are present in the educational process, but they are not formalized and do not have evaluation criteria. All this creates the prerequisites for the further development of multiliteracy in practice.

Keywords: literacy, text multimodality, multiliteracy, digital transformation, diversity.

1. Introduction

The concept of "multiliteracy" appeared in the English-language scientific discourse in 1996 in the article "Multiliteracy Pedagogy: Designing a Social Future" (The New..., 1996). The term was the result of a discussion about new types of literacy. The first part of the compound word – "multi" or "plural" – reflected the trends associated with the category of plurality, which is expressed in the emergence of new ways of presenting the information. The previously existing semiotic diversity of the text was supplemented by virtual reality, hypertext, media content, etc.

The expansion of the terminological field of literacy occurred in connection with an attempt to describe the ongoing transformation processes in traditional reading and writing. In the scientific context, such concepts as "functional literacy", "transliteracy", "multiple literacy",

---

[*] Corresponding author
E-mail addresses: galaktionova.tg@mail.ru (T. Galaktionova), baranikolya@gmail.com (O. Kazakova)

"information literacy", "media literacy" have appeared. Each of these terms adds a new dimension to the category of literacy. Our choice in favor of the concept of "multiliteracy" is due to the need to emphasize the multiplicity of the nature of modern literacy, which allows us to understand and create texts consisting of different modalities that are actively used in modern education. It follows that multiliteracy is becoming an integral factor in the development of the modern educational process, which is characterized by digitalization, interdisciplinarity, personalized learning model, and personal potential.

In many scientific sources, multiliteracy is considered in close connection with digitalization. This makes all skills important, in demand, and at the same time, the creation of a digital environment is based on multiliteracy. We understand the reason for this connection, but we believe that the pedagogical potential of multiliteracy is much wider and goes beyond digitalization.

Another characteristic feature is the trend of interdisciplinary integration, which is becoming more and more evident in school education. A kind of deficiency is the ability of students and teachers to integrate, the ability to present an object or phenomenon from different angles. It can be assumed that multiliteracy is a system-forming factor that makes it possible to see the integrity of the multi-component structure of new knowledge.

The potential of multiliteracy can be considered in terms of the principles of personalized learning formulated by the experts of the Summit schools. Because Summit Public Schools is an educational space specifically designed to meet the individual characteristics and needs of each child, we believe that the principles of these schools best reflect the pedagogical values of a personalized approach to learning. However, the implementation of a personalized model is hampered by the lack of understanding of the significance of diversity and the ability to use it in solving a specific educational problem.

Considering these contradictions, it seems important to update multiliteracy in the minds of teachers and schoolchildren as a factor in the development of modern education, to identify their needs and preferences, which make it possible to maximize the potential of multiliteracy and, through joint efforts, to collect "touches to the portrait" of a multiliterate person.

2. Materials and methods

Our review considers domestic and foreign articles, and monographs on the issue of multiliteracy from 1996 (the year of the first publication) to 2021 (Figure 1).
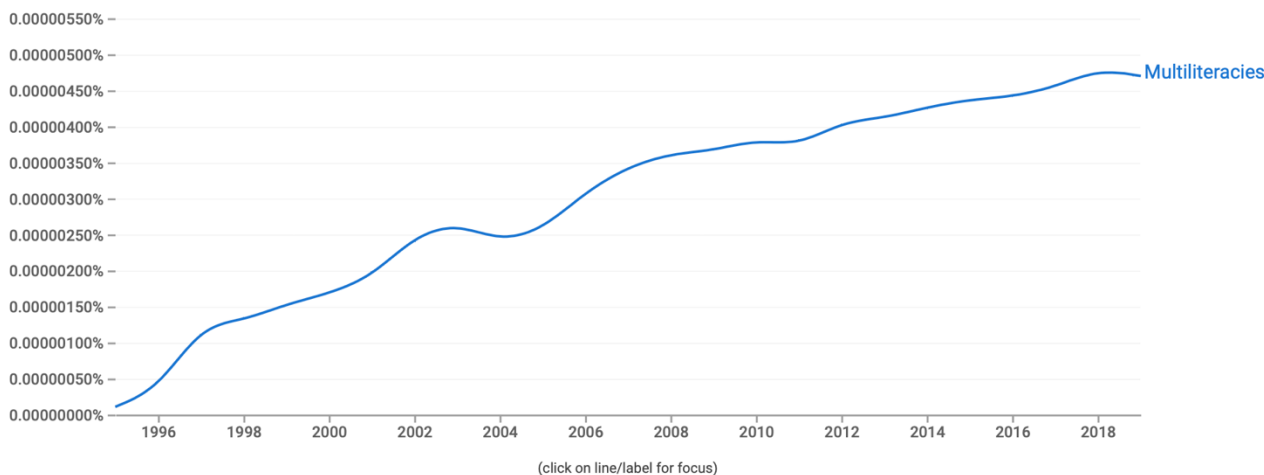

Fig. 1. Dynamics of the frequency of mentioning the term "multiliteracy"

The line chart in Google Ngram Viewer (Figure 1) shows the dynamics of the use of the term "multiliteracy" from 1996 to 2019 as a percentage of other terms presented in the English sources of the Google Scholar library. The statistics mentioning multiliteracy testifies to the growing interest in it from the scientific community.

