

ŠIAULIAI UNIVERSITY

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**TEACHERS' COMPETENCE WHILE EDUCATING CHILDREN
GIFTED AT MATHEMATICS IN PRIMARY AND BASIC
SCHOOLS**

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INTRODUCTION

The relevance of the work

The contemporary politics of education is encouraging to pay attention to each child's individual needs. In the *Law of Education of Lithuania* (2003), it is stated that each child has to get the education corresponding to individual needs. The assessment and acknowledgment of child's individual features is one of the main principles on the basis of which it is suggested to organize the educational process of both individual and institutional levels (*The General Programmes of Primary and Basic Education*, 2008). However as noted by V. Adaškevičienė, "the gifted children is one of the most educationally neglected groups of children" (V. Adaškevičienė et al., 2008). Though, in 1994 The General Assembly of European Council formulated the recommendations for the system formation of gifted children's education, where gifted children's special needs are acknowledged and in order to accommodate them, it is necessary to create the appropriate system of education that would provide a gifted child with the opportunity to realize his/her potential and to become useful for the society. The changes in the educational system on this aspect attracted an appropriate attention only in this year.

In our country's educational politics, the recognition of children with exceptional educational needs was conducted in several stages. Firstly, in 1998, the system of accommodating children's special needs was regulated (*The Law of Special Education*, 1998). The acknowledgment of gifted children's educational needs and the system of their education are not determined yet. Though, in 1992, in *The Conception of Education of Lithuania*, it was mentioned that the aim of gymnasiums is to provide the comprehensive education with higher requirements and in this way to create the conditions for the gymnasiums to get the status of schools intended for gifted children. The gymnasiums are described as "*the institutions of comprehensive education intended for the children who are gifted at some definite field (humanities or natural science, arts, technology) and which have the mature motivation for learning*". However, in the recent educational documents, the aim of gymnasiums is not related only to the gifted children's education. Only in 2005, *The Strategy of Education of Gifted Children and Young People* was adopted. Its aim was "to create a sufficient system of education of gifted children and young people, while forming educational, psychological, social, financial conditions for gifted children and young people independently of their social status, place of residence, type of school, age, sex, language environment, etc.; to choose the (self-)education corresponding to their needs and interests and the equal opportunities of self-help". After four years, in 2009, in the approved document *The Programme of Education of Capable and Gifted Children* regulating the education of capable and gifted children an essential problem is emphasized that in our country "the system of assessment and recognition of capable children has not been discovered yet; the system which would involve all age groups and all programmes of education".

The relevance of the problem is proved by the fact that the scientific investigations in this field are conducted; however, the solution of the problematic questions is unsuccessful. In the scientific researchers, the problems of educating gifted children have been relevant since the first decades of the 20th century. The first researches were related only to the establishment of intelligence level by means of the tests (Terman, Oden, 1925; Thurstone, 1938). In Lithuania, the problems of gifted children's education was analyzed by A. Gučas (1959), J. Vabalas-Gudaitis (1927), who were the first to attempt to describe the capabilities, reveal the problems of identification of gifted children. The possibilities of educating gifted children, in

accordance to their individual differences, while differentiating and individualizing the teaching, were analyzed in the works by J. Laužikas (1974); L. Jovaiša (1978). The importance of education of gifted children in society was emphasized by A. Maceina (1934) and S. Šalkauskis (1936). Nowadays, as it is noted by B. Narkevičienė (2007 a), the research spectrum of capabilities is rather broad: the identification of gifted children is researched (Hagen, 1989; Heller, 2000; Rost, 1991, etc.), The peculiarities of teachers' work with capable children (Woods, 2004; Sumreungwong, 2003, etc.), the efficiency of special teaching programmes and the principles of their compilation (Benbow, 1986; VanTassel-Baska, 2002, etc.), gifted children's problems as well as the peculiarities of psychosocial adaptation (Gudonis V. et al., 2005, Матюшкин, 2006, Лейтис, 1998, etc.). However, even such variety of researches does not allow unambiguously to answer to the questions, which are significant while creating the system of educating gifted children.

In the country, the existing theoretical backgrounds of gifted children's education related to various age groups are investigated insufficiently. For example, the researches conducted L. Ušeckienė, R. Ališauskienė (2003), D. Kiseliuva, A. Kiseliovas (2002) indicate that the possibilities of education of gifted children of primary forms were not sufficiently investigated in Lithuania. Neither gifted children's psychological, emotional peculiarities, social competences nor the possibilities of their recognition were sufficiently investigated. There are not enough researches analyzing the possibilities and peculiarities of gifted children's education of primary forms. The conducted scientific researches are oriented to the problem of gifted children of senior forms: the analysis of especially gifted children of senior forms was conducted by B. Narkevičienė (2002), the adolescence (IX-X forms) approach to gifted classmates was analyzed by A. Brandišauskienė, (2006). However, there are no analogous researches investigating the educational problems of gifted children of junior forms.

