



1. НАУКА – ПРАКТИЦІ



Ivan Voloshchuk,

Doctor of Pedagogical Sciences,
Chief of the Department of Innovational Technologies
in Gifted Education
of Institute of Gifted Child of NAES of Ukraine,
Kyiv, Ukraine

 <https://orcid.org/0000-0001-9300-0584>



Liliia Yaremenko,

Candidate of Pedagogical Sciences,
Leading Researcher of the Department of Innovational
Technologies in Gifted education,
of Institute of Gifted Child of NAES of Ukraine,
Kyiv, Ukraine

 <https://orcid.org/0000-0001-7477-519X>

УДК 376.54

DOI: [https://doi.org/10.32405/2309-3935-2022-4\(87\)-5-11](https://doi.org/10.32405/2309-3935-2022-4(87)-5-11)

STYLES AND STRATEGIES OF EDUCATIONAL TRAINING

Summary.

The article deals with a number of issues related to the organization of gifted learning. First of all, this is an assessment of gifted learning. Next, the educational styles of gifted and ordinary children are compared. It is emphasized on the volatile nature of giftedness and the need for various educational strategies in this regard. In particular, the emphasis is placed on the fact that the conformity or inadequacy of educational achievements endowed with their abilities is a preference for the style of their learning. As an example, temperament-based learning styles of gifted students are considered. In addition, self-directed gifted learning, the use of a dissociative strategy, an integrated learning material model, a triarchic model, and distance learning are described. It is also described the English model of gifted learning and the answer of the Spanish educational system to differences in curriculums, programs and teaching materials for gifted.

The article gives data on the impact of the style of learning and the environment on the CPS, in this regard, a revision of the Guildford concept, and also describes the purpose of cognitive tools for tracing the learning trajectory of gifted students.

A separate unit form researches devoted to educational programs. In particular, the peculiarities of standardized and non-standardized curricula are considered. It is discussed the dilemma in the placement of educational programs for gifted, their features. In this connection, the toolkit for the analysis of educational units for gifted and, as a consequence, model of educational programs for this category of pupils is presented.

After that, educational programs on social studies, mathematics and natural sciences are characterized. In particular, an analysis of the random study of mathematics is given and the ways of solving the problems of mathematically gifted students are given.

Emphasis is placed on gifted girls' learning strategies. The data is presented on the influence of teacher-constructed and student-designed tasks for gifted achieving.

Keywords: gifted students; learning styles; learning strategies; curriculum.

A. W. Terry [1] examines service learning from the perspective of gifted adolescents who have participated in what he has termed Community Action service learning projects. Using a case

study design, the author investigated adolescents' perspectives concerning their involvement in service learning projects grounded in creative problem solving. A service learning typology



based on the degrees of student involvement is described. The importance of service learning to the participants in this study is highlighted in the following themes that emerged from the data: methodology, attitudes, personal and social development, commitment, and empowerment.

B. Wallace and J. Pierce [2] discuss various kinds of curriculum provision for gifted students, including pull-out extension and enrichment programs, special schools and special classes, and special programs integrated within classes. The use of the terms “enrichment” and “extension” is also examined.

The learning activities and learning styles of 398 gifted and nongifted Chinese secondary students were assessed [3] using the Chinese version of the Learning Styles Inventory. Dimensions of preferred learning activities common for gifted and nongifted students included factors interpretable as learning through verbal interaction, learning by role-play, and learning by doing. Comparing gifted and nongifted students, gifted students indicated significantly greater preferences for learning styles related to interpersonal verbal exchanges and autonomous learning. Although there were no significant gender differences in learning style preferences, the younger age group indicated significantly greater preference for learning styles related to structured activities and games than the older age group.