When selecting sources, it was important for us to have a meaningful, component, and functional analysis of the phenomenon of multiliteracy in educational practice in the text. The literature review is presented in chronological order.

The first study on the phenomenon of multiliteracy, A Pedagogy of Multiliteracies: Designing Social Futures (The New..., 1996), highlights the preconditions for the transition from traditional literacy to multiliteracy. Among these prerequisites are the changes in the social environment faced by students and teachers. The multitude of channels of communication, and the growing cultural and linguistic diversity in today's world require a much broader view of literacy. The researchers believe that the inclusion of multiliteracy in the context of pedagogical activity will allow students to use the potential of verbal and non-verbal ways of interacting with information in the study of a variety of subjects. Thus it is concluded: the development of multiliteracy skills should complement the traditional teaching of reading and writing (The New..., 1996).

A scientific event in 2001 was the publication of the book "Teaching multiliteracies across the curriculum: Changing contexts of text and image in classroom practice" by L. Unsworth (Unsworth, 2001). The author defines the prerequisites for the emergence of the phenomenon of multiliteracy and reveals them through socio-cultural, semiotic, and pedagogical aspects. The paper argues that the theoretical and practical foundations of modern literacy pedagogy are influenced by intermodal transformations. This is expressed in a change in the semantic structures and characteristics of the images embedded in the text. The study describes the variety of text formats and features of interaction with them in various subject areas. Special attention is paid to the possibilities of ICT for the study of fiction (Unsworth, 2001). However, the author emphasizes that reading and writing remain the basis for the development of literacy.

The publications of 2005 are characterized by an appeal to the study of multiliteracy in the context of digital methods of teaching writing. In particular, the authors of the article "Multiliteracies Meet Methods: The Case for Digital Writing in English Education" (Grabill, Hicks, 2005) emphasize that the development of multiliteracy occurs when working with computer programs and media content. The authors refer to sociological studies demonstrating a high degree of application of digital technologies by students in the educational process (Grabill, Hicks, 2005). However, they emphasize that the consequences of the action, but the chaotic use of modern resources have not yet been studied and can be very ambiguous. According to the authors, the use of digital tools should be purposefully included in the practice of teaching writing. We believe that this approach is of some interest, however, the phenomenon of multiliteracy is not limited to the digitalization of learning.

In 2010, there is a continuation of scientific discussion. As the most authoritative publication, we have chosen the work of P. Alberts and J. Sanders "Multimodal Literacies: An Introduction". Arguing about the essence of multiliteracy, the authors argue that "multimodality is a priority direction for the development of literacy in the 21st century" (Alberts, 2010). Multiliteracy studies look at how different semiotic systems (painting, drama, music, movement, writing/speaking, mathematics) are used in the school context. Multiliteracy education is presented as a pedagogical practice in which learning success is achieved through the creation by students of complex, socially constructed, personally significant, creative texts that include different modes of communication and symbol systems (Alberts, 2010).

We looked at L. Ajayi's 2011 article "A Multiliteracies Pedagogy: Exploring Semiotic Possibilities of a *Disney Video* in a Third Grade Diverse Classroom". In this work, the author defines multiliteracy as the ability to interpret and construct multimodal texts (computer games, digital video, images, graphics) (Ajayi, 2011). The digital nature of multiliteracy, which we spoke about earlier, is emphasized. Talking about cartoons as an educational resource, the author emphasizes that they are often used in elementary schools in the United States as a material for teaching literacy. However, their influence on mental activity has not been studied (Ajayi, 2011). The author raises the important problem of the inconsistency of literacy teaching methods with the requirements of the modern realities of multiliteracy faced by students. The presented work demonstrates a similar approach to the definition of multiliteracy through the ability to interpret and create various texts using semiotic diversity. However, he limits the scope of this ability only to the digital space. In our understanding, multiliteracy causes a variable approach to learning, which can be implemented not only in digital form.

The process of transformation of literacy is reflected in the works of domestic authors. In 2013, a collective monograph "Text Pedagogy: Experience of Semiotic Solution" was published, by the compiler and scientific editor – T. Galaktionova. Researchers believe that the implementation of the semiotic approach when creating a text expands the possibilities of perceiving information through the prism of individual intellectual characteristics (Gardner, 2007).

It is necessary to consider "the diversity of individual intelligence profiles that exists within the same educational system of the class. The use of a semiotic approach in education, translated into the language of specific pedagogical technologies, helps to do this" (Gardner, 2007).

Based on the types of intelligence identified in the theory of G. Gardner, the authors propose an appropriate typology of the types of "text" with which students interact ("verbal text", "mathematical text", "visual text", "acoustic text", "text of sensations", "text of research", "text of self-knowledge", "text of communication", "text of existence" (philosophical reflection) (Gardner, 2007). The ideas of semiotic didactics outlined in the collective monograph "Pedagogy of Text" made it possible to reveal the multiple nature of multiliteracy from a pedagogical perspective. This idea was further developed in the articles "The Phenomenon of Multiliteracy in the Context of Academic Discourse" (Galaktionova, Kazakova, 2021), as well as in the work "Educational Text as a Resource and Result in The Logic of Multiliteracy Ideas" (Galaktionova, Kazakova, 2021).