Furthermore, it is worth to mention that there are not enough investigations which would reveal the situation of recognition of gifted children and (self-)education in comprehensive schools of Lithuania. The significance of this problem is also acknowledged in *The Programme of Education of Capable and Gifted Children* (2009). The possibilities and peculiarities of gifted children's (self-)education are analyzed by few scientists. A. Vilkelienė (2003) analyzes the problems of children gifted at music, D. Kiseliuva (2002), D. Kiseliuva, A. Kiseliovas (2004) analyze the problems of diagnostics of mathematical capabilities of children gifted at mathematics as well as the education in primary school the education. And only in 2007, after the international scientific conference "Especially Gifted Children: Challenges and Possibilities" which took place in Lithuania, in the publication prepared by organizing committee appeared the works by researchers who analyzed the education of children who are gifted at the Lithuanian language and literature, foreign languages, natural sciences, etc. that emphasize the importance of this direction.

However, in the mentioned researches , the teachers' role and functions were not sufficiently investigated in the education process of gifted children; the expression of teacher's pedagogical competences while educating gifted children has not been investigated. According to T. Tamošiūnas (2002), in educational process, teacher's pedagogical and psychological competences as well as personal features are important, which allow to effectively and creatively perform teacher's job. As noted by K. Pukelis (2009), namely the competences is the essential condition which determines the quality and effectiveness of pedagogical activity. The content and structure of teachers' pedagogical competence were theoretically and empirically substantiated by E. Rodzevičiūtė (2006), who indicated that it is composed of the unity of expression, pedagogy-psychology, organization, modern social and the

application of informational technologies and which is made of separate competences. In *The Inventory of the Competences of Teacher's Profession*, (2007) The most significant competences for teacher's profession are indicated, which involve cultural, professional, general and special competences. The mastering and relationship with modern challenges of all mentioned competences is the most significant aim of the teachers' training system of the whole educational system, teachers' professional training, and society's needs. However, in this context, the teacher's competence to educate gifted children is not determined.

An opinion dominates that the responsibility for the education of gifted children, firstly falls on a school which obliges to solve out various educational problems; one of the most important is to notice the gifted children and to create for them the appropriate (self-)education forms, which would help to reveal a child's capabilities. Thus it depends on a teacher's competences to educate gifted children and whether he/she is able to help a gifted child to reveal the potential and to develop it. Many foreign authors (Lee-Corbin, Denicolo, 1998, Feldhusen, 1985, Leder, 1988, etc.) in their scientific works tried to analyze and form the "portrait" of a teacher who successfully works with a gifted child , what inherent features he/she has, the importance of preparation, qualification, etc. However, as it is noted by B. Graffam (2006) even in nowadays there are not enough researches investigating the questions related to the teachers' competence in the work with gifted children. According to the American psychologist J. Gallagher (1958), many teachers are afraid of the work with gifted children as there are no unified rules to recognize them, they need the appropriate conditions of education, special training, etc. Furthermore, in 2002, in accordance to the order of Science and Education Ministry to conduct the research *The Analysis of the Situation of Especially Gifted Children of Lithuania*, in the recommendations it is indicated that the teachers working with gifted children would have to acquire the corresponding qualification in high schools or in the in-service training courses. As there are no certified specialists working with gifted children in Lithuanian schools, it is necessary to reconsider the system of teachers' training and development and to foresee the changes ensuring the importance of this problem solution. The importance of teachers' competences in educating the gifted children is emphasized in *The Programme of Education of Capable and Gifted Children* (2009); these competences are named as the most important ones while striving to implement the successful education of gifted children.

Summarizing the arguments substantiating the relevance of the problem, it is possible to formulate **the research question:** in what way primary and basic school t teachers' competence develops while educating the children who are gifted at mathematics, what professional competences and personal features allow to achieve the competence in this activity.

The object of the research: the competence of primary and basic schools teachers educating the children who are gifted at mathematics.

Research hypothesis: the teachers' competence, while educating gifted at mathematics children, is made of the recognition of the children who are gifted at mathematics, organization of education process, the planning and development of (self-)education, the competences of assessment of achievements and advancement as well as the relationship between personal and professional features; a teacher's professional experience and an appropriate preparation for this work have influence as well.

The aim of the research: to theoretically substantiate and empirically investigate the competence of the teachers of primary and basic schools while educating the children who are gifted at mathematics.

The objectives of the research:

1. On the basis of the analysis of scientific literature, to form and theoretically substantiate the model of competence of the teachers of primary and basic schools while educating the children who are gifted at mathematics.
2. To conduct the research of the approach and experience of the teachers of primary and basic schools, which is related to the organization of education of the children who are gifted at mathematics.
3. While analyzing the experienced teachers' work with the children who are gifted at mathematics, to reveal the expression of competence components. To investigate the expression of competent teachers' professional competences and personal features while striving to substantiate the expression of competence components.
4. While analyzing the experience of education of the children who are gifted at mathematics, to assess teachers' competence educating the children who are gifted at mathematics.

The research methodology is substantiated with the following essential approaches and conceptions:

While investigating the teacher's competence educating the children who are gifted at mathematics, the provisions of *humanistic pedagogy* were applied. The teacher who organizes the education of the child who is gifted at mathematics has to help him/her to conceive his/her needs and to help for his /her becoming of personality as well as the development of potential. The teacher is concerned with the provision that to train up the child who is gifted at mathematics is impossible, it is possible only to help him/her to learn, as such children master only this what corresponds to their needs. The basis of education process organization is children's needs and their self-assessment (Bitinas, 2000). The necessary condition of (self-)education process is communication and collaboration between a child and a teacher.

