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**METASUBJECT ABILITIES DEVELOPMENT IN UPPER
SECONDARY SCHOOL STUDENTS AS A PEDAGOGICAL
PROBLEM**

Marina G. Sergeeva (a), Igor Yu. Sinelnikov (b)*, Anna P. Sukhodimtseva (c)

*Corresponding author

(a) Institute for Strategy of Education Development of the Russian Academy of Education, Moscow, Russia,
sergeeva198262@mail.ru,

(b) Institute for Strategy of Education Development of the Russian Academy of Education, Moscow, Russia,
siu1104@yandex.ru*,

(c) Institute for Strategy of Education Development of the Russian Academy of Education, Moscow, Russia,
suhodimceva@yandex.ru

Abstract

Authors make a review of contemporary Russian concepts for implementing metasubject approach to school education. The article looks at one of the ways to solve the problems of developing metasubject skills in the upper secondary school students within the framework of social and humanitarian disciplines that is through the tasks that help to create social practice environment during the educational process. The value of the metasubject approach to implementing metasubject logic is in the means that create an educational environment for the students to reveal “new knowledge”, “meta-knowledge”, reflexive experience, mastering new “technique” for knowledge operation, “meta-means”, “meta-activity” for rational consistent thinking, develop “study tools”. Therefore, it becomes essential to develop not only meta-subject tasks, but methodical guidelines for their use as well. Such tasks are specially developed by the team of the Institute for Strategy of Education Development of the Russian Academy of Education (ISED RAE). The methodical aspect of foreign experience is also considered in the paper.

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Keywords: Metasubject outcomes, metasubject abilities, metasubject tasks, social and humanitarian disciplines, social practice for upper school students, universal curriculum actions.



1. Introduction

Education of a person is perceived in our modern post-industrial informational society as «an ability to communicate, learn, analyze, design, select and create» (Novikov, 2013). In response to that educational process in Russian schools, its goals, forms and methods, as well as means undergo significant changes. A range of documents that fix new social requirements to education were issued at a national level. Thus, the Federal State Standards for General Education (the FSSGE) formulate not just subject, but as well personal and metasubject outcomes to be achieved by students under the general curriculum. Metasubject outcomes imply metasubject notions and universal curriculum actions (UCA), as well as certain skills assigned to the educational level (primary: grade 1-4, lower secondary: grade 5-9, upper secondary: grade 10-11). Upper secondary school has a special focus on developing the ability to build personal educational roadmap and on mastering study and research, project and social skills (Federalnyy gosudarstvennyy obrazovatelnyy standart, 2012).

Renovation strategy sets new requirements. On the one hand, we may say that changes touch upon teachers' activities' organization, i.e. on creation and implementation of new educational models, as described in the Professional Standard for Teachers in the General Curriculum (2013) (Prikaz Mintruda Rossii, 2013). New approach demands that the teacher is able to form and develop universal curriculum activities in students, situations and values of social behavior, social skills for communication in social networks, polycultural and tolerant interaction, key competences (as prescribed in the international norms), etc.

On the other hand, new requirements relate to the organization of the upper secondary school studies for students to develop metasubject skills in the curriculum disciplines and to acquire social experience. In other words, we need to form «the skill to learn» and to use all the acquired knowledge in study cases and social practice (Bruner, Galperin, Davydov, Leontiev, Makhmutov, Rubinstein, Elkonin, and others.) (Novikov, 2013 p. 37).

This being said, teachers must secure that students receive such knowledge and master such activities which may be useful in life. In their turn, teachers must be adequately equipped in the methodical and technical aspect to reach such aim.

Current general education practice is not always relevant to nowadays' challenges. Knowledge-based paradigm and its stereotypes still hinder the process, presenting a teacher as a vessel of «ready-made knowledge». This problem has been time and again reviewed in the pedagogic scientific works (Sinelnikov, 2016), (Sukhodimtseva, 2016), etc. It is essential that we come to the transition, which Asmolov described in 2008, that teaching is not transmitting a knowledge system, teaching implies active knowledge operation to solve problems and cases finding specific solutions, it is not an isolated subject study, but a polysubject (intersubject) study of complex true-life cases, (activities) to the collaboration of the teacher and the student in the process of study, and active participation of the students in selecting the content and means of study (Asmolov et al., 2010).