The concept of "multiliteracy" in the context of many definitions of literacy and emerging terminological problems was presented by I. Kolesnikova (Kolesnikova, 2013). Using comparative material from Russian and English sources, the author reveals the meaning of terminological neologisms proposed by the international scientific community to create a generalized idea of the phenomenon of "new literacy". The characteristic features of such types of literacy as information, audiovisual, and media literacy, which are determined by the technological aspects of the development of society, are described. Each of them is the subject of independent study. We share the author's position that it should not be about the "sum of literacy", but about the synergy of various ways of interacting with real and virtual space, "in the ability not only to read, depends on the traditional paper carrier, but it can read the information contained in different symbolic systems" (Kolesnikova, 2013).

The study of the phenomenon of multiliteracy was continued in 2018 in the work of I. Trofimova "Multiliteracy as a Social Value and a Factor in the Development of Modern Society". The work is based on a detailed analysis of English-language studies. The author defines multiliteracy as skills that allow achieving meaningful results of lifelong learning. It seems to us that this is very important, as it emphasizes the importance of finding pedagogical solutions in the development of multiliteracy in modern schoolchildren.

In 2021, a large-scale study by Russian scientists "Developing Multiliteracy Skills and Pragmatic Communication Awareness of University Students Learning a Foreign Language (English) for Specific Purposes" was conducted. It was held from 2016 to 2020 and about 600 students took part. Based on the analysis of theoretical materials, the authors concluded that multiliteracy skills include: "social-pragmatic understanding of the specifics of the context, pragmalinguistic skills in using relevant language units, skills in searching and using ICT sources» (Atabekova et al., 2021). The combination of communicative, semiotic, and technical factors also correlates with our view of multiliteracy.

An analysis of various aspects of multiliteracy reflected in the presented studies from 1996 to 2021 allows us to see similarities and differences in the description of aspects of multiliteracy. The following contradiction can clearly be distinguished: multiliteracy as literacy in the use of digital technologies and an approach where they act only as an additional tool of representation. The considered works are united by the designation of semiotic diversity, expressed in various forms. Multiliteracy is presented as a list of skills and abilities, and communication norms necessary for interaction with the represented multitude. In this broad-spectrum, we want to focus on the pedagogical part. We consider digitalization only as a modern space of representation, but it is not the only way to implement multiliteracy.

Teaching multiliteracy will allow students to learn their native language and use the potential of verbal and non-verbal ways of conveying information in the study of a variety of aspects. Active research into multiliteracy is since the theoretical and practical foundations of modern literacy pedagogy are influenced by intermodal transformations. This is expressed in a change in the semantic structures and characteristics of the images embedded in the text. It is especially important to study different systems of symbols (painting, drama, music, movement, writing/speaking, mathematics) in the context of school education. Thus, multiliteracy training is effective with the participation of the subjects of the educational process in the creation of complex, socially constructed, personally significant, creative texts, including different communicative ways or systems of symbols. A similar idea is heard in Russian studies and is expressed in the semiotic

approach when creating a text. This expands the possibilities of perceiving information through the prism of individual intellectual characteristics.

In several studies, the relevance of studying the practice of multiliteracy is determined by the need to address the mismatch between literacy teaching methods and new aspects of multiliteracy faced by students.

There is still no single definition of multiliteracy. The problem of defining the whole terminological field of literacy is reflected in the analyzed works. As part of the dissertation research, we propose the following definition: multiliteracy is an integrative personal characteristic, thanks to which students successfully master the experience of polymodal communication and form the ability to combine several ways (modes) of mastering the world in the process of cognition, using the potential of verbal and non-verbal means of interaction with information.

The study of multiliteracy is currently ongoing in various research centers. Literacy is traditionally defined as the degree of proficiency in reading and writing. Perhaps, for this reason, researchers also try to define multiliteracy in terms of a range of skills and abilities. The formulation of this list seems to be an urgent task.

3. Discussion

A meta-analysis of research results on the impact of computerized collaborative learning consists of three main elements: communication and collaboration, use of technology and the use of extra learning environments or tools, or supporting strategies in computer-supported collaborative learning (Chen et al., 2018). One element of this model is an online questionnaire.

In addition, some examples show that in the learning process of schoolchildren, teachers attach great importance to collecting data in the media space. Students collect data by themselves, so participating in an online survey can learn the principle of a social design questionnaire (Stornaiuolo, 2020). Educational researchers (Allchin, Höttecke, 2020) noted that the overall understanding of science and the dissemination trend of scientific data in the media have a positive impact on the development of scientific literacy. In addition, the use of multimedia and media texts in educating students has a positive impact on their academic performance (Bridge et al., 2020), which helps to cultivate media literacy and communication literacy (Anyon, 2021).

The above aspects show that it is of practical significance to develop a new way of literacy – media literacy. Media literacy means mastering the skills to distinguish between real information and false information (Kang, 2022).

When we planned this study, we also analyzed other surveys in this area. An interesting example is the meta-analysis of the impact of media on reading and understanding (Ackerman et al., 2018). Online learning based on social networks is considered mobile, positive, and positive (Aguilar-Illescas et al., 2018). A broader study of the media in education demonstrates that this reduces the cognitive burden (Beege et al., 2018). In addition, the penetration of social networks in education continues to rise (Manca, 2020).

