
Theoretical Approaches to Evaluation of Meta-Subject 'Noncognitive Skills'

T.V. Krupa¹, A.A. Lebedev², M.I. Kovalenko³, K.V. Anistratenko⁴

Abstract:

The paper presents formulation of the problem of evaluation of meta-subject and 'noncognitive' skills in view of increasing requirements to their development at all levels of education in Russia. We have conducted a comparative assessment of classification features of meta-subject skills found in Russian and foreign literature, formulated objects of evaluation of 'noncognitive' skills and basic requirements to results of evaluation. The article presents main forms of inspection of development of universal learning activities.

Key Words: *Federal State Educational Standard of Primary General Education (FSES PGE), universal learning activities (ULA), five-factor model, big five, noncognitive skills, meta-subject results, agreeableness, conscientiousness, emotional stability, autonomy, extraversion*

¹ PhD (Psychology), LLC "Laboratoriya Innovatsii", tkrupa@inno-lab.ru

² LLC "Laboratoriya Innovatsii", alebedev@inno-lab.ru

³ Full Doctor of Pedagogical Sciences, PhD (Physics and Mathematics), Southern Federal University, mikovalenko@sfedu.ru

⁴ Southern Federal University, karin2104@mail.ru

Introduction

At present in the view of increase of requirements to promotion of meta-cognitive skills in learners, development of methods for evaluation of skill level is quite topical. The Federal State Educational Standard of Primary General Education (FSES PGE) defines meta-subject results as “comprising mastered by learners universal learning activities (cognitive, regulatory and communication), allowing mastering of intersubject concepts and key competences forming the basis of study skills”.

The concept of universal learning activities (hereinafter ULA) usually falls into following subgroups:

- regulatory ULA;
- communication ULA;
- cognitive ULA.

Regardless there is quite extensive list of meta-cognitive and meta-subject skills presented in the literature, we think it is necessary to compare it with the most common classifications laid out in English literature.

The most common and widely used classification of noncognitive skills presented in English literature is a so-called FF model (Five-Factor Model, Big Five [0]). According to the source [0], noncognitive skills can be classified into five large groups described below.

Agreeableness – willingness to help others, to act in the view of their interests provided there is return cooperation on their part.

Conscientiousness – tend to adhere to agreements and other concord.

Emotional stability – includes such oppositions as tranquillity – nervousness, independence – dependence, self-confidence – self-distrust.

Autonomy – tend of an individual to make independent decisions and control realisation of those decisions.

Extraversion – rapport, an ability to empathize.

Unfortunately, many of the FF model elements are not directly the skills. Within this research they may be regarded only as psychological attributes closely associated with development of a whole group of important noncognitive skills – primarily communicative ones. There are several quite reliable diagnostic methods based on the FF model, which may be used for verification of algorithms of automated evaluation of communication skills and teamwork skills.

The paper [0] presents a list of complexes of noncognitive skills created on the basis of FF model. This list better measures up to the list stipulated, for example, by the FSES PGE. According to the authors, such skills include:

- critical thinking skills;
- problem solving skills;

- emotional health;
- social skills;
- work ethics;
- community responsibility;
- personal relationships between students and teachers;
- self-control;
- self-regulation;
- persistence;
- academic confidence;
- teamwork;
- organizational skills;
- creativity;
- communication skills.

Main object of evaluation of meta-subject results is formedness in the learner of regulatory, communication and cognitive universal activities, i.e. mental effort of learners aimed at analysis and control of own cognitive activity.

Meta-subject results of mastering of principal educational program within basic general education should include:

- 1) an ability to independently define objectives of own education, set and formulate new tasks in studies and cognitive activities, develop motivation and interest in own cognitive activity;
- 2) a skill to independently plan paths to goal achievement – including alternative ones; to deliberately choose the most efficient solutions for learning and cognitive tasks;
- 3) an ability to correlate one's activities with intended results, to control one's activity in the process of achievement of result, to define methods of activity within suggested environment and requirements, to adjust one's activities according to changing situation;
- 4) a skill to assess correctness of fulfilment of a learning task and own abilities in its solution;
- 5) basis of self-control, self-esteem, decision-making and conscious choice in learning and cognitive activity;
- 6) an ability to define terms, make generalisations, find analogies, classify, independently choose basis and criteria for classification, establish cause-and-effect relations, develop logical reasoning and inferences (inductive, deductive and by analogy), draw conclusions;
- 7) an ability to create, use and transform symbols, models and schemes for solving of learning and cognitive tasks;
- 8) semantic reading;
- 9) an ability to organise learning cooperation and teamwork with a teacher and peers; to work individually and in a team: to find common solution and solve conflicts on the basis of concord of thinking and in respect to interests; to formulate, argue and defend own opinion;