It is necessary to mention that foreign scientific works state the difference between the notions «polysubject» (or «multisubject») and «intersubject» studies (Duerr, 2008), (Holbrook & Rannikmaa, 1997), (Jackson & Davis, 2000). Advantages of intersubject approach have been researched by foreign scientists.

One of the forms to implement the approach into the organization of students' and teachers' activity is through 'cooperative learning', when students and teachers in different subjects create a team that studies a specific task.

Team members should be responsible for their own learning and for the success of other team members' learning (Slavin, 2011). Cooperative learning is a progressive means of study Adams (2013), Johnson and Johnson (1989), Holbrook (2000), Slavin (1995): as it helps to share experience, amalgamates opportunities engrossed in different subjects.

Intersubject study can be done on the grounds of topic-based and parallel principles (same topic can be covered during different classes in parallel, in the same timeline) Jackson, Davis (2000).

Holbrook and Rannikmae (1997), Beane (1997), Paterson (2007) support the idea of an integrative study plan which is based on a key topic (of social importance), and is not connected to any specific subject. It is worth mentioning that foreign educational practice considers intersubject courses, programs an essential way to attract the best students to the educational institutions Kleinberg (2008).

Analysis of the foreign scientific views to these approaches allows stating that they are close to the ideas embedded in the Russian metasubject approach (Federalnyy gosudarstvennyy obrazovatelnyy standart, 2012).

As for the successful implementation of such approaches we would agree with the statement of foreign researchers, practicing teachers that arts integration stimulates deep learning, creates increased student engagement, and cultivates students' investment in learning (Bellisario & Donovan, 2012), that the key to success is the acceptance of the methodology by both the teacher and the student Youngblood (2007), Duerr (2008). Taylor (2008) came to a conclusion that intersubject works of teachers and students may bring a pedagogic benefit. Methodology is the study of activities' organization (Novikov, 2013).

We believe that the teacher should apply the approach to the studies' organization (that implies project and technology approach, for example) and to the activities of the students (it is necessary to create conditions for independent study, beneficial partnership). To that end the teacher must be equipped with metasubject methodical tools, applicable educational technologies, methods, means, etc.

However, as earlier mentioned both of the requirements are not yet fully applied to the Russian educational practice and science.

2. Research Questions

In connection to abovementioned we put the following question: the development of metasubject skills in upper secondary school should be considered as a social requirement and pedagogic problem. The term 'problem' we see as a fact-based issue or issues that exist in pedagogic theory and practice and relate to training and educating people (Bordovskaya, & Rean, 2009).

3. Purpose of the Study

The team of the Social and Humanitarian Educational Center of the Institute for Strategy of Educational Development of the Russian Academy of Education has a governmental task (No. 27.6122.2017/BCh) which sets framework for science research to "Update of the Content of General Education and Teaching Means in the Modern Informational Environment". One of the aims of this

research is to develop efficient means for the students to achieve metasubject outcomes. Tasks of metasubject nature are considered to be such means. These tasks can be used as instruction guidelines to develop skills and social competences (Sergeeva, 2016) in upper-secondary school students for social and humanitarian disciplines (History, Social Studies, Geography, Economy and Law).

4. Research Methods

Main research means include comparative analysis of psychologic and pedagogic literature, study of dissertations and guidelines for metasubject approach implementation, generalization of pedagogic experience related to the research issue, interpretation, observation, polling.

Special didactic and instruction tools were developed for the research:

- metasubject tasks. They will be offered to upper secondary students in Moscow and regional schools and will be done in computer classes using Google-resource.
- Google-form that performs automatic result processing and collects statistics of the tasks done by the school students. Statistics, including diagrams, is kept in the Google-form; students' answers are saved into an automatically built Google chart.
- special methodical card for the expert to observe the process. The card allows registering the activity of the teacher and the students, to analyze the efficiency of their work in the classroom.
- instructions for teachers and pedagogical workers who were curators of the school students being tested.

5. Findings

Initial review of the scientific and pedagogic works on the research and facts in the educational practice for metasubject in lower and upper secondary education can be considered intermediary results of the research.

Statement 1. We identified that the content of metasubject notion does not have a clear definition in the FSSGE.