The ideas of pragmatism are important in the context of analysis of (self-)education technologies applied by the teachers. These technologies emphasize a child's individual needs, so for the teachers while organizing the process of education it is important to teach not the solution of particular problem, but the problem solution of the process itself (Bitinas, 2000). This is very important while organizing the education of the children who are gifted at mathematics, because to reach a high score "unconventional" thinking is important.

While analyzing the peculiarities of education process, the provisions of *the paradigm of free education* were pursued that actualize a child's nature, as according to (Monkevičienė, 2008), "it is strived to create the favorable conditions as much as possible for the development of a child's inner power and self-expression while raising the aim to develop a free and creative personality" and acknowledges "the possibilities of oneness in education process, a pupil's freedom and the right to choose the individual cognitive and class activity, to accommodate your own needs and subjective values" (Narkevičienė, 2007). In accordance to the context of this paradigm, a teachers role is changing in the educational process, "a teacher has to be not an authority, but a help, who has his/her own rights and academic autonomy" (Ruškus et al., 2010). Namely the realization of these provisions is significant striving to ensure the exceptional and educational needs of the children who are gifted at mathematics.

While analyzing the capabilities of gifted children's education, *the provisions of education oriented to a child* are important. In accordance to these provisions, the education has to be adapted to each child in relation to his/her inherent knowledge, experience, learning mode as well as the scope of interests. The pupil's self-

assessment and the raised aims are important for a teacher. Such understanding of education may have influence for the competence of a teacher.

Furthermore, taking into consideration the education needs of the children who are gifted at mathematics, **the theory of constructivism** is important that emphasizes that the education is a constructive and active process (Jucevičienė, 2005). Each child constructs necessary for himself/herself knowledge more quickly than a teacher conveys it. In this way, during the process of education, a child gains necessary capabilities (Muijs, 2005); a child is capable to construct his/her knowledge and skills in relation to the environment. Thus the organizational competences (to plan, to organize, to assess, etc.) are important for the teacher striving to create the effective conditions for the teaching of the children who are gifted at mathematics.

While analyzing the teachers' competence to educate the child which is gifted at mathematics, the explications of the concept of competence proposed by R. Laužackas, V. Dienys (2004) and K. Pukelis (2008) were pursued. The scholars indicate that "competence" emphasizes "the effectiveness of teacher's activity, its quality and which is ensured by the qualification of professional experience in professional career".

Research methods:

- **Analysis of scientific literature and documents** permitted to theoretically substantiate the structure and content of competence of the teachers of primary and basic schools educating the children who are gifted at mathematics.
- **Quantitative research method (questionnaire in written form)** allowed to empirically investigate the components of the competence of teachers educating children gifted at mathematics, while analyzing their experience as well as the approach to the education aspects of children who are gifted at mathematics in primary and basic schools.
- **Qualitative research method (the method of interview)** helped to analyze the expression of the components of teachers' competence while educating the children who are gifted at mathematics as well as the experience while educating such children .
- **Statistical methods:** To process the research data, the software of SPSS (Statistical Package for the Social Sciences) 13.0 was applied. From the multidimensional methods the following have been applied: non-parametrical criteria (Kolmogorov-Smirnov, Kruskal-Wallis, Mann-Whitney; zero hypothesis is rejected, as amount level $p > 0,05$). Factorial analysis, cluster analysis.

This work contributes to the investigations of the problems of gifted children's education. The relevance of these problems is emphasized in the laws of various levels and programmes as well as substantiated in the works by Lithuanian and foreign authors. **The novelty of the present study** is that the theoretical model of competence of the teachers educating gifted at mathematics children of primary and basis schools has been designed on the basis of scientific literature.

Theoretical significance of results:

- The conception of the gifted at mathematics children has been ascertained; the problems of their identification and the organization of education process are analyzed.
- The main components of teachers' competence while educating the children gifted at mathematics were revealed.
- The significance of teachers' personal features, professional experience, and professional preparation to the competence while educating the children who are gifted at mathematics are analyzed.

The practical significance of the present dissertational work is substantiated by the fact that determined and empirically substantiated competence components of the teachers who educate gifted at mathematics children of primary and basic schools are significant; the empirically substantiated recommendations are prepared for the modeling of education process of such children as well as for the teacher training in the work with gifted at mathematics children.

Implications for further research. The competence of teachers educating the gifted at mathematics children of primary and basic schools is theoretically substantiated and empirically investigated. The conducted research may be supplemented by the analysis and observation of the effective teachers who educate gifted children. This would allow to observe the expression of revealed competence components in the reality of education as well as identify the factors influencing the competence.