Learning style preferences of 1554 students identified as gifted and nongifted students, ages 8 to 17, were measured [4] using the Student Styles Questionnaire (SSQ). Students identified as gifted and nongifted students did not differ significantly on extroverted-introverted, organized-flexible, and thinking-feeling styles. Students identified as gifted displayed a stronger preference for imaginative styles, while nongifted children displayed a stronger preference for practical styles. Gender differences were significant. Boys displayed a stronger preference for flexible and thinking styles while girls displayed a stronger preference for organized and feeling styles. Two gifted-by-gender interactions also were significant. Compared with boys identified as gifted, girls identified as gifted were more likely to prefer imaginative styles. Furthermore, although boys generally expressed a stronger preference for thinking than feeling, nongifted boys expressed a stronger preference for thinking than did boys identified as gifted.

The article [5] focuses on the learning style preferences of achieving and underachieving gifted middle school students. Learning style was determined through administration of the Learning Style Inventory (LSI). Both groups of participants revealed several learning style preferences that were quite similar. However, examination of

LSI profiles revealed some differences between achievers and underachievers in preferences for quiet or sound, flexibility or structure in assignments, and level of need for mobility. Many low achievers showed a strong need for tactile and kinesthetic modalities; intake of food, drinks, or both; sound in the learning environment; informal seating design; and dim lighting. The low achievers did not perceive themselves to be persistent, and scores revealed that they needed structure in assignments. Persistence seemed to be a key to success for the achieving learners in this study since they were able to maintain high academic performance in all content areas. Over half of the low achievers, on the other hand, did not judge themselves to be successful at task completion.

P. Van Deur [6] reports on an assessment of knowledge of SDL in primary (elementary) South Australian school students, fifty-six of whom were assessed to be high reasoning. The goals of the study were to identify the effectiveness of teaching and assessing knowledge of Self-Directed Learning (SDL) in high reasoning students, investigate whether there were differences in students' knowledge of SDL related to reasoning, and to identify the influence of engagement on high reasoning students' knowledge of SDL. The students were taught about SDL in four class lessons. Partial Least Squares path analysis showed that there were significant (negative) differences in high reasoning students' development of knowledge of SDL. This indicates that high reasoning students were more engaged and had an indirect gain of knowledge of SDL as a result of the teaching intervention suggesting that high reasoning students could become more self-directing if they are highly engaged in classroom activities about SDL.

The use of dissociative and associative strategies was investigated [7] in 40 junior athletes competing regularly in distance running events. The sample, 20 males and 20 females, representing athletes of different abilities (international, national, state, and club level competitors) was surveyed concerning cognitive strategies they used “when it was difficult to continue in a race or hard training session”. There was a significant relationship between level of ability and the runner's tendency to use dissociation to cope when running became difficult. The use of totally dissociative strategies was significantly higher for athletes of lesser ability: 8 of the 10 club level runners versus 1 of the 10 international level runners used only dissociation. Although there was no overall effect for gender, an analysis of the responses from subjects below the age of 16 showed that compared to females, males were more likely to be totally dissociative.



VanTassel-Baska's Integrated Curriculum Model (ICM) was designed specifically for use with gifted and talented students. It has been designed around known characteristics of effective curriculum for gifted students and tested for its effectiveness with such learners. Recent curriculum theories in gifted education argue that all learners should be provided with curriculum experiences that allow learners to attain optimum levels of learning, and that curriculum designed for gifted students should be used with as many learners who can benefit from it. L. Henderson [8] draws upon the findings of a study where the ICM was implemented into an inclusive Year 3 classroom. Students' interview data are discussed highlighting the effectiveness of the ICM in increasing student engagement in comparison to previous learning experiences, and in particular the gifted students.

The authors [9] attempt to analyse the aims and nature of the national policy in England, a policy that is highly distinctive, very ambitious and socially inclusive, in order to find out where further action might be necessary to support it. This analysis is organized around two themes, namely: those concerned with the implementation of the educational policy and with social equity. In this interesting article, authors concluded that "a major reason for a dedicated educational focus on gifted and talented pupils is their potential to play a leading role in their adult lives. If England is to be successful in a globalised world, then it will need to produce leaders who can compete with the best. This is a joint endeavour between educationalists and the wider business and voluntary community. The English model aims to work across boundaries in pursuit of expertise, mobilizing all sectors to support education."