- 10) an ability to deliberately use verbal means according to communicative task for expression of one's feelings, thoughts and needs; to plan and control one's activity; to use oral and written speech, monologic speech and context speech;
- 11) formation and development of competence in the sphere of use of information and communication technology (hereinafter ICT);
- 12) formation and development of ecological thinking, ability to use it for cognitive, communication and social practice, as well as for professional orientation.

Evaluation of meta-subject results is assessment of achievement of intended results in principal educational program, presented in chapters "Regulatory Universal Learning Activities", "Communicative Universal Learning Activities" and "Cognitive Universal Learning Activities" of the program for formation of universal learning activities, as well as of intended results presented in all part of interdisciplinary academic programmes.

Formation of meta-subject results is carried out by means of principal components of educational process — the school subjects.

Main objects of evaluation of meta-subject results are:

- an ability and readiness to grasp systematic knowledge, to independently enrich it, transfer and integrate;
- a skill of cooperation and communication;
- a skill of solution of personal and social problems and practical implementation of found solutions;
- a skill and readiness to use ICT for learning and development;
- a skill of self-organisation, self-regulation and self-reflection.

Evaluation of achievement of meta-subject results may be carried out within different procedures.

The main procedure of final evaluation of meta-subject results is presentation of an annual individual project.

Additional source of data on achievement of certain meta-subject results may be found in results of tests (usually, thematic ones) on all subjects.

Current, thematic and intermediate grades may be used for evaluation of such communicative and regulatory activities which are difficult or unreasonable to check within standard final test – for example, the level of formedness of cooperation or self-organisation skills.

Evaluation of achievement of meta-subject results is also carried out within the midterm assessment system. To evaluate the dynamics of formation and level of formedness of meta-subject results within the system of intraschool monitoring of learners' achievements, all the above mentioned data (a skill of cooperation and

communication, a skill of problem solution etc.) should be captured and analysed according to following recommendations developed by the educational institution:

- a) the programme of formation of intended results in interdisciplinary programmes;
- b) the system of midterm assessment (intraschool monitoring of learners' achievements) of learners within their curricular and extracurricular activity;
- c) the system of final evaluation by the subjects not included into the state (final) attestation of learners;
- d) the tools for assessment of intended results within current and thematic control, midterm assessment (intraschool monitoring of learners' achievements), final evaluation by the subjects not included into the state (final) attestation of learners.

Peculiarities of evaluation of meta-subject results are associated with the nature of universal learning activities. Meta-subject activities form the psychological basis and present crucial condition of successful solution of subject tasks by learners. Consequently, the level of formedness of universal learning activities (being the content and the object of evaluation of meta-subject results) may be efficiently assessed and measured in following basic forms.

First of all, achievement of meta-subject results may stand as results of fulfilment of specially developed diagnostic tasks aimed at assessment of the level of formedness of a certain type of universal learning activities.

Secondly, achievement of meta-subject results may be regarded as an instrument basis (or as a solution tool) and as a condition for efficient fulfilment of learning and learning-practical tasks by means of school subjects. This approach is widely used for final assessment of intended results by different subjects. Depending on efficiency of fulfilment of mathematics tests, Russian language tests and tests in other subjects, taking into account the nature of mistakes we may draw conclusion as to formedness of several cognitive and regulatory actions of the learner. Tests requiring cooperation of learners for common result allow to assess formedness of communication learning activities.

Conclusion

Finally, achievement of meta-subject results can be manifested in efficiency of fulfilment of complex tasks on intersubject basis. Particularly, use of tests requiring skills for work with information open large possibilities for evaluation of formedness of meta-subject results.

The advantage of two last methods of evaluation is in the fact that the object of assessment of the level of assignment of universal learning activity to a learner, which is manifested through action taking place in the structure of learning activity as a means and not the purpose of a child's activity.

Applied research described in this paper is carried out with financial support of the state represented by the Russian Federation Ministry for Education and Science under the Agreement # 14.579.21.0073 of 24 November 2014 (unique identifier of applied research - RFMEFI57914X0073).

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