At the beginning of the research we took the following definition as a base. Metasubject outcomes mean metasubject notions and generalized activities that are mastered by the students when they study several or all curriculum subjects, and applicable in the education process and in solving various day-to-day cases.

Statement 2. We identified that at the end of the 20th century metasubject issues were researched by Gromyko, Khutorskoy, Vorovschikov. Approach of each scientist has its own specifics, but they agree in the main aspect: they suggest including into the school curriculum specially developed obligatory metasubjects (that stand aside from the traditional subjects). Scientific team of Gromyko suggests such metasubjects as «Knowledge», «Symbol», «Problem», «Task» (Gromyko, 2001). Metasubjects that embrace «fundamental educational notions» (Khutorskoy) at all the levels of general education include «Numbers» (grade 1), «Information and Computer Technology» (grade 3-4), «Culture» (grade 5), «Global Knowledge» (grade 5-7), «Natural Science» (grade 5, grades 10-11) (Khutorskoy, 2012). Elective course «ABC of Logical Thinking» by Vorovschikov (2012) is developed for upper secondary school students to help them master general abilities and skills. Vorovschikov believes that such general

abilities are metasubject and does not distinguish the difference in them (Vorovshchikov & Orlova, 2012).

Statement 3. We determined that attempts were taken to consider the issue of implementing metasubject approach in school education as a part of comprehensive education by creating special complex programs. «Metasubject Education Program: Project for Integral School-specific System of Learning and Teaching Support to Form General Academic Skills» by Vorovshchikov and Orlova (2012). The program contains three parts: ideological (relevance of the program), informative (classification of general academic skills) and technical (resources and conditions for program's implementation) and is proposed by authors as an educational and managerial document.

Statement 4. In our research we determined that despite the mandatory requirement that school students must know metasubject content of the subjects, as fixed formally in the FSSGE, Russian teachers are not yet ready to fully comply with it.

Completed practice analysis show that only some teachers can keep attention to the content of the discipline and metasubject methodology for studies. Research of the teachers' works available at open web-resources (i.e. <http://nsportal.ru/>, <https://pedologiya.ru>, <http://pedsovet.su/>, <http://nachalka.info/preschool>) give evidence that teachers are more often «stranded to the program»; they give textbook material with a focus on a variety of presentation forms rather than on organizing school students' activities to develop their experience of reality.

Proof to that can be found in the research of other Russian scientists, i.e. (Vorovshchikov & Orlova, 2012) and others. It is worth mentioning that foreign researches as well describe such situation in their educational practice. For example R. Boehm believes that teaching either Geography or History teachers rarely combine aspects of both subjects, and due to that American children lack full understanding of the two disciplines (Boehm, Saxe & Rutherford, 2003).

Statement 5. In the framework of the research we developed a range of metasubject tasks for social and humanitarian curriculum disciplines. It is assumed that some of them may allow a teacher to design new pedagogic cases for social practice. Below example shows how **metasubject outcome** (that is knowledge and understanding of the basic notions of the social sciences and the skills to use them – Part 1, Para 9, the FSSGE) can be achieved by **the upper secondary schools students** on the basis of **Social Studies discipline**.

Students are given the below text to read.

When you graduate from school you will be 18, and you will be able to fulfil your constitutional right to take part in elections for state or local administration positions.

Current election practice shows that younger electorate is not very active. This is supported by a research held in 2015 for by the students of one Moscow University. They ran a poll for their peers asking “Are elections of any level important for you?”

The text is supported by a diagram that shows poll results (Figure 01).

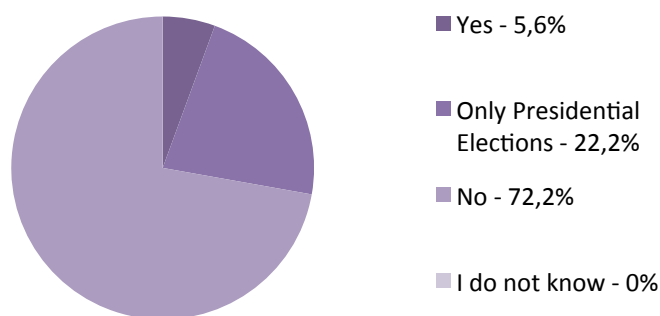


Figure 01. Polls results diagram.