The statements for defense

- In teachers' practical activity it is possible to distinguish the components, which influence the education quality of gifted at mathematics children.
- The teachers' competence, while educating gifted at mathematics children, is made of :the recognition of gifted at mathematics children, the organization of education process, the assessment of achievements and advancement, the competences of education content planning and development as well as the unity of teacher's personal and professional features.
- The teacher's competence, while educating gifted at mathematics children, is influenced by many factors and the most important of them are: the teacher's preparation for the education of gifted at mathematics children as ell as the provisions to the capabilities and gifted children's education.

Approbation of the research results

1. The publications in reviewed other (not *ISI WEB of Science*) international databases:

- Bakanovienė, T. (2008). Mokytojų, ugdančių matematikai gabius mokinius, pedagoginių kompetencijų poreikiai: empirinis tyrimas. *Mokytojų ugdymas*, 10, 26–38. Šiauliai: Šiaulių universiteto leidykla.
- Bakanovienė, T. (2007). Gabių vaikų ugdymo formų ir metodų įvairovė. *Jaunųjų mokslininkų darbai*, 1(12), 52–55. Šiauliai: Šiaulių universiteto leidykla.

2. The papers on the dissertation topic read in scientific conferences and other publications:

- Bakanovienė, T. (2009, lapkritis). *Matematikai gabaus vaiko samprata: pradinių klasių mokytojų nuomonės tyrimas*. Pranešimas skaitytas tęstinėje VIII tarptautinėje mokslinėje konferencijoje *Mokytojų rengimas XXI amžiuje: pokyčiai ir perspektyvos*. Šiaulių universitetas.
- Bakanovienė, T. (2008, lapkritis). *Neformalus gabių vaikų ugdymas*. Pranešimas skaitytas tęstinėje VII tarptautinėje mokslinėje konferencijoje *Mokytojų rengimas XXI amžiuje: pokyčiai ir perspektyvos*. Šiaulių universitetas.
- Bakanovienė, T., Kiseliovas, A. (2007). Research of Viewpoint and Needs of Teachers Working With Children Gifted in Mathematics. *Teaching Mathematics: Retrospective and Perspectives: Abstracts 8th International Conference* (p.10). Riga: Latvijas Universitāte.

- Bakanovienė, T., Kiseliovas A. (2007). Research of Viewpoint and Needs of Teachers Working With Children Gifted in Mathematics. *Teaching Mathematics: Retrospective and Perspectives: Proceedings 8th International Conference*, (32–38). Riga: Latvijas Universitete.
- Bakanovienė, T. (2005) The System of Test Items to Identify Students of Primary School Gifted in Mathematics. *Matematikos dėstymas: retrospektyva ir perspektyva: VI tarptautinės konferencijos tezės*, (p. 13). Vilnius: Vilniaus universitetas.
- Bakanovienė, T. (2005). The System of Test Items to Identify Students of Primary School Gifted in Mathematics. *Matematikos dėstymas: retrospektyva ir perspektyva: VI tarptautinės mokslinės konferencijos medžiaga*. Vilnius: Vilniaus universitetas.
- Киселева, D., Бакановене Т., Киселев, А. (2005). Связь между оценкой решений олимпиадных задач и успеваемости по математике. *Matemātikas mācīšana: vēsture un perspektyvas: V tarptautinės mokslinės konferencijos medžiaga* (158-165). Liepāja : Liepājas Pedagoģijas akadēmija

The structure and volume of the dissertation. The dissertation consists of introduction, three parts, conclusions, discussions and recommendations, references and appendixes. 13 figures and 45 tables are presented in the dissertation. The volume of the study 162 pages. 182 reference sources have been used for the present research.

The concepts and abbreviations used in the dissertation

Gifted children – children whose capabilities are higher than average and who demonstrate exceptional achievements or have such potential of achievements in one or several fields (general, academic, creative, art, psychosocial, psycho-motoric) (Narkevičienė, 2002, 2007 a).

Gifted at mathematics children – gifted at mathematics children. In the present study they are conceived as the children who by means of their mathematical capabilities differ from their contemporaries and who successfully participates in mathematical activity.

Identification of gifted children – the unity of procedures which are used in order to recognize a gifted child (Narkevičienė, 2007).

Competence – a reliable and qualitative (effective) person’s professional activity in unpredicted situations that is ensured the gained qualification and accumulated professional experience in professional activity (Pukelis, 2009).

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GENERAL REVIEW OF THE CONTENTS

1. THE THEORETICAL SUBSTANTIATION OF COMPETENCES OF THE TEACHERS WHO EDUCATE GIFTED AT MATHEMATICS CHILDREN

1.1. The problem of determination of gifted child and capabilities

In this chapter, the descriptions of capable children and conception of capabilities are analyzed. The conception of capability phenomenon is considered as an important stage of recognition of capable children, thus an elaborated analysis of the definitions proposed by both foreign and Lithuanian authors is conducted. It was noticed that while forming these definitions, different provisions are taken into consideration: some authors emphasize the features inherent to gifted children (Gallagher and Gallagher, 1994; Feldhusenas, 2001 and others), the others emphasize the ways and results of identification of gifted children (Marland, 1972; Narkevičienė 2007 a and others). The analysis of models of theoretical capabilities is significant for educating gifted children. This analysis allows to observe a child's available potential and its conversion to capabilities as well as to identify the influence of significant components to this conversion. According to B. Narkevičienė (1999, 2007 a) the choice of the theoretical model of capabilities depends on the socio-cultural context. Furthermore, as B. Narkevičienė and L. Šiaučiukienė (1999) state, the differentiated model of gift-talent proposed by Gagne is the most suitable in Lithuania, as "the emphasized importance of environment allows to create the definition of *gifted child*, which is acceptable in Lithuania as well as integrates person's inner variables and outer variables of environment", allows to opt for the strategy in order to educate a gifted child.

