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ESTIMATION OF HIGH SCHOOL STUDENTS' CREATIVE ABILITIES AS A RESULT OF JOINT CREATIVE ACTIVITY

ESTIMACIÓN DE LAS HABILIDADES CREATIVAS DE ESTUDIANTES DE SECUNDARIA COMO RESULTADO DE LA ACTIVIDAD CREATIVA CONJUNTA

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ABSTRACT

The goals of this article is to identify methodological approaches and justify pedagogical technology for assessing high school students' creative abilities as educational outcomes achieved in an informal educational environment that models their subject-to-subject interaction with the surrounding social environment. A collaborative (high school) participant's response to a creative challenge presented in the form of a case that includes a description of the problem situation, a project problem statement, and methodological directions for its solution serves as the basis for the creativity assessment technique. Based on the diagnostic results, teams of pupils of 9th and 11th grades (6-7 pupils each) are established to tackle creative issues in their most interesting educational topics. The technology of evaluating high school students' creative abilities while they are engaged in a group creative activity enables us to not only assess their level of development but also to create a comprehensive picture of each pupil's chances to participate in this activity based on his or her own self-determination in selecting a "niche" of personal responsibility for achieving shared, socially significant results.

Keywords:

Students, creative potential, gender features, personal responsibility, self-determination.

RESUMEN

El objetivo de este artículo es identificar enfoques metodológicos y justificar la tecnología pedagógica para evaluar las habilidades creativas de los estudiantes de secundaria como resultados educativos alcanzados en un entorno educativo informal que modela su interacción de sujeto a sujeto con el entorno social circundante. La respuesta de un participante colaborativo (de escuela secundaria) a un desafío creativo presentado en forma de un caso que incluye una descripción de la situación del problema, una declaración del problema del proyecto y las instrucciones metodológicas para su solución sirve como base para la técnica de evaluación de la creatividad. Sobre la base de los resultados del diagnóstico, se establecen equipos de alumnos de los grados 9 y 11 (6-7 alumnos cada uno) para abordar cuestiones creativas en sus temas educativos más interesantes. La tecnología de evaluación de las habilidades creativas de los estudiantes de secundaria mientras participan en una actividad creativa grupal nos permite no solo evaluar su nivel de desarrollo sino también crear una imagen completa de las posibilidades de cada alumno de participar en esta actividad en función de su propia auto-determinación al seleccionar un "nicho" de responsabilidad personal para lograr resultados compartidos y socialmente significativos.

Palabras clave:

Estudiantes, potencial creativo, rasgos de género, responsabilidad personal, autodeterminación.

INTRODUCTION

One of the underdeveloped pedagogical components of the multidisciplinary problem of personality development is estimating high school students' creative potential. The vast majority of scientific research that uses a humanistic, individual, and activity-based viewpoint emphasizes the need to develop these abilities (Ignatovich, 2018; Ignatovich & Ignatovich, 2020; Grebennikova et al., 2021). In mainstream education practice, the holistic educational process has long been considered as inextricably linked to the development of pupils' creative capacities. A secondary school graduate's personal qualities are listed in the Federal State Educational Standard of Secondary (full) Education as "creative and critically thinking", "motivated for creativity and innovative activities", etc. (Ministry of Education and Science of the Russian Federation, 2012), none of which can be fully realized without the full development of creative abilities. However, efforts to explicitly integrate the assessment of creative abilities into the educational technologies in use have not resulted to any discernible outcomes. This is due to the lack of a sufficiently thorough justification of creative abilities as educational outcomes achieved by pupils in various types of learning and socially oriented activities in the current scientific, pedagogical, and psychological knowledge system. This is because the scientific, pedagogical, and psychological knowledge system that is now in place does not adequately justify creative abilities as educational outcomes attained by pupils through diverse forms of learning and socially oriented activities.

This in turn has the effect of "blurring" the concept of creativity itself, which commonly (especially in pedagogical research and mass educational practice) transforms into a broad characteristic of any pupil's performance, even if it makes no direct connection to the phenomena of creativity itself. Bogoyavlenskaya (2000), supports a child's statement that *"creative work is not free, but just a stable word combination" to emphasize this point. According to her, this statement "captures not only the essence of the problem of creativity, but also the presence of its forms fixed in practice, transformed, becoming commonplace, and having lost their true meaning"* (p. 75)

Thus, the problem arises of justifying models for the assessment of pupils' creative abilities as individual learning outcomes of the subjects of the activities in which these abilities are directly formed.

The goal of this article is to identify methodological approaches and justify pedagogical technology for assessing high school students' creative abilities as educational outcomes achieved in an informal educational

environment that models their subject-to-subject interaction with the surrounding social environment.