In Spain, there is a growing awareness that diversity, and the special educational needs arising out of it, are not only reflected in the social sphere and the school system but also in legislation. Legal changes since 1990 have had many implications for the education of highly able pupils: the Resolucion of 29 April 1996 extends the principles of integration and diversity to all pupils, not exclusively the handicapped. The present study [10] overviews the possibilities under current Spanish legislation for responding and adapting to the educational needs of highly able pupils. It shows how the legislation and guiding principles of the Spanish educational system make it possible to give an effective response to educating highly able students. However, work is needed on the adaptation of diagnostic tests and curricular material, and the training of specialized professionals.

A study [11] was conducted among sixth-grade Alaskan students from urban and rural

communities to test the efficacy of applying the triarchic theory of human intelligence and culturally-based teaching strategies to mathematics curriculum. Students were taught a unit on the mathematics concepts of area and perimeter in one of two ways: conventional instruction (primarily textbook based) and culturally-based, triarchic curriculum (involving analytical, creative, and practical/culture-based instruction). Performance was assessed prior to and following implementation of the curriculum via multiple-choice and performance or short-answer items measuring memory, analytical, creative, and practical aspects of achievement. In general, the culturally-based triarchic instruction was superior to the conventional textbook-based instruction.

Technological advances and widespread access to the Internet are facilitating new educational approaches that go beyond the traditional face-to-face classroom setting. Distance education has emerged as a valuable option for a number of special populations of learners whose needs are more difficult to meet in the classroom, of which gifted students are one. P. Wallace [12] explores the many varieties of distance education and the technologies that support them and examines research on the effectiveness of the approaches in different settings. Research on the distance education programs offered by the Johns Hopkins University Center for Talented Youth is summarized and best practices, based on the findings, are proposed.

The study [13] sought to determine the impact of 2 differing instructional approaches on creative problem-solving performance. Eighty-two college students completed a novel structure-building task after receiving algorithmic instruction (providing a rote, step-by-step algorithm for building a sample structure), heuristic instruction (demonstrating the same techniques in a more flexible form), or no instruction. All participants viewed the same sample structure before beginning the task. It was hypothesized that algorithmically instructed students would exhibit less exploratory behavior and lower levels of creativity than students receiving heuristic instruction. No specific hypotheses were made concerning the problem-solving creativity of students in the no-instruction condition. Results suggest that the type of instruction that students received influenced their perceptions of the task, their behaviors during the task, and their final solution to the structure problem. Students receiving algorithmic instruction exhibited greater confidence and speed when building their structures than did other students. However, they were significantly less likely to engage in exploratory behavior or to deviate from the sample structure than were students receiving heuristic instruction. Although



there was no main effect of instruction condition on the judge-rated creativity of these structures, a significant interaction between instruction type and participants' attempts to replicate the sample structure was predictive of the structure's creativity.

Theoretically, pretend play facilitates cognitive and affective processes important in creativity. Expression of affect states and affect-laden fantasy are affective processes common to both play and creativity. The study [14] investigated the effect of instructing children to engage in happy or angry play on affect in play and on divergent thinking. Eighty 1st and 2nd grade children were randomly assigned to 1 of 4 groups. It was hypothesized that children in the happy and angry puppet play groups would have more affect in their play and that their mood would be congruent with the play instruction. It was also hypothesized that children in the happy and angry groups would have higher divergent thinking scores than children in the free-play and puzzle conditions. One major finding was that children in the angry play group had more expression of negative affect in their play and more self-reported negative mood than children in the other groups. There were no differences among the experimental groups in divergent thinking. However, self-reported mood during the play and puzzle tasks was significantly associated with originality of the divergent thinking responses. Children who experienced more affect as opposed to feeling neutral gave more original responses. The major conclusion of the study is that the play paradigm can be used to study affective processes in children.

Over the course of his career, Guilford produced a remarkable body of research on creative thought. Today, this research is remembered primarily for its articulation of the notion that divergent thinking plays a key role in creative thought. However, a number of other capacities relevant to understanding creative thought were identified in the course of this research effort. M. D. Mumford [15] reviews this research program as a whole with special reference to those capacities that warrant more attention in current studies of creativity.