1.2. The structure and determination of expression of mathematical capabilities

In this chapter, the conception of mathematical capabilities is analyzed. Firstly, the possibilities of capability classification are discussed. The need for capability classification appeared while striving to answer to the question whether mathematical capabilities is a separate case of general capabilities or an independent consequence. In accordance to D. Bogojavlevskaja, the classification of capabilities depends on the option of criterion, on the basis of which, the classification will be conducted (Bogojavlevskaja et al., 2003). The author indicated that it is possible to classify capabilities according to qualitative and quantitative characteristics. The quantitative characteristics describe the particularity of person's psychical capabilities and their peculiarities of manifestation in different activities. The qualitative characteristics of capabilities allow to describe their rate of expression. On the basis of different classifications of capabilities proposed by many authors, it is possible to state that mathematical capabilities are ascribed to special capabilities (Belošistaja, 2005), though, general capabilities are especially important for them as well. Therefore, the mathematical capabilities, which manifest in some definite (mathematical) environment, can be ascribed to the group of special capabilities (Богоявленская, 2003). Furthermore, mathematical capabilities can be ascribed to academic capabilities which are also differently interpreted by the scientists. For instance, Vilkelienė (2003) considers the academic capabilities as capabilities for some definite field of activity related to the child's cognitive activity.

Furthermore, while conducting the analysis of scientific works by foreign and Lithuanian authors, the structure and the determination of gifted child's mathematical capabilities are presented. Children's mathematical capabilities and the peculiarities of their education have been insufficiently investigated in our country. The authors, who investigated this problem, while defining the mathematical capabilities, suggest to refer to the definition of this conception and structure proposed by V. Kruteckij (Крутецкий В., 1968). In the present study, it is considered that mathematical capabilities depend on the group of capabilities and it is related to the determination and structure proposed by V. Kruteckij (Крутецкий В., 1968). Thus the child who is gifted at mathematics distinguishes among his contemporaries; his/her results in mathematics are assessed by the teachers and during mathematical Olympiads.

1.3. The didactical constructs of education of gifted at mathematics children

1.3.1. The identification of gifted at mathematics children

A significant stage in educating gifted children is considered to be their recognition striving to accommodate their educational needs. According to the works by B. Narkevičienė (2002; 2007 a) and D. H. Rost (1998; 2007), the procedural unity of recognition of gifted children is called their identification. The capabilities and their identification is a complex phenomenon, which is getting a significant object of scientific research for the representatives of psychology and education fields. While identifying the gifted children, it is possible to indicate the problems of identification instruments and the performance of identification procedure. In the analysis of the problem of identification instruments, a significant remark is proposed by Rost D. H. (1998), “the problem of identification is not the imperfection of psycho-diagnostic methods, but the complexity of the concept of capability itself”. In this way the author once more emphasizes that a necessary condition for the recognition of a gifted child is the conception of capabilities as phenomena. B. Narkevičienė (2007 a) suggests to distribute all the procedures applied to identification to objective (group and individual testing, testing of achievements, creativity, motivation, interests, etc.) and subjective (a child is allocated to the group of gifted in accordance to teachers’, parents’, classmates’ opinion). While using the possibilities of application of objective procedures as the most corresponding to the context of education reality , the questionnaire was chosen. As a significant problem of the identification of children gifted at mathematics is analyzed. Such problem needs an integrated solution (as the identification of child gifted at mathematics is necessary while striving for the main aim of procedure – the education corresponding to their capabilities and developing the available potential (Heller 2004))

1.3.2. The process access of education of gifted children

In this chapter, the technologies of educating gifted children are analyzed. The significance of technologies of educating gifted children is substantiated by the oneness of the gifted children’s educational needs. Thus many researchers (Seeley, 1993; Muijs, 2006; Лейтес, 1996, 2000; etc.) in their investigations indicate that the education which does not correspond to gifted child’s capabilities may be a serious pedagogical problem and if the problem is not solved it may cause the inexplicitness of child’s available potential. While analyzing the technologies of education of gifted children, it was noticed that very often their choice is substantiated by the group formations of the children who are of similar capabilities. However, the analysis of education of the gifted children from foreign countries , the educational practice implemented in the country (forms of mixed capacities) as well as *The Programme of Education of Gifted and Talented Children* (2009) allowed to point out and analyze the following technologies: the individualization and differentiation of education, the quickening of education, the enrichment of education as well as separate opportunities of non-formal education. While analyzing the possibilities of education of individualization and differentiation, the provision proposed by L. Šiaučiukėnienė (1998) was taken into consideration that “these two concepts can not be identified” and she indicates that “the individualization expresses the general orientation to individual, not paying attention to pupils’ individual features. Differentiation – narrower condition, as it is oriented to these inherent features by means of which the pupils differ from the others”. While analyzing the differentiation of education as well as the possibilities of its application in the education process of gifted children, on the basis of the works by other authors, it is possible to indicate the main problems. The possibilities of differentiated education have been insufficiently investigated, as , in

