



# Lifelong learning of gifted and talented students

## Aprendizaje permanente de estudiantes dotados y talentosos

Anna Mikhaylovna TATARINCEVA [1](#); Marina Georgiyevna SERGEEVA [2](#); Svetlana Vladimirovna DMITRICHENKOVA [3](#); Vera Arnoldovna CHAUZOVA [4](#); Irina Stanislavovna ANDRYUSHCHENKO [5](#); Elena Fedorovna SHALEEVA [6](#)

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#### ABSTRACT:

*Introduction.* The research explores ways of increasing gifted and talented students' academic motivation and making their learning styles, inherently based on individual approach to self-education, less influenced by a frontal work focus existing in the majority of higher schools. *Research Methods.* Scientific literature on giftedness was analyzed. The authors also used the method of adaptation by proposing the adapted version of the Multidimensional Model of Learning Approaches by Dunn and Dunn. Besides, group-administered IQ tests were implemented. *Research Results.* The authors conclude that the educational community should elaborate the curriculum content for gifted and talented students taking into consideration that it is easier to learn, memorize and understand new information if the facts, ideas, concepts and skills are organized around the key concepts and impressive ideas. *Discussion.* Giftedness is conceptualized in terms of four cognitive categories, two of which are associated with intelligence (general intellectual ability and specific intellectual ability), while the other two (general original/creative thinking and specific creative talent) are linked with creativity. *Conclusion.* There should be a significant

#### RESUMEN:

*Introducción.* La investigación explora formas de aumentar la motivación académica de los estudiantes dotados y talentosos y hacer que sus estilos de aprendizaje, inherentemente basados en el enfoque individual de la autoeducación, estén menos influenciados por un enfoque de trabajo frontal que existe en la mayoría de las escuelas superiores. *Métodos de búsqueda.* Literatura científica sobre la superdotación fue analizada. Los autores también utilizaron el método de adaptación al proponer la versión adaptada del Modelo Multidimensional de Enfoque de Aprendizaje de Dunn y Dunn. Además, se implementaron pruebas de coeficiente de inteligencia (IQ) administradas por el grupo. *Resultados de la investigación.* Los autores concluyen que la comunidad educativa debe elaborar el contenido del plan de estudios para estudiantes dotados y talentosos teniendo en cuenta que es más fácil aprender, memorizar y comprender nueva información si los hechos, ideas, conceptos y habilidades se organizan en torno a conceptos clave e ideas impresionantes. *Discusión.* La dotación se conceptualiza en términos de cuatro categorías cognitivas, dos de las cuales están asociadas

choice of versatile materials, methods and creative learning tasks which would promote the achievements and creativity of gifted and talented students with regard to their individual learning preferences.

**KeyWords:** approach, giftedness, lifelong learning, preferences, sensory canals, talent.

con la inteligencia (capacidad intelectual general y habilidad intelectual específica), mientras que las otras dos (pensamiento creativo / original general y talento creativo específico) están relacionadas con la creatividad. *Conclusión.* Debe haber una selección significativa de materiales versátiles, métodos y tareas creativas de aprendizaje que promuevan los logros y la creatividad de los estudiantes dotados y talentosos con respecto a sus preferencias individuales de aprendizaje. **Palabras clave:** enfoque, superdotación, aprendizaje permanente, preferencias, canales sensoriales, talento.

## 1. Introduction

Gifted and talented students require much more individual attention from the members of the academic staff than ordinary students do. There are two major associated issues:

- contemporary scientific literature does not concentrate on teaching creative, talented and gifted European students;
- a lot of outstanding research findings do not reach the members of the academic staff in the educational field.

The proposed research deals with both problems and aims to teach creative, talented and gifted students taking into account their unique approaches to the learning process. Modern scientists developed new effective methods and materials in various subject-related areas. Unfortunately, well-established research findings and reports of highly successful, innovative advances in teaching strategies and materials fail to reach most educators. The approach proposed in this research can help to improve the system of European education, where the main typical contradictions are the following:

- the European contemporary system of higher education is oriented towards general standards that involve particular attention to analytical thinking and verbal skills, influenced mainly by the left hemisphere of the human brain, while higher schools need educational programmes that would allow developing important nonverbal skills in individuals with the spatial-visual type of information processing, where the right hemisphere is more active;
- the majority of educational instructions are carried out through lectures and discussions (an aural approach) or reading and writing tasks based on visual materials (a visual approach) (with 85 % of teachers having analytic mind and using corresponding educational methods), while higher schools need educational programmes for individuals with tactile and kinesthetic learning styles;
- there is a necessity to take into account individual learning peculiarities of individuals, along with inadequate possibilities to put it into practice in most European higher schools.

The research explores ways of increasing the gifted and talented students' academic motivation and making their learning styles, inherently based on individual approach to self-education, less influenced by a frontal work focus existing in the majority of higher schools.

The human factor has been ignored for many years. Fortunately, scientists begin to pay much more attention to the development and self-actualization of individuals with high personal potential. Many talented and gifted students whose abilities were not discovered at their higher schools became "dropouts" in their adult life. That is why this problem is so serious.