To achieve the goals of identifying the characteristics of a multiliterate person and comparing the opinions of students and teachers on the skills that he needs, a survey was conducted on the reference group of participants. An online survey using Google Forms made it possible to receive feedback from teachers (63 %), and high school students (37 %), in total, 345 respondents directly involved in practical educational activities took part in the study.

The main provisions of the theoretical study were translated into questions and statements. We considered that the phenomenon of multiliteracy is not familiar to the respondents. That is why the survey partly had an educational function. From the content of the questions, the respondents could get acquainted with multiliteracy, get primary ideas, based on which they can draw their conclusions and determine their attitudes.

The hypothesis of the study was the assumption that a multiliterate person is oriented in a variety of information and uses it to interact with the surrounding reality.

The first item of the survey contained the characteristics of multiliteracy, the participants were asked to respond to this list in terms of the legitimacy, expediency, and relevance of the proposed characteristics in the context of the educational process. The response options were ranked on a Likert scale, which made it possible to express the degree of agreement or disagreement (acceptance, non-acceptance). And there was also the answer option "I find it difficult to answer" (Figure 2).

The second point was aimed at identifying the types of literacy that, in the opinion of students and teachers, are already being developed in the modern educational process. The multiple nature of multiliteracy suggests a multicomponent structure in which different types of literacy are present. In the logic of the theory of multiple intelligences, we stopped at nine types of intelligence and their corresponding types of literacy. Respondents had the opportunity to make a multiple choice of nine options.

In the third paragraph of the survey, a list of skills and abilities of multiliteracy was proposed. Respondents were asked, through multiple-choice, to identify those skills that, in their opinion, should be given more attention in school education.

Let's consider the obtained results.

4. Results
Question 1. The question of the essence and characteristics of multiliteracy.

In an address to the respondents, we outlined our position on the processes taking place with literacy in the modern world. Among the main trends were indicated:

- the evolution of the concept of literacy;
- the need to master new forms and methods of communication;
- multiple, polymodal nature of the "new" literacy.

As a result of ongoing processes, it was proposed to consider the emergence of multiliteracy and understand this phenomenon.

It was important for us to agree with the respondents on the essence of the concept of "multiliteracy". Given the novelty and ambiguity of the interpretation of the term, we put into the formulation of the question the positions that are fundamental for us, in which the description of multiliteracy was assumed through four aspects:

- individual experience of working with information;
- variety of forms of self-expression in the process of communication;
- a critical eye that allows you to relate information to the social context and individual needs;
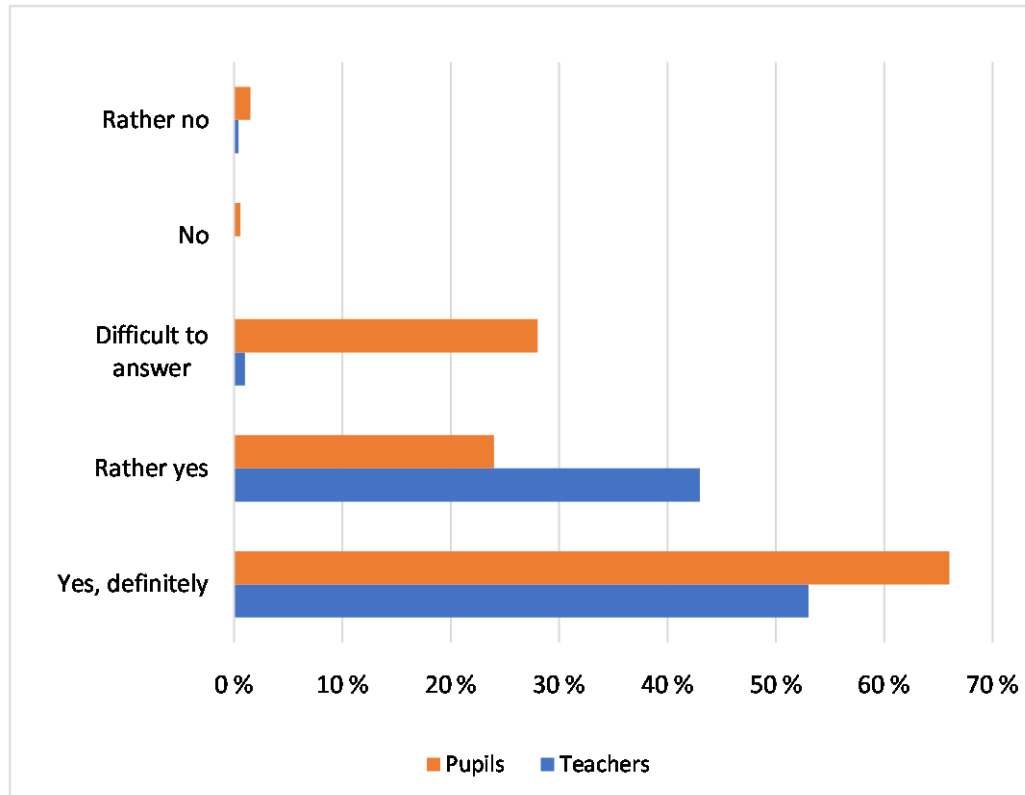- the practice of transforming a system of meanings and meanings from one context to another.