accordance to V. Bernotas (2002), in schools, the differentiated education is “rather rarely practiced and is not organized”. Till now, the effectiveness of differentiated teaching, its methods of application are not established. Furthermore, the differentiated education is not popular in our country as a form of education of gifted children, as many teachers work with the whole class equally (Narkevičienė 2002, *Specific Educational Measures to Promote all Forms of Giftedness at School in Europe*, 2006). Moreover, M. Barkauskaitė et al. (2003) while analyzing the reasons of the pupils’ expel from schools, established that the pupils lack the upbringing at school, that would correspond to their interests and capabilities, there is not enough occupation as well as the conditions of self-realization. Such results allow to state that the possibilities of differentiated education while accommodating children’s different educational needs have been insufficiently investigated.

The individualization of gifted children’s education is analyzed on the basis of the works by A. Galkienė (2005), as well as V. Dabrišienė and B. Narkevičienė (2002, 2003), who substantiated the main aspects of education individualization and indicated the main principles of formation of individualized education. While analyzing the scientific literature, it was noticed that the processes of education individualization are widely analyzed on the theoretical level, however, the practical approach is insufficient. The possibilities of individualization of education while educating gifted at mathematics children have also been insufficiently investigated. As proposed by Targamadžė (1999), though a part of the teachers state that they individualized the general programmes, however, during the process of research, it was noted that the individualization is a neglected part in education.

Moreover, the enrichment of education and the quickening of capabilities in the process of gifted children’s education have not been sufficiently investigated. Due to this reason, these processes are analyzed on the basis of experience of foreign countries. The foreign authors present various interpretations of quickening, however, as proposed by J. Freeman (1998), it is possible to distinguish two main positions related to this concept: Some scientists conceive this process as “skipping of education stages” (skipping of classes), other researchers consider the quickening as the type of individualization of education, when the programme of education is mastering quicker. M. C. Pyryt (2007) indicates that the results and effectiveness of quickening depend only on child’s capabilities and motivation, thus they especially can accommodate the educational needs of gifted children. This allows to state that the quickening creates the conditions for the better achievements of education, however, other aspects have to be assessed in order to apply it. The teachers, who work with gifted children and who apply the method of quickening have to take into consideration that this can cause additional psychological problems. The school fellows of a gifted child, who is taught at a quicker pace, may be senior as well as emotionally and physically mature (Pyryt, 2007). Furthermore, it is also important to assess each child’s possibilities while learning according to this method (can such (self-)education) be appropriate for a child). The another possibility of gifted children’s education has been discussed as well – enrichment. Enrichment is treated as additional teaching, which provides more experience, educate more than teaching only in common class (Freeman, 1998). The effectiveness of the process of enrichment of gifted children’s education is discussed as well, because there are researches proving that the results of the education of children who were taught using this method may not differ from their contemporaries’ results. However, the latter can achieve the analogous results while applying the education technologies corresponding their needs (Freeman, 1998). The possibilities of non-formal education in the process of gifted children’s education are assessed positively. The education of gifted children is often implemented by means of this form. In the present study, such

forms as schools of additional education, extramural schools, summer schools, etc. are overviewed. The role of mathematical Olympiads and competitions while organizing the education of children who are gifted at mathematics has been analyzed and it was noticed that the functions of such events are insufficiently investigated and determined.

1.3.3. The organization of education of gifted children

On the basis of the proposed conception and structure of competence as well as the provisions oriented to a child's education as a significant component of teachers' competence, the competences of process control of education that in the work relate the assessment of children's advance and achievement to the competences of education planning. The mentioned competences are pointed out on the basis of the provision that this is a part of a teacher's managerial competence (Rodzevičiūtė, 2006), and may have the influence to the effectiveness of educational process. E. Rodzevičiūtė (2007) defines the competence of teacher's planning as "the basis of educational activity, because the teacher will be able to successfully organize and conduct the activity if it is properly planned". Without planning it is difficult or even impossible to reach the aim. Thus while striving to organize the effective education of the child who is gifted at mathematics, it is necessary to assess the competences of planning as the structural component of competence. The importance of planning is emphasized by B. Graffam (2006) who investigates the teachers' experience who were successful while educating children gifted at mathematics. As noted by the author, the teachers who took part in his research while assessing the peculiarities of their work much attention pay to the planning. While working with gifted children, the education should not be planned for the whole schooling year as it is difficult to foresee a child's behavior and development. Thus, in accordance to the author, only a flexible teacher assesses the significance of planning in this process.