When a problem is abandoned, a solution may subsequently and unexpectedly emerge. The intervening period, known as incubation, has sometimes been ascribed to opportunity assimilation. According to this theory, impasses to a problem create failure indexes, which ensure that random clues in the environment are detected and utilized. To assess the notion that failure indexes enhance clue utilization, 50 participants undertook a series of word problems [16]. After this initial attempt, the participants were deceived and told that half the unsolved problems were insoluble. A series of general knowledge questions was then presented; the answers to the original

problems were surreptitiously incorporated within this questionnaire. The instruction that certain problems were insoluble was retracted, and the items that had yet to be solved were reinstated. High-ability problem solvers were less likely to correctly answer the items that were designated as insoluble. Low-ability problem solvers, however, generated the reverse pattern. A model that links failure indexes to the forgetting of suboptimal strategies was formulated to accommodate these findings.

Variously called *concept maps* and *graphic organizers*, *cognitive maps* can be used in program management as effective and reliable documentation for tracking and evaluating development of students' knowledge, skills, and experience relative to National Association for Gifted Children National Standards for Graduate Programs in Gifted Education. Cognitive structuring of information among teachers is generalized in the report [17] to broader and more advanced levels of professional development fostered in gifted education programs at the graduate level. Longitudinal information from map analysis was used to inform both individual advisement and structural changes in a program.

At the dawn of the 21st century in education, it is impossible to talk about teaching, curriculum, schools, or education without discussing standards [18].

The field of gifted education emerged in the midst of the American progressive education movement. During the late 19th and early 20th centuries, progressive education provided a pragmatic view of education that exemplified American societal values. "Progressive education was an attempt by educational reformers, psychologists, and philosophers to develop a school experience that would benefit the whole child's intellectual, social, artistic, and moral development". The movement would be based on the scientific findings of evolution and the rising field of "new" psychology in conjunction with child-centered schools, which fostered creativity, self-expression, critical thinking, and individualism [19].

Township High School District 214 in Arlington Heights, IL, has developed a program for gifted and talented students that is developmentally oriented and consistent with current research. The program focuses on two goals: to provide curricular options that meet the needs of students in their talent areas and to support life and career planning. The article [20] describes how these goals are operationalized through a variety of different programs and activities. The program philosophy, identification of students, curricular and co-curricular programs, life and career planning efforts, and counseling components are described.



Research on the quality of educational standards, our knowledge about the quality of textbooks, and the performance of high-achieving students on international assessments all point to the need for exemplary curricula for gifted and talented young people. The gap between research in these areas and the needs of gifted and talented learners is startlingly clear. The article [21] includes information about the development of a rubric that was originally designed to assess the quality of curricular units that are submitted annually to the National Association for Gifted Children (NAGC) Curriculum Division's Curriculum Competition. The article also includes information about 4 different, but related, uses for the rubric. Ultimately, the authors hope that the use of this tool and assessment technique by practitioners across the country will begin to close the enormous gap between the learning needs of gifted and talented young people and curricula.

The article [22] provides an overview of existing research on 11 curriculum models in the field of gifted education, including the schoolwide enrichment model and the talent search model, and several others that have been used to shape high-level learning experiences for gifted students. The models are critiqued according to the key features they contribute to student learning, teacher use, and contextual fit, including alignment to standards and use with special populations of gifted and nongifted learners. The authors also provide a set of key principles derived from the research studies on what has been learned as a field about curriculum and instruction for the gifted. The article concludes with a set of practical considerations for educators in implementing any of the curricula analyzed and specific district applications of the Integrated Curriculum Model (ICM) that illustrate effective implementation over time.