The **object** of the research is the process of lifelong learning.

The **aim** of the research is to work out reliable criteria, principles and recommendations for the most effective lifelong learning of talented and gifted students.

According to the authors' **hypothesis**, the students' creativity in the process of lifelong learning will be more effective if gifted and talented students:

- are consolidated by a common intellectual idea, goals, values and supportive creative relationship during their study which strengthen their cognitive needs within lifelong learning;
- fulfill self-directed learning by choosing means and accomplishing learning tasks appropriate to their

- individual learning approach;
  - develop their learning approach by perceiving new information through their primary sensory canal and deliberately reinforce it through the secondary sensory canal.
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## 2. Research Methods

In this article we analyzed scientific literature on giftedness. Papers and other works from different decades were studied. A particular attention was given to manifestations of giftedness in children and young adults, since this information is of special importance in the context of our research. The authors also used the method of adaptation by proposing the adapted version of the Multidimensional Model of Learning Approaches by R. Dunn and K. Dunn. Besides, we resorted to group-administered IQ tests, followed by further clarification of other cognitive and personal-social characteristics of gifted and talented students on an individual basis.

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## 3. Research Results

The teaching and learning process should be customized for each gifted and talented student, for his/her unique educational needs.

The process of customizing education for gifted and talented students is accomplished by:

- differentiating the curriculum;
- individualizing the instructional process;
- developing a creative supportive learning environment.

We base our research on Milgram's "Model 4\*4 Structure of Giftedness" (Milgram, 1989), which meets the above-mentioned requirements and represents creativity through the aspects of original thinking: general intellectual ability, specific intellectual ability, general original/creative thinking and specific creative talent. Each of these four processes is represented in an individual at one of four ability levels (profoundly gifted, moderately gifted, mildly gifted, and non-gifted).

The first category, general intellectual ability, alternatively known as overall general intelligence, refers to the ability to think abstractly, to solve problems in a logical and systematic way. It is usually assessed via psychometric IQ tests for adults.

The second category, specific intellectual ability, refers to a distinct intellectual ability in a given area, such as foreign languages, art, music and science.

The third category, general original/creative thinking, may be defined as a kind of problem-solving approach, which allows generating original high-quality solutions. People with such kind of thinking are different from others at both output and input stages. They store and retrieve information differently, so they perceive and define problems in their own peculiar manner (Gilford, 1967).

The fourth category, specific creative talent, refers to a clear and distinct creative ability in a certain area (Milgram, 1989). We can see these people's talent when they achieve high, sometimes even outstanding results in science, languages, art, and so on. Taking into consideration mild, moderate and profound levels of students' giftedness is very important for individual educational programmes, since little attention is given to the difference between gifted or talented students and ordinary ones. Each level reflects a distinct range of expectations with respect to the short- and long-term accomplishment, which is different from those concerning the other levels. It should be noted that level differentiation is a unique feature of this research. A major reason why full-time special education fails to meet the needs of gifted students is the inability to distinguish among the four categories of giftedness and their levels.

Many scientists suppose that beyond a certain level, academic success is determined not by further intellectual progress but by other factors – personal, social and environmental (Keefe, 1990; Gardner, 1996; Goleman, 1998). The authors of this research propose the adapted version of the Multidimensional Model of Learning Approaches by R. Dunn and K. Dunn in order

to reveal the factors influencing the students' creative approaches to learning (Dunn & Dunn, 1998) (see Table 1).

**Table 1**  
Multidimensional Model Of Learning

<b>Stimuli</b>	<b>Elements</b>					
<b>Environmental</b>	Sound	Light	Temperature	Design		
<b>Emotional</b>	Motivation	Persistence	Responsibility	Task structure		
<b>Sociological</b>	Learning alone	In pairs	With peers	In a Team	With Adults	Varied
<b>Physical</b>	Perceptual strengths: audial, visual, tactile, and kinesthetic	Intake	Time	Mobility		
<b>Psychological</b>	Global/ Analytic	Dominant hemisphere: left/right	Impulsive/ Reflective			

The authors of the proposed approach developed a test in order to define students' creative approaches to learning and work out the educational uniqueness-oriented programme for teaching gifted and talented students (Tatarintseva, 2005).

The second complex issue is the identification of gifted students and their level of giftedness.

Hollingworth highlighted the differences among the profoundly gifted children, who were defined by her as those with IQ of 180 or higher, and their less gifted peers (Hollingworth, 1942). It was one of the earliest studies on the giftedness phenomenon.

The authors of this article used group-administered IQ tests, followed by further clarification of other cognitive and personal-social characteristics on an individual basis. However, some gifted individuals do not necessarily get the highest scores for standardized tests.

The authors consider intrinsically motivated domain-specific students' behaviour both within and beyond higher education as supplementary precursors of potential success.