The competences of teacher's assessment are significant as the criteria of education effectiveness and quality establishment. As noted by L. Jovaiša (2007), assessment is a particular and unambiguous determination of quality rate of teachers' or pupils' activity and behavior according to education aims, objectives, and the standards of learning and work. The assessment of gifted children is complex, but at the same time very important process. The assessment of gifted children as a significant process of quality control of education process has been insufficiently researched. V. Rajeckas (1998) indicates that while educating gifted children, the assessment functions of control (declarative) and diagnostics are significant. The teacher can establish the rate of a pupil's results and knowledge as well as capabilities. This allows to foresee the potential child's achievements or to note the imperfections of applied methods and teaching aids.

1.4. The model of teachers' competence while educating gifted at mathematics children

In the present chapter, on the basis of the analysis of scientific literature, it is aimed to theoretically substantiate teachers' competence while educating children who are gifted at mathematics. While making the model of teachers' competence it was referred to the explication of concept *competence* proposed by K. Pukelis (2009), i.e. competence is reliable and qualitative (effective) person's professional activity in unpredictable situation which is ensured by acquired qualification and professional experience in professional activity (i.e. certified ability in an unpredictable situation of professional activity or professional practice). While analyzing the conception of *competence*, its descriptions proposed by Laužackas and Dienys (2004) are significant as well. The authors propose to conceive it as "the efficiency of

employee's work, its quality or ability to use in practice some definite competences or qualification". According to the authors "when we want to emphasize the efficiency of employee's work, its quality or the ability to use some definite competences or qualification in practice, it is necessary to use the words *competence* or *incompetence*" (Laužackas and Dienys, 2004). Such interpretation of the concept allows to state that teacher's competence to educate children gifted at mathematics indicates teacher's effective work while organizing the education of children who are gifted at mathematics. In accordance to the explication of teaching of capable children, presented in the *Programme of Education of Gifted and Talented Children* (2009), the education of the recognition such children is involved. The teacher's competences are made of competences influencing the organizations of these processes.

In accordance to K. Pukelis (2009), the conception *competence* is described as individual's characteristic" and it "can not exist apart from individual" and "individual's feature", "additionally indicating individual's ability to solve out the problems in unpredictable situations of professional activity". Thus it is essential to analyze the teacher's personal and professional peculiarities, which can be considered as significant for the education of children who are gifted at mathematics. In the literature, the significance of this theme is emphasized, however, its insufficient investigation is highlighted as well. Summarizing the scientific literature related to this problem, it is possible to state that the most significant are the high-level training for the subject, professional competences, which are determined by the application of modern technologies of (self-)education as well as the positive attitude to capabilities and capable children. While analyzing the experience of teachers who educate the children gifted at mathematics, the foreign authors (Van Tassel-Baska, 2007; Mills, 2003; Graffam, 2006; Woods, 2004 etc.) indicate the important components. The professional training for this work is one of the most important from these components. The systems of professional training of capable children's education in foreign countries are different, however, the acquisition of necessary competences is an underlying field of the politics of capable children's education in many countries.

2. The Research Methodology And Methods Of Teachers' Competence While Educating The Children Who Are Gifted At Mathematics

2.1. Research methodology

In this chapter, the research methodology is presented on the basis of which the empirical research was conducted. While researching the teachers' competence educating the children who are gifted at mathematics, the provisions of *humanistic pedagogy* were applied. The teacher who organizes the education of the child who is gifted at mathematics has to help him/ her to conceive his/her needs and to help for his/her becoming of personality as well as the development of potential. *The ideas of pragmatism* are important in the context of analysis of (self-)education technologies applied by the teachers. These technologies emphasize a child's individual needs, so for the teachers while organizing the process of education it is important to teach not the solution of particular problem, but the problem solution of the process itself (Bitinas, 2000). While analyzing the peculiarities of education process, the provisions of *the paradigm of free education* were pursued that actualize a child's nature, as according to Monkevičienė (2008), "it is strived to create the favorable conditions as much as possible for the development of a child's inner power and self-expression while raising the aim to develop a free and creative personality" and acknowledges "the possibilities of oneness in education process, a pupil's freedom and the right to choose the individual cognitive and class activity, to accommodate your own needs and subjective values" (Narkevičienė, 2007). Furthermore, taking into consideration the educational needs of the children who are gifted at mathematics, *the theory of*

constructivism is important that emphasizes that the education is a constructive and active process (Jucevičienė, 2005). Each child constructs necessary for himself/herself knowledge more quickly than a teacher conveys it. While analyzing the teachers' **competence** to educate the child who is gifted at mathematics, the explications of the concept of competence proposed by R. Laužackas, V. Dienys (2004) and K. Pukėlis (2008) were pursued. The scholars indicate that "competence" emphasizes the effectiveness of teacher's activity, its quality and which is ensured by the qualification of professional experience in professional career.

2.2. Substantiation of research methods

In this chapter of the study, the research methods and their aims are presented. The logic scheme of the dissertational research is presented as well.

While organizing the teachers' questionnaire as well as the interview of children gifted at mathematics and their teachers, the main principles of ethics were considered: confidentiality, voluntary, benevolence, and respect to person's dignity.