The quasi-experimental study [23] examines the effects on student performance of a Javits-funded curriculum designed to respond to the needs of high-ability students in elementary and middle school social studies. The curriculum, implemented with all students in heterogeneous classrooms, addresses state standards while integrating advanced content, higher level process emphases, and a conceptual orientation. Data collection focuses on student performance in conceptual reasoning, critical thinking, and content learning and on teacher demonstration of specific desired teaching behaviors. Results demonstrate significant and important differences between treatment and comparison groups in the area of content learning, favoring the treatment group; no significant differences are found for the small subsample of gifted students. Subanalyses yield differential results for specific units and schools, potentially indicating issues of treatment fidelity.

The literature and our experiences suggest that gifted students believe doing mathematics is finding the right answer and learning mathematics involves memorizing isolated procedures. These beliefs are asynchronous with reform efforts predicated by a socio-cultural view of the teaching of mathematics and with the discipline of mathematics described within the philosophy of mathematics literature. The authors [24] developed a philosophy of mathematics unit based on a notion of 'messiness' and implemented it with gifted high school students during a philosophy course. Messiness highlights the uncertain, social, and contextual aspects of school mathematics. Preliminary analyses suggest that while most students did not engage with alternative visions of mathematics, some did, and their appreciation of mathematics seemed to grow. They conclude that high school math for all gifted students, not just those taking philosophy, should be infused with messiness.

To date, there has been very little research-based mathematics curriculum available for talented elementary students. Yet the gifted education and mathematics literature suggest support for curriculum that is both enriched and accelerated with a focus on developing conceptual understanding and mathematical thinking. Project M³: Mentoring Mathematical Minds [25] is a 5-year Javits research grant project designed to create curriculum units with these essential elements for talented elementary students. These units combine exemplary teaching practices of gifted education with the content and process standards promoted by the National Council of Teachers of Mathematics. The content at each level is at least one to two grade levels above the regular curriculum and includes number and operations, algebra, geometry and measurement, and data analysis and probability. The focus of the pedagogy is encouraging students to act as practicing professionals by emphasizing verbal and written communication. Research was conducted on the implementation of 12 units in 11 different schools, 9 in Connecticut and 2 in Kentucky. The sample consisted of approximately 200 mathematically talented students entering third grade, most of whom remained in the project through fifth grade. More than 40 % of students were eligible for meal subsidies, and the sample was composed of students from diverse racial and ethnic groups. Paired *t*-tests were conducted on the total scores for each unit pre- and posttest. Changes in the total scores for each unit indicate statistically significant gains from pretest mean to posttest mean at the $p < 0,01$ level of statistical significance. In addition, the effect sizes were all large and ranged from 1,55 to 3,49. These results indicate significant increases in understanding across all mathematical concepts in each unit from pre- to posttesting. Thus, Project M³ materials may help fill a curriculum void



by providing appropriate accelerated and enriched units to meet the needs of talented elementary students.

The paper [26] examines some of the ways gifted students are said to be different from non-gifted students by comparing the responses of 475 9-year-old “gifted” students with those of 230 average-attaining 13-year-old students on the same mathematical problem-solving questions. The questions were specifically written for mathematically gifted 9 year olds as part of the World Class Tests project. The performance and approaches used by students in the two samples were found to be very similar, as was the frequency of different responses to the questions, suggesting that many of the mathematically “gifted” are not qualitatively different in their problem-solving approaches from students of average ability, but are merely precocious.

Teachers’ve probably had that one moment when everything that they were doing – their lesson plans, approach with students, ideas about teaching – crystallized and they realized it was all ... wrong. For the author, that moment came when she began teaching a group of talented middle school science students and met Jill [27].

The study [28] examined the relationship of different assignment structures (i.e., teacher-constructed and student-constructed) on the achievement patterns of 6th-grade gifted and advanced students in a Southwest suburban school. Through a descriptive case study design, an action research approach and self-study methods, the teacher-researcher explored student perception of control, and its influence on motivation (i.e., achieving and underachieving performance patterns) for different assignment structures. Findings indicate that gifted underachievers and advanced underachievers, alike, preferred the student-constructed assignment structure and self-assessment. The majority of gifted achievers and advanced achievers preferred the student-constructed assignment structure as well; however, they were evenly divided on their preference of the teacher assessment and the self-assessment.