The analysis of the literature has revealed that many scholars have interpreted creative abilities as an educational outcome in various ways. Lyz et al. (2022), 's concept, for instance, presents the educational experience of pupils as a construct made up of five elements: satisfaction, intention to extend the experience, self-efficacy and support, self-directed learning expertise, and involvement. In this design, no actual creative experience is provided. Some overseas studies have similarly viewed the educational experience of pupils (Matus et al., 2021).

It is possible to argue that the origins of this "gap" between educational outcomes and creativity should be sought in the issue's history, because the study of developmental phenomena and the subject's creative abilities have long been primarily the domain of psychological science, where they were presented as properties of the subject's mental sphere, viewed outside the context of the learning process (Shadrikov, 2019).

As Zinchenko (2002), points out, *"intellectual skills, abilities, mental actions, problem-solving techniques and even the principles of solving some classes of tasks are indeed successfully taught, but that's not all of the intelligence"* (p. 167). Zinchenko (2002), correctly deduces from this that if intelligence is an ability in this sense, it solely has operational and technical applications.

There are still several attempts to apply this technique for pedagogical diagnostics (Berestovskaya & Shveina, 2019), but it is practically impossible to use it to define the pedagogical meaning of creativity as an educational outcome.

Another difficulty in resolving this issue is distinguishing between creative abilities and "normal" functions implemented in reproductive activities, because "creative" has been defined as "merely the maximum expression of "normal" abilities", according to Hans Eysenck (Bogoyavlenskaya, 2002). This tradition is also seen in some contemporary studies (Khusainova & Galeeva, 2016).

Authors frequently suggest methods for assessing pupils' creative abilities based on the displays of their external activity. Dormidontova (2011), for example, has developed a technology that assesses talents based on the degree of motivation, cognitivism, and activity-creative components.

In some cases, creative ability is identified with "objective" (results of the unified state exam, results of graduates' admission to higher education institutions, results of the state final certification of graduates of the 9th and 11th

grades, etc.) and “subjective” results, which are diagnosed by questionnaires distributed to pupils, parents, and teachers (Gaifullin & Zakirova, 2012).

Consideration of “creative skills” as an educational result linked to learning capacity, time spent studying, and the “intensity” of knowledge acquisition (Kupriyanycheva & Kupriyanycheva, 2013) is another strategy employed in contemporary pedagogical practice.

The preceding examples are based on an understanding of creative abilities as a mechanism for a subject to perform a set of certain functions imputed to him.

Studies based on Alexey M. Matyushkin’s psychology theory, in which creative abilities are seen as the subject’s means of solving problem tasks, show a radically different approach to overcoming this challenge.

Stepanov (et al. (2019), identifies three basic parameters of the creative task. The first of these defines the necessity to *“propose hypotheses and proposals to clarify and speculate on initial conditions and thus allow for several different solutions in the course of their elaboration and implementation, one of which turns out to be the best and right one”* (p. 135). The second parameter is characterised by the need to identify and redefine intellectual stereotypes. The third parameter is “latency and eventuality” of the task, which refers to the presence of hidden and least obvious solutions. According to these parameters, the actual assessment of creative abilities is directly related to the evaluation of offered solutions, therefore, it can be “superficial”, “trivial”, “beneficial”, “close”, “fully creative” or “experimental verification” (Stepanov et al., 2019). In this scenario, the educator has ready-made evaluation solutions but does not have the process for finding them. As a result, the authors conclude that the number of ideas and solutions submitted to the challenge can only be used to quantify creativity (Orzhekovsky et al., 2020). Furthermore, the communication aspect of the creative activity is not assessed because creative problem solving in this paradigm is done alone by pupils on an individual basis.

It is crucial to highlight that the ability to measure creative abilities immediately in the process of solving creative tasks by a subject places additional demands on the organisation of pupils’ activities.

“It is important to distinguish between action research and problem-solving”; say advocates of this trend. All research participants are not required to participate in the solution-seeking process as part of the research methodology. If all the requirements of the research process are rigorously followed, theoretical viewpoints are offered to the

participants at the input, data is collected, and reflection is done, an action research study is considered valid”. (Avdeenko et al., 2018, p. 283)

In this situation, the subject of evaluation might be “ability to think creatively”, which most properly captures the essence of pupils’ creative talents in contemporary world practice (Fominova, 2020, p. 205). Such abilities include curiosity, perseverance, imagination, compatibility with other people and discipline (Lucas et al., 2013).