Fig. 2. The results of the answers of teachers and students

Since the question was educational, it was important for us that the respondents see the main characteristics of multiliteracy and respond to them. The survey participants, according to our plan, were invited to a dialogue about the problems of multiliteracy, so the positions of understanding-misunderstanding, acceptance-not acceptance were important to find a common language with them for further conversation.

We assumed that having understood the essence of the new phenomenon through its characteristics, the respondents would help us clarify the role of multiliteracy in modern education.

Comparison of the results of the responses of teachers and schoolchildren made it possible to record that 53 % of teachers and 66 % of students demonstrated understanding and agreement with the proposed characteristics of multiliteracy. Assuming the risk of a socially-expected response, we still assume that this choice was made consciously since the questionnaire itself did not imply correct or incorrect answers. It is quite predictable that 28 % of the students found it difficult to determine their attitude.

The minimum (statistically insignificant) percentage of respondents showed disagreement with the presented characteristics, which can be explained by their position or error. The remote form of the survey did not imply the possibility of clarifying the reason for the negative answer, but its presence must be considered.

Support for our position on the part of the respondents concerning multiliteracy gave us reason to believe that further dialogue would be meaningful and meaningful.

Question 2. The question of the types of literacy components of multiliteracy that are already present and developing in the educational process of the modern school.

In the theoretical part, we substantiated the polymodal nature of multiliteracy skills, which (in the logic of the theory of multiple intelligences) included verbal, logical and mathematical, communication and research skills, visual, auditory, tactile perception, introspection, and reflection skills, existential (philosophical) understanding. To determine the role of these skills in the educational process, we offered the participants to choose from the indicated ones that can be developed at school.

We assumed that the leading positions would be occupied by the types of literacy directly related to the subjects studied at school – natural science (research), mathematics, and verbal. While the visual or auditory type of literacy does not develop within a particular subject. According to the data obtained, our assumptions were confirmed (Figure 3). Particular attention should be paid to the difference in the answers of students and teachers. Teachers note that it is best to develop communicatively, natural science literacy in the educational process. At the same time, students single out verbal (62 %) and natural science (research) literacy. Communicative, verbal, natural-science (research) skills of teachers are completed, according to students, these skills develop less. Teachers exaggerate the success of developing such skills as communication, verbal, research, and visual. While the position of students on these issues is critical. In mathematical and auditory skills, teachers underestimate the success of development and critically approach the success of the development of these types of literacy.

The priorities of both groups are verbal, communicative and natural science (research), while auditory, visual, tactile, and existential (philosophical) types of literacy "sink", which is due to a fairly traditional list of subjects. The variety of ways of perception and transmission of information must be popularized, taking into account the positions of all participants in the educational process. Many of the skills that we include in multiliteracy are developed in school.

Considering multiliteracy as a set of skills, it was important for us to understand what the norms and rules are for using multiliteracy, what skills are needed to use multiliteracy: compliance with ethical standards, the ability to navigate the information space, the use of all possible tools to achieve one's own goals. This is reflected in the next question.