First task to the students is to analyze thesis, arguments and assertions from the text, as well as to express and reason their views. Following questions can be suggested:

- Find in the text the thesis that describes actual social situation and underline it.
- Find in the text the argument that supports the thesis and underline it.
- Use the thesis and the argument to write an assertion about the actual social situation.
- How can you explain that students consider the elections of the President of Russia are the most important elections to them?

This task is aimed at:

- defining whether the student can recognize the information clearly expressed in the text and can interpret it without additional context knowledge;
- defining whether the student is able to use information given to create own assertions on the basis of the text;
- defining whether the student knows the UCA (basic logical notions) and can use them in social activity: the students must know what is ‘thesis’, ‘argument’, and ‘proof’, and be able to identify such in the text.

It is expected that students who answer the questions will not just use the text and the diagram, but their Social Studies’ knowledge as well, such as the facts that Russia is a presidential republic, President is a safeguard to the Constitution and the Supreme Commander-in-Chief, etc.

Second task to the students can be to provide rationale to the following question: «What would be your answer to the poll, if you took part in it?»

This task is aimed at:

- using text information for interpretation with context knowledge (basic notions of the social sciences), such as social role, social norms, Constitutional foundation of Russian national politics, etc.;
- building statements using theoretic knowledge in the given context with the example from actual social life and graphic information provided in the text.

This way the task can be used by the teacher as guidelines for developing metasubject abilities of the upper school students and forming their social competence, Such tasks can be useful for the cognitive and social practice of the students, help them master social activities, learn to take a position and be assertive in actual social situations.

6. Discussion

Received research results allow us to make the following main conclusions.

The FSSGE for the first time defined metasubject results to be mastered in the comprehensive curriculum. Still in the theoretical and practical pedagogic literature “metasubject results” are not fixed as a univocal term. Didactic means which create conditions for the students to achieve metasubject results are as well new.

We need to mention that though the approaches suggested by Gromyko, Khutorskoy, Vorovschikov are important and relevant their implementation will cause increasing workload for the students. We may agree with Dammer that introducing new metasubjects into the curriculum is artificial and would not lead to forming a holistic mindset. Metasubject content can be learned by students based on the subject content which keeps a subject or discipline a major structural unit (Dammer, 2014).

The value of the identified approaches to implementing metasubject logic is in the means that create an educational environment for the students to reveal «new knowledge», «meta-knowledge», reflexive experience, mastering new «technique» for knowledge operation, «meta-means», «meta-activity» for rational consistent thinking, «study tools».

Meta-tasks’ complex that helps upper secondary school students develop their social experience will serve as a didactic tool to the teacher, and will solve the methodic problem of creating conditions for the students to achieve metasubject outcomes. Another problem which has not been solved is to decide how the tasks will be integrated into the context of the studies, so that new designed educational situation becomes a consistent and integral process. Therefore it becomes essential to develop not just meta-subject tasks but methodical guidelines for their use as well.

7. Conclusion

Today’s main task of the Russian school is to bring a new level of education, its higher quality.

The Federal State Educational Standards, issued in 2009-2012 set the target to qualitatively update the content and means of study with a special emphasis on training beyond separate disciplines. However, there are certain difficulties on the path to implement this innovative metasubject approach. Implementation is hindered by:

- lack of consistency in scientific and educational practice in understanding what is the innovative path and how to implement the changes;
- deficit of scientifically supported means, methods, technologies to implement metasubject approach to school education;
- insufficient psychological and professional readiness of the teachers to the innovations’ implementation.

Analysis shows that successful implementation of the metasubject approach when keeping the subject structure of the curriculum may be achieved in two ways as a minimum:

- by developing and implementing a general program for the UCA (as a separate block in the comprehensive program at school);
- by using the content of the disciplines to create a meta-subject task complex.

In any way, the program and the tasks targeted to develop cognitive, reflexive and communicative skills must be built into the logic of the study plan and into individual teachers' plans, so that such new educational strategy becomes a consistent and integral process.

We may overcome mentioned problems by creating a new scientific and didactic support for school education and implementing a complex program to develop professional competence of teachers on the basis of the activities' approach.

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