In this situation, the child’s creativity is limited to simple learning activities. In order to engage in truly creative action, one must be accepted into a larger social context. In this context, the essence of the concept of creativity does not extend beyond the generally acknowledged framework of “children’s bursts of creativity” (Janashia et al., 2022, p. 117), which characterises the inner world of the child but is not directly tied to solving the difficulties of obtaining the essential social experience.

As a result, we might conclude that current ways to evaluate creative abilities do not provide an understanding of them as educational achievements directly related to the tasks of integrating the subject into the socio-cultural space and his or her own self-determination in this space.

MATERIALS AND METHODS

A collaborative (high school) participant’s response to a creative challenge presented in the form of a case that includes a description of the problem situation, a project problem statement, and methodological directions for its solution serves as the basis for the creativity assessment technique. It is preceded by a diagnosis designed to determine the most appealing areas of socially oriented activities for participants, as well as the educational areas with which these activities are most closely associated. Based on the diagnostic results, teams of pupils of 9th and 11th grades (6-7 pupils each) are established to tackle creative issues in their most interesting educational topics.

The assessment procedure includes the following stages.

The first phase is induction training. In the second phase, the teams become acquainted with the cases that have been assigned to them, discuss the creative tasks, and formulate questions to better understand and clarify them. The assessors record the questions posed by the participants in order to consider them in the evaluation of the information performance. The third phase is devoted to direct creative problem solving. In the fourth phase, the teams discuss their solutions with the experts while presenting and defending them. At the end of the assignment, a group reflection is held to assess the success of

the activities carried out, each participant's personal contribution, and their personal educational advancement.

The experts are teachers of the pedagogical universities, as well as parents of pupils. The following indicators are evaluated on a ten-point scale:

1) Understanding, clarifying, 'holding' the problem task, i.e. the ability of the high school student to understand the meaning of the task as a problematic one without ready-made solutions;

2) Working with information entails the pupil's capacity to formulate a request in an ambiguous circumstance in which it is unclear what information is required, where it can be located, what resources it can be found on, and how its dependability can be judged.

3) Efficiency in the use of several modes of action –the ability to discover new methods to use previously known modes of activity;

4) The use of prompts – the pupil's propensity to interpret a prompt as a sign of a shift in their own thinking.

5) Producing original ideas. This indication displays high school students' capacity to not just 'dream up' something creative, but also to tie their concept to the problem statement, identify the general principle of its solution, and express the idea as a manner of putting this principle into action in a concrete problem situation;

6) Effectiveness of interaction partners – the ability to develop productive conversation to tackle a problem;

7) Self-regulation of activities – accepting and exercising personal responsibility for the attainment of long-term collective goals.

8) Presentation and "social affirmation" of the obtained results – the potential for inner "transformation", a meaningful fulfillment of the subject's social role, self-defined in the problem field of the creative work to be done.

A total of 456 high school students from the 10th and 11th grades took part in the piloting of the developed technology for assessing creative abilities as an educational outcome of collaborative creative activities, with 274 girls and 182 boys.

RESULTS AND DISCUSSION

During the piloting of the above-mentioned creativity assessment technology, creative activities were organised in each of the schools in three teams of pupils (parents of the pupils were also invited to participate if interested). They were offered cases on which they worked to find the original and most effective solutions to various problematic

situations. The tasks offered required a range of creative solutions. The first team attempted to construct an island state with a high standard of living and people living in perfect harmony with the natural environment using a carefully created geographical map of a "newly discovered" uninhabited island. The second team performed "The Tale of the Fisherman and the Fish" in the participants' preferred detective genre. The third team used a recommended housing and street layout to construct the socio-cultural area of the recently constructed neighborhood. The experts were shown the outcomes of their collaborative work through a mini-performance and a poster presentation. Participants were required to demonstrate that the offered solutions were optimal and feasible.

The following total creativity scores were obtained during the evaluation of the teams' actions and outcomes (Figure 1).

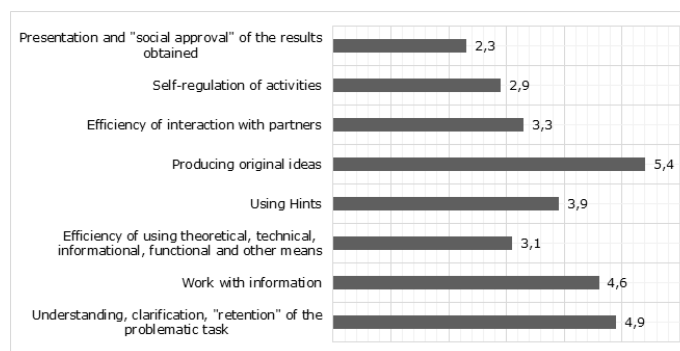


Figure 1. Common assessments of high school students' creative abilities as educational consequences of their collaborative creative activities with students.