Question 3. Skills and abilities that need to be taught at school

In the theoretical part of the study, we outlined a list of skills and abilities necessary for the implementation of multiliteracy following the norms of communication in the modern world. The proposed question was aimed at finding out which skills and abilities from this list (according to the respondents) are a priority for learning at school. These skills included: processing and presenting information using digital resources (MS Word processor, web services for translation and detection of spelling, punctuation errors, etc.) compliance with copyright when using other people's materials, working with texts of a new nature, elementary programming, compliance with the norms and rules of communication on the Internet, orientation in the use of media resources.
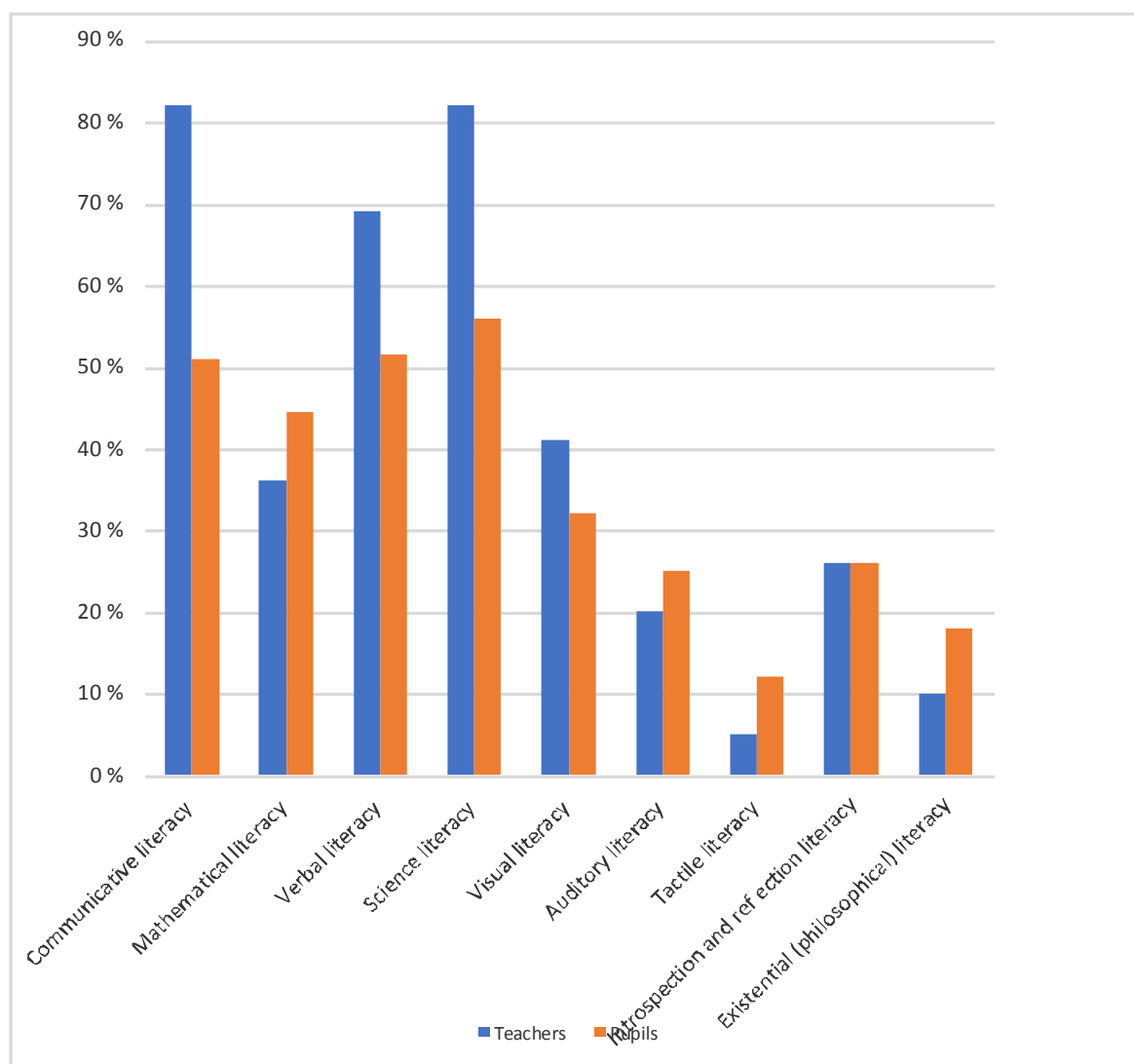
Fig. 3. Types of literacy that survey participants manage to develop at school (%)

The results were summarized based on multiple-choice participants. We did not make specific assumptions about the forecast results. All these skills and abilities are meta-subject and objectively necessary. Therefore, we were pleased that all of them were in the field of attention of the respondents.

At the same time, it turned out that the answers of teachers and students differ in several provisions. So, teachers consider it first of all necessary to develop skills related to the ethics of communication on the Internet and orientation in media resources. While the students put forward the ability to "promote" their texts to the leading positions (the last place in the rating among teachers) and resist information manipulation (there is no contradiction with the choice of teachers) (Figure 4). Mastering basic programming skills turned out to be the least demanded skill for both groups. Perhaps this is due to the presence of "Computer Science" lessons as a compulsory subject in the curriculum. Although this choice turned out to be a little more popular among teachers.

It is obvious that schoolchildren are focused on the knowledge and skills necessary for a particular activity, and teachers see the problem rather in matters of education. We are pleased that students want to learn how to create and "read" texts of a new nature because we believe that this is what multiliteracy is all about in the first place.

The listed skills are determined by the norm of survival in the digital modern world. Multiliteracy in this world, in our opinion, is a value and a tool. These skills are a prerequisite for the full implementation of multiliteracy. Therefore, both teachers and students must understand the importance of learning these skills in school. It can be assumed that the possession of these