Conclusions. Everyone agrees that gifted, apart from differences in the level of development of intelligence, are characterized by a number of other unique properties compared with ordinary students. Among other things, this is the style of their education. Unfortunately, pedagogical science has achieved too little in the clarification of this specific phenomenon, and pedagogical practice often ignores even the small achievements that the pedagogical science possesses. Meanwhile, the effectiveness of gifted learning to a large extent is determined by the extent to which the content, methods and forms of instruction used correspond to the style of their cognitive activity.

References

1. Terry, A. W. (2000). An Early Glimpse: Service Learning from an Adolescent Perspective. *JSGE*. Vol. 11. No. 3.
2. Wallace, B., & Pierce, J. (1992). The Changing Nature of Giftedness: An Examination of Various Strategies for Provision. *Gifted Education International*. Vol. 8. No. 2. P. 64–71.
3. Chan, D.W. (2001). Learning Styles of Gifted and Nongifted Secondary Students in Hong Kong. *Gifted Child Quarterly*. Vol. 45. No. 1. P. 35–44.
4. Oakland, Th., Joyce, D., & Glutting, J. (2000). Temperament-Based Learning Styles of Identified Gifted and Nongifted Students. *Gifted Child Quarterly*. Vol. 44. No. 3. P. 183–189.
5. Rayneri, L. J., Gerber, B. L., & Wiley, L. P. (2003). Gifted Achievers and Gifted Underachievers: The Impact of Learning Style Preferences in the Classroom. *JSGE*. Vol. 14. No. 4.
6. Deur, P. Van. (2008). Assessing the Effect of Explicit Teaching on High Reasoning Primary Students’ Knowledge of Self-Directed Learning. *Gifted and Talented International*. Vol. 23. No. 1.
7. McDonald, D., & Kirkby, R. J. (1995). Use of dissociation strategies when running becomes difficult: levels of ability and gender differences. *High Ability Studies*. Vol. 6. No. 1. P. 73–81.
8. Henderson, L. (2007). Reflections from a Classroom using the ICM. *Gifted and Talented International*. Vol. 22. No. 1.
9. Campbell, R. J., Eyre, D., Muijs, R. D., Neelands, J. G. A., & Robinson, W. (2007). The English Model of Gifted and Talented Education: Policy, Context and Challenges. *Gifted and Talented International*. Vol. 22. No. 1.
10. Touron, J., Iriarte, C., Reparaz, Ch., & Peralta, F. (1998). Diversity and School Curriculum: the response of the Spanish educational system to the needs of academically highly able pupils. *High Ability Studies*. Vol. 9. No. 2. P. 165–180.
11. Sternberg, R. J., Lipka, J., Newman, T., Wildfeuer, S., & Grigorenko, E. L. (2006). Triarchically-Based Instruction and Assessment of Sixth-Grade Mathematics in a Yup’ik Cultural Setting in Alaska. *Gifted and Talented International*. Vol. 21. No. 2.
12. Wallace, P. (2005). Distance education for gifted students: leveraging technology to expand academic options. *High Ability Studies*. Vol. 16. No. 1. P. 77–86.
13. Ruscio, A. M., & Amabile, T. M. (1999). Effects of Instructional Style on Problem-Solving Creativity. *Creativity Research Journal*. Vol. 12. No. 4. P. 251–266.
14. Russ, S. W., & Kaugars, A. S. (2001). Emotion in Children’s Play and Creative Problem Solving. *Creativity Research Journal*. Vol. 13. No. 2. P. 211–219.
15. Mumford, M. D. (2001). Something Old, Something New: Revisiting Guilford’s Conception of Creative Problem Solving. *Creativity Research Journal*. Vol. 13. No. 3–4. P. 267–276.
16. Moss, S. A. (2002). The Impact of Environmental Clues in Problem Solving and Incubation: The Moderating



Effect of Ability. *Creativity Research Journal*. Vol. 14. No. 2. P. 207–211.

17. Diket, R. M. (2001). Metacognitive Instrument for Tracking Graduate Student Learning in Gifted Education. *Gifted Child Quarterly*. Vol. 45. No.1. P. 24–34.