Thus, we may address academic staff with the following recommendations:

- to find a learning approach to each student;
- to single out gifted students and assess their levels of giftedness;
- to elaborate the curriculum content for gifted and talented students taking into consideration that it is easier to learn, memorize and understand new information if the facts, ideas, concepts and skills are organized around the key concepts and impressive ideas.

## 4. Discussion

The proposed approach is based on the Comprehensive Model of Giftedness created by Prof.

Roberta Milgram, who elaborated "The 4\*4 Structure of Giftedness" (Milgram, 1989).

Giftedness is conceptualized in terms of four cognitive categories, two of which are associated with intelligence (general intellectual ability and specific intellectual ability), while the other two (general original/creative thinking and specific creative talent) are linked with creativity. Each category is represented in an individual at one ability level out of four within one or more major learning environments out of three – home, university and society.

The model represents individual differences connected with such factors as:

- gender;
- age;
- the exact socioeconomic status;
- culture;
- certain individual characteristics (such as the task commitment), approach to learning and autonomy.

Individualization of instructions for the gifted and talented people can be regarded from different points of view.

Each individual has his/her own learning style which could be defined as the whole unique genetically predetermined complex of characteristic conditions under which the person fulfills conscious intellectual activities – concentrates, perceives, processes, retains and applies new and difficult information. Besides, he/she makes progress in learning by achieving curriculum goals through successful interaction with the learning environment and creative use of his/her own potential (capacities) (Tatarintseva, 2005).

If members of the academic staff do not provide appropriate learning experiences for gifted and talented students, it is quite likely that the majority of gifted students will not have these experiences at all. It happens because many lecturers are not able to single out the gifted and talented students.

The essence of giftedness has been a topic of emotional scientific discussion for more than several decades. There are many interpretations of this notion, but one of the most popular definitions of giftedness was given by S. P. Marland:

"...the term *gifted and talented children* means children and whenever applicable, youth, who are identified at the preschool, elementary, or secondary level as possessing demonstrated or potential abilities that give the evidence of high performance capability in areas such as intellectual, creative, specific academic, or leadership ability, or in the performing visual arts, and who by reason thereof require services or activities not ordinarily provided by school" (Marland, 1972). Many scientists claim that this definition lacks conceptual clarity.

The "Model 4\*4 Structure of Giftedness" proposed by Milgram (1989) is more precise. It represents creativity through the aspects of original thinking: general intellectual ability, specific intellectual ability, general original/creative thinking and specific creative talent. Each of these four processes is represented in an individual at one of four ability levels (profoundly gifted, moderately gifted, mildly gifted, and non-gifted).

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## 5. Conclusion

Unique approaches to teaching gifted and talented students are of critical importance: when such students are singled out and taught in ways that satisfy their educational needs and preferences, they achieve higher results.

Due to the management of lifelong learning in accordance with gifted students' learning preferences, such people may perceive new information through their primary sensory canal, which is the most developed one, and then deliberately reinforce it through the secondary sensory canals, thus increasing their achievements and creativity within lifelong learning.

When talented and gifted students are consolidated by a common intellectual idea, goals,

values and supportive creative interactions, that strengthens their cognitive needs within lifelong learning;

The elaboration of the curriculum content for gifted and talented students should be conducted taking into consideration that it is easier to learn, memorize and understand new information if the facts, ideas, concepts and skills are organized around the key concepts and impressive ideas.

Gifted and talented students often feel responsible for their lifelong learning and are able to control and direct this process. However, this does not mean that teachers and methodologists can take a laissez-faire attitude towards these students. There should be a significant choice of versatile materials, methods and uninstructed creative learning tasks which would promote the students' achievements and creativity with regard to their individual learning preferences.

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1. Baltic International Academy, Lomonosova iela 4, Latgales priekšpilsēta, Rīga, LV-1003, E-mail: [tatarinceva@inbox.lv](mailto:tatarinceva@inbox.lv)
  2. Peoples' Friendship University of Russia (RUDN University), 117198, Russia, Moscow, Miklukho-Maklaya st., 6. E-mail: [sergeeva198262@mail.ru](mailto:sergeeva198262@mail.ru)
  3. Peoples' Friendship University of Russia (RUDN University), 117198, Russia, Moscow, Miklukho-Maklaya st., 6. E-mail: [dmitrichenkova\\_sv@rudn.university](mailto:dmitrichenkova_sv@rudn.university)
  4. Peoples' Friendship University of Russia (RUDN University), 117198, Russia, Moscow, Miklukho-Maklaya st., 6. E-mail: [chazova\\_va@rudn.university](mailto:chazova_va@rudn.university)
  5. Peoples' Friendship University of Russia (RUDN University), 117198, Russia, Moscow, Miklukho-Maklaya st., 6. E-mail: [andryushchenko\\_is@rudn.university](mailto:andryushchenko_is@rudn.university)
  6. Peoples' Friendship University of Russia (RUDN University), 117198, Russia, Moscow, Miklukho-Maklaya st., 6. E-mail: [Shaleeva\\_ef@rudn.university](mailto:Shaleeva_ef@rudn.university)
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