skills will allow students to implement multiliteracy both in the educational process and in solving life problems.
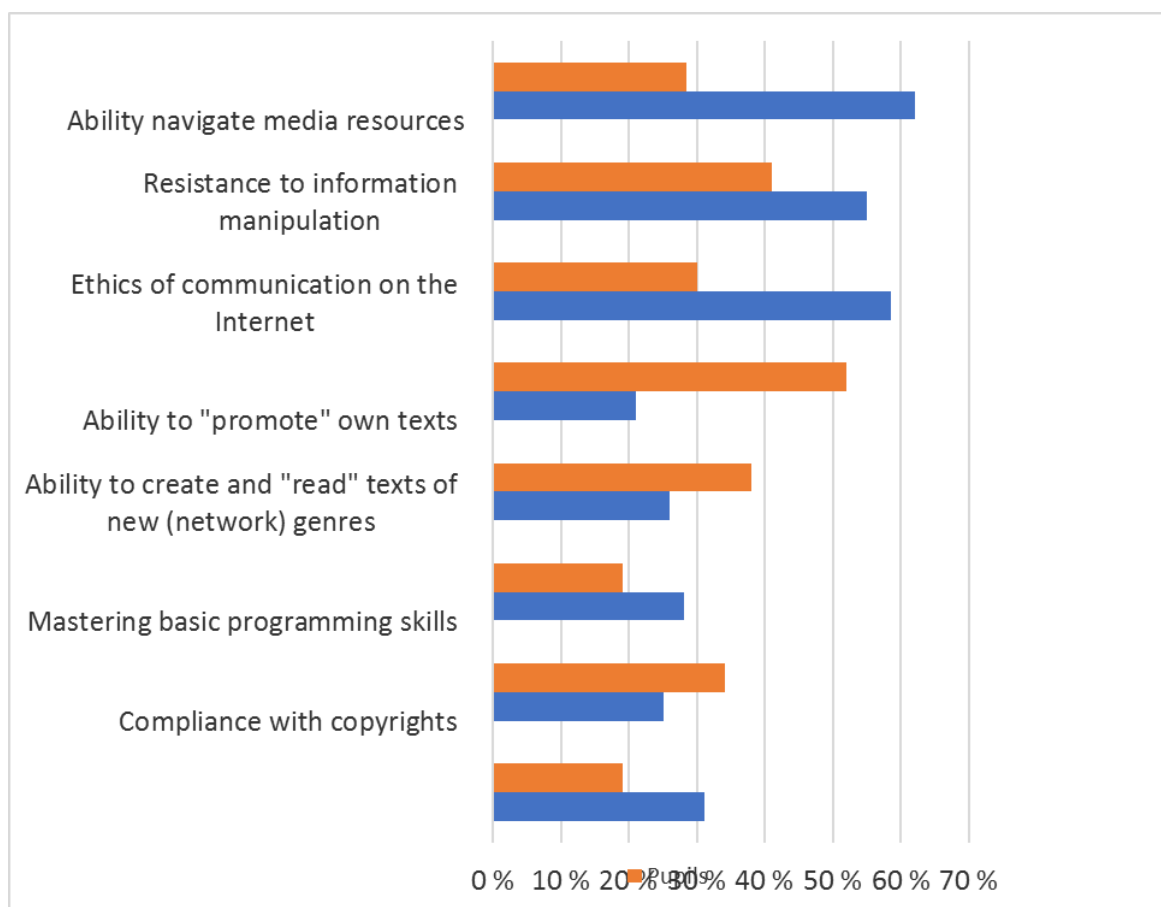

Fig. 4. Skills and abilities necessary for the development of multiliteracy, which it is advisable to pay attention to in school education (%)

5. Conclusion

The purpose of this study was to identify the perceptions of teachers and schoolchildren about a multiliterate person. The results obtained made it possible to clarify the essence of the phenomenon of multiliteracy and to identify and describe the conditions and prerequisites for the development of multiliteracy among modern schoolchildren.

Respondents agree with the statement that a multiliterate person has an individual experience of working with information, considers the variety of forms of self-expression in the process of communication, critically evaluates information, can transform systems of meanings in different contexts, and correlate the information with the social context and individual needs. Of course, certain skills and abilities are formed in practical activities.

From the proposed typology of the components of multiliteracy (individual experience of working with information; a variety of forms of self-expression in the process of communication; a critical view that allows you to correlate the information with the social context and individual needs; the practice of transforming a system of meanings and meanings from one context to another) (Unsworh, 2001), types of literacy were identified that in the opinion of teachers and students, they are already developing quite successfully at school. These included verbal, communicative, and natural science (research) literacy. This indicates a certain deficiency in the development of other components of multiliteracy, which must be considered when designing the educational process.

Differences in the attitude of students and teachers to the skills and abilities that determine the readiness of an individual to develop and apply multiliteracy in the conditions of modern communication have become apparent. The priority of the students was the ability to "promote" tests, to resist information manipulation, and the priority of teachers is the ethics of

communication on the Internet, the ability to navigate media resources. At the same time, the entire range of skills offered was in demand, which indicates a meaningful attitude of respondents to the development of multiliteracy.

The prospect of developing multiliteracy requires the actualization of these skills in the minds of students and teachers and their inclusion in the practice of modern schools. Multiliteracy is a category of literacy that contains aspects necessary for understanding and creating texts of different modalities. By involving both teachers and students, we were able to analyze the positions of the participants in the educational process concerning the phenomenon of multiliteracy. Based on the totality of the survey results, we believe that multiliteracy skills are present in the educational process, but they are not formalized and do not have evaluation criteria. All this creates the prerequisites for the further development of multiliteracy in practice.

References

Ackerman et al., 2018 – *Ackerman, R., Delgado, P., Vargas, C., Salmerón, L.* (2018). Don't throw away your printed books: A meta-analysis on the effects of reading media on reading comprehension. *Educational Research Review.* 25: 23-38. DOI: 10.1016/j.edurev.2018.09.003

Aguilar-Illescas et al., 2018 – *Aguilar-Illescas, R., Anaya-Sánchez, R., Molinillo, S., Vallespín-Arán, M.* (2018) Social media-based collaborative learning: Exploring antecedents of attitude. *The Internet and Higher Education.* 38: 18-27. DOI: 10.1016/j.iheduc.2018.04.003

Ajay, 2011 – *Ajayi, L.* (2011). A multiliteracies pedagogy: Exploring semiotic possibilities of a Disney video in a third grade diverse classroom. *Urban Review.* 43(3): 396-413. DOI: 10.1007/s11256-010-0151-0

Alberts, 2010 – *Alberts, P.* (2010). Multimodal Literacies: An Introduction. Literacies. The Arts, and Multimodality. National Council of Teachers of English.