18. Rakow, S. R. (2008). Standards-Based v. Standards-Embedded Curriculum: Not Just Semantics! *GCT*. Vol. 31. No. 1.

19. Jolly, J. L. (2006). Historical Perspectives: Curriculum for the Gifted Student: Lulu Stedman's Contributions. *GCT*. Vol. 29. No. 1.

20. Kulieke, M. J., Hillary, J. C., Person, D., Wagner, W., & Schnabl, M. (1999). The Dilemma of Gifted Programming in the Secondary School: One District's Response. *JSGE*. Vol. 11. No. 1.

21. Purcell, J. H., Burns, D. E., Tomlinson, C. A., Imbeau, M. B., & Martin, J. L. (2002). Bridging the Gap: A Tool and Technique to Analyze and Evaluate Gifted Education Curricular Units. *Gifted Child Quarterly*. Vol. 46. No. 4. P. 306–321.

22. Tassel-Baska, J. Van, & Brown, E. F. (2008). Toward Best Practice. An Analysis of the Efficacy of Curriculum Models in Gifted Education. *Gifted Child Quarterly*. Vol. 51. No.4. P. 342–358.

23. Little, C. A., Feng, A. X., Tassel-Baska, J. Van, Rogers, K. B., & Avery, L. D. (2007). A Study of Curriculum Effectiveness in Social Studies. *Gifted Child Quarterly*. Vol. 51. No. 3. P. 272–284.

24. McMaster, L., & Betts, P. (2007). Making School Math Messy: Deepening Mathematical Appreciation in Gifted High School Students. *Gifted and Talented International*. Vol. 22. No. 2.

25. Gavin, M. K., Casa, T. M., Adelson, J. L., Carroll, S. R., Sheffield, L. J., & Spinelli A. M. (2007). Project M³: Mentoring Mathematical Minds – A Research-Based Curriculum for Talented Elementary Students. *JAA*. Vol. 18. No. 4.

26. Threlfall, J., & Hargreaves, M. (2008). The problem-solving methods of mathematically gifted and older average-attaining students. *High Ability Studies*. Vol. 19. No. 1. P. 83–98.

27. Heilbronner, N. N. (2009). Jumpstarting Jill: Strategies to Nurture Talented Girls in Your Science Classroom. *GCT*. Vol. 32. No. 1.

28. Thompson, D. D., & McDonald, D. M. (2007). Examining the Influence of Teacher-Constructed and Student-Constructed Assignments on the Achievement Patterns of Gifted and Advanced Sixth-Grade Students. *JEG*. Vol. 31. No. 2.

Волошук Іван Степанович, доктор педагогічних наук, завідувач відділу інноваційних технологій в освіті обдарованих Інституту обдарованої дитини НАПН України, м. Київ, Україна

Яременко Лілія Анатоліївна, кандидатка педагогічних наук, провідна наукова співробітниця відділу інноваційних технологій в освіті обдарованих Інституту обдарованої дитини НАПН України, м. Київ, Україна

СТИЛІ І СТРАТЕГІЇ НАВЧАННЯ ОБДАРОВАНИХ

Анотація.

У статті розглянуто низку питань, що пов'язані з організацією навчання обдарованих, а насамперед – питання оцінки обдарованими свого навчання. Далі порівнюються навчальні стилі обдарованих і звичайних дітей. Наголошується на мінливій природі обдарованості та необхідності різних навчальних стратегій у зв'язку з цим. Зокрема акцентовано на тому, що відповідність чи невідповідність навчальних досягнень обдарованих їхнім здібностям є преференцією стилю їхнього навчання. Для прикладу розглянуто темперамент-засновані стилі навчання обдарованих учнів. На додаток описано самоспрямоване навчання обдарованих, використання дисоціативної стратегії, моделі інтегрованого навчального матеріалу, триархічної моделі та дистанційного навчання.

Ключові слова: обдаровані учні; стилі навчання; стратегії навчання; навчальні програми.

Стаття надійшла до редколегії 19 вересня 2022 року