2.3. Quantitative research

In the present chapter, the principles of formation of questionnaire instrument are presented and the main constructs of diagnostics are described. The instrument of teachers' questionnaire is made of two structural formations: the component of demographic variable (sex, age, experience of teacher's work, qualification category, type of school, place of school, graduation from high school, allocated specialization, the number of pupils who won the Olympiad) and the component of diagnostic variables, which is made of four constructs of questions (the procedure of identification of the children who are gifted at mathematics, the technologies of education of such children (education methods, forms, means, assessment, control, planning), teachers' view to the child who is gifted at mathematics, teachers' methodical -didactical needs). The questionnaire is compiled on the basis of literary analysis.

The characteristics of scope as well as the principles of scope formation are introduced. In the survey, 366 teachers of primary and basic schools took part. They were chosen applying the undenominational method of optional of samples, i.e. the objective formation of groups. (Kardelis, 2002; Bitinas et al., 2006).

The methods of statistical analysis of data are presented. The methods of descriptive and multidimensional statistics were applied in the present research. In order to process the data of research, SPSS 15.0 (Statistical Package for Social Science) software was applied.

2.4. Qualitative research

In this chapter, the organization of qualitative research is described and the principles of scope selection. The scope of participants is formed on the basis of research aim and the criteria meant for the participants (Rupšienė, 2007, Bitinas et al., 2008), i.e. while applying the objective selection or the selection substantiated by the criteria. While compiling the scope of research, the criteria were raised for the participants: it is necessary to be a teacher of primary or basic school who has experience with children gifted at mathematics (the experience with the children gifted at mathematics was assessed according to the number the pupils of 4th-5th forms took part in the Olympiads of mathematics in Lithuania. In order to avoid an accidental access to the scope, a teacher's pupils had to be the winners in more than five Olympiads).

3. The Analysis Of Research Results Of Teachers' Competence While Educating Gifted At Mathematics Children

3.1. Qualitative research: the expression of teachers' competence in the education practice of gifted at mathematics children

3.1.1. The description of gifted at mathematics children and possibilities to identify them

While summarizing the teachers' opinion about the procedure of identification of the children who are gifted at mathematics, it was noted that the majority is related to the observation of a child's activity during the lessons or the achievements during the mathematical competitions (Olympiads). According to the teachers under investigation, the conduction of identification procedure is related to the teacher's functions, in which the parents could take part as well. However, other specialists' possibilities to participate are assessed scantily. This allows to presume that the teachers do not have enough knowledge about the identification procedure and are not acquainted with the experience of foreign countries related to this aspect, so when there is no determination how to conduct the identification of gifted children on the country scale, they perform this activity individually.

Summarizing the peculiar features appropriate for the children who are gifted at mathematics, the teachers indicated as the most significant the features which are inherent to the structure of mathematical capabilities; however, they insufficiently assessed the features inherent to the general structure of capabilities. This proves the assumption once more that the teachers do not have enough knowledge about the gifted children. Due to the exceptional features, the children who are gifted at mathematics may be distinguished for their unusual activity during the lessons, i.e. it differs from the activity of other contemporaries. Firstly, the teachers indicated the activities that allow to assess the quantitative characteristics (such children quicker do sums, do more sums than other children, etc.) and only then they pay attention to the qualitative characteristics (deeper knowledge than other contemporaries have, unusual methods of doing the sums, etc.).

3.1.2. The aims, methods and process organization of education of gifted at mathematics children

While organizing the education process of the children who are gifted at mathematics, the teachers opt for the various strategies of education which involve both formal and non-formal education of gifted children. During the lesson, mostly such educational methods are applied which allow to partially differentiate and/or individualize the education content. According to the questionnaire, one of the major methods of the education of the children who are gifted at mathematics is their preparation and participation in mathematical competitions (Olympiads) when the additional method (e.g. additional lessons after school, supplementary exercises for homework, etc.) are applied. Summarizing it is possible to state that the education of children who are gifted at mathematics is mostly oriented to their independent work, so the teacher has to foresee the appropriate means of motivation and help. The majority of teachers, while organizing the education of children who are gifted at mathematics, refer to the traditional methods which are inherent to influence paradigm. Thus it is important to foresee the means which would allow the teachers to acquire the experience related to organization of pedagogical work based on learning paradigm. As namely such pedagogical activity allows to ensure the effective education of the children who are gifted at mathematics.

3.1.3. Teachers' didactic needs for the organization of education process of gifted at mathematics children

The teachers as their significant needs while educating the children who are gifted at mathematics acknowledged the acquisition of knowledge about the gifted children and the necessity of collaboration and communication that would involve both the specialists of other fields and the teachers who have experience in this field of education. Furthermore, the teachers indicate that they miss the participation of

school's administration in the educational process of the gifted at mathematics children. Thus a presumption could be drawn that the school's strategy in the educating gifted children is a significant factor which influences the teacher's didactical solutions.

It is presumed that for the effective education of gifted children a teacher's view to gifted children (teacher's knowledge about gifted children, teacher's preparation for the work with such children, etc.) has the influence. The following main tendencies have been observed: 1) the majority of teachers prepare independently for the work with the gifted at mathematics children, while participating in events and/or studying the literature (the participants indicated that during their study years at universities no attention was paid to the work with gifted children); 2) The teachers assessed their