Allchin, 2020 – *Allchin, D., Höttecke, D.* (2020) Reconceptualizing nature-of-science education in the age of social media. *Science Education.* 104(4): 641-666. DOI: 10.1002/sce.21575

Anyon, 2021 – *Anyon Y., Clark S., Engle C., Jimenez C., Kennedy H., Nisle S., Matyasic S.* (2021). The art of youthful restraint: negotiating youth-adult relations in digital media literacy. *Learning, Media and Techology.* 26(2): 190-203. DOI: 10.1080/17439884.2021.1888118

Atabekova et al., 2021 – *Atabekova, A., Gorbatenko, R., Lutskovskaia, L.* (2021). Developing multiliteracy skills and pragmatic communication awareness of university students learning a foreign language (English) for specific purposes. *Thinking Skills and Creativity.* 42. DOI: 10.1016/j.tsc.2021.100956

Beege et al., 2018 – *Beege M., Schneider S., Nebel St., Günter R.* (2018) A meta-analysis of how signaling affects learning with media. *Educational Research Review.* 23: 1-24. DOI: 10.1016/j.edurev.2017.11.001

Bridges et al., 2020 – *Bridges, M., Chan, K., Hmelo-Silver, E. et al.* (2020) Dialogic intervisualizing in multimodal inquiry. *International Journal of Computer-Supported Collaborative Learning.* 15: 283-318. DOI: 10.1007/s11412-020-09328-0

Chen et al., 2018 – *Chen J., Wang, M., Kirschner, A. et al.* (2018) The Role of collaboration, computer use, learning environments, and supporting strategies in CSCL: A Meta-Analysis. *Review of Educational Research.* 88(6): 799-843. DOI:10.3102/0034654318791584

Galaktionova, 2016 – *Galaktionova, T.* (2016). Teksty "novoj prirody" i novaya gramotnost' [Texts of a new nature and new literacy]. Teksty novoj prirody v obrazovatel'nom prostranstve sovremennoj shkoly. Sb. materialov VIII mezhdunarodnoj nauch.-prakt. konferenciyi "Pedagogika teksta" – Texts of a new nature in educational space. St. Petersburg: LEMA: 13-17. [in Russian]

Galaktionova, Kazakova, 2021 – *Galaktionova, T., Kazakova, O.* (2021). Uchebnyj tekst kak resurs i rezul'tat v logike idej mul'tigramotnosti [Educational text as a resource and result in the logic of multiliteracy ideas]. *Upravlenie kachestvom obrazovaniya: teoriya i praktika effektivnogo administrirovaniya.* 8: 44-51. [in Russian]

Galaktionova, Kazakova, 2016 – *Galaktionova, T., Kazakova, E.* (2016). Priobshchenie k chteniyu putem osvoeniya tekstov novoj prirody [Introduction to reading by mastering texts of a new nature]. *Ot Goda literatury — k veku chteniya.* Moscow. [in Russian]

Galaktionova, Kazakova, 2021 – *Galaktionova, T., Kazakova, O.* (2021) Fenomen mul'tigramotnosti v kontekste akademicheskogo diskursa [The phenomenon of multiliteracy in the context of academic discourse]. *Naucnoe mnenie.* 6: 86-90. DOI: 10.25807/22224378 _2021_6_86.[in Russian]

Gardner, 1983 – *Gardner, H.* (1983) Frames of mind: the theory of multiple intelligences. New York: Basic Books.

Grabill, 2005 – *Grabill, T., Hicks, T.* (2005). Multiliteracies meet methods: the case for digital writing in english education. *English Education. National Council of Teachers of English.* 37(4). 301-311.

Kang et al., 2022 – *Kang, S., Luo, F., Yang, C.* (2022). New media literacy and news trustworthiness: An application of importance–performance analysis. *Computers & Education.* 185. DOI: 10.1016/j.compedu.2022.104529

Korotkina, 2018 – *Korotkina, I.* (2018). International studies of new literacy and problems of terminological inconsistencies in Russian pedagogy. *Domestic and foreign pedagogy.* 50(3): 538-556. [in Russian]

Manca, 2020 – *Manca, S.* (2020) Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education.* 44. DOI: 10.1016/j.iheduc.2019.100707

Stornaiuolo, 2020 – *Stornaiuolo, A.* (2020) Authoring Data stories in a media makerspace: adolescents developing critical data literacies. *Journal of the Learning Sciences.* 29(1): 81-103. DOI: 10.1080/10508406.2019.1689365

The New..., 1996 – The New London Group. A Pedagogy of multiliteracies: designing social futures. *Harvard Educational Review.* 1996. 66(1): 60-93. DOI: 10.17763/haer. 66.1.17370n 67v22j160u

Unsworth, 2001 – *Unsworth, L.* (2001). Teaching multiliteracies across the curriculum: changing contexts of text and image in classroom practice. Philadelphia: Open University Press.

Westby, 2010 – *Westby, C.* (2010). Multiliteracies: topics in language disorders. *Topics in Language Disorders.* 30(1): 64-71. DOI: 10.1097/TLD.0b013e3181d0a0ab