According to the assessment, pupils did not demonstrate a high level of creative ability. Their findings generally pointed to medium or even low levels. On a scale of 1 to 10, the highest scores were given for "generating original ideas" (5,4), "understanding, clarifying, and 'holding' the problem" (4,9), and "working with information" (4,6). These results show that these creative abilities have developed to an average level. "Self-regulation of activity by taking personal responsibility" (2,9 points) and "presentation and 'social validation' of results" (2,3 points) are the skills that have been least successfully demonstrated. These results can be viewed as poor. Low values were likewise recorded for the remaining positions.

For "working with information" ($t = 2,14$; $p 0,05$), "using cues" ($t = 4,43$; $p 0,001$), "effectiveness of interaction with partners" ($t = 3,88$; $p 0,01$), and "self-regulation of activities through taking personal responsibility" ($t = 5,15$; $p 0,001$), gender differences were found to be relatively significant. It is noteworthy that girls displayed higher levels

of creative ability development in all four instances of significant difference (Figure 2).

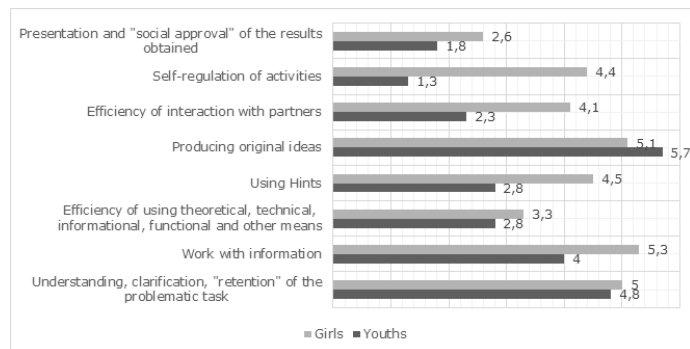


Figure 2. Gender features in the development of creative abilities in high school students.

No significant differences were found in the remaining four positions. This leads to the startling conclusion that girls in high school have a better level of development of individual creative abilities than boys.

The expert survey enabled the creativity assessment results to be interpreted as follows.

The high school students' poor group work scores are more suggestive of disparities in creative ability between the pupils. This mostly pertains to the ability to collaborate productively and convey findings to experts. There were leaders in these indicators in practically every group, with individual scores above average. The other team members, on the other hand, "dropped out" in some cases and even eliminated themselves from this type of job in some situations. Many high school students did not even attempt to create niches for their own participation in the collaborative effort and avoided conversation with experts, instead delegating responsibility to their partners. Leaders who were able to organise jointly distributed activities in their groups, on the other hand, had practically never showed themselves; their attempts to solve problems were more comparable to "brainstorming sessions."

In other circumstances, group members presented a very uniform picture of their creative ability development and overall deficiencies. This is especially true when it comes to comprehending the problems at hand, employing various tools to solve them (mainly theoretical ones), working with data, and applying cues. Participants in team work frequently "kept" only the task's exterior, formal outline. In mapping a non-existent neighborhood, for example, participants attributed the phrase "so its residents feel comfortable and safe in it" purely to their own views of comfort and safety, rather than attempting to put themselves in the shoes of other people living in the neighborhood. When

engaging with information sources, high school students frequently sought ready-made answers to the issues posed. Attempts to obtain indirect information and refer to existing equivalents in international practice have been far more uncommon. When responding to the experts' cues, the pupils attempted to see them as a pre-packaged solution or direct instruction. If it didn't work, they later ignored the prompt. In terms of the various means, the team work participants had the best success with simplest means (for instance, "throw-away" materials were successfully used to generate scenic images in the staging of the fairy tale). The application of theoretical tools was less effective. For instance, it was challenging for the creators of a detective-themed production of *The Tale of the Fisherman and the Fish* to define the genre's fundamental features. The founders of a fictional state on a newly discovered uninhabited island demonstrated a lack of awareness of the socio-economic resources required for modern state growth, as well as the specific natural and climatic factors associated with the chosen geographical coordinates.

CONCLUSIONS

The technology of evaluating high school students' creative abilities while they are engaged in a group creative activity enables us to not only assess their level of development but also to create a comprehensive picture of each pupil's chances to participate in this activity based on his or her own self-determination in selecting a "niche" of personal responsibility for achieving shared, socially significant results.

Simultaneously, the incorporation of this technology into mass practice of person-centered education necessitates the development of unique methods and means of training experts whose task it is not only to assess the level of creativity itself, but also to interpret it as a manifestation of the individual's inner activity displayed in a situation fraught with uncertainty. The justification for these learning methods may be connected to the path of further research on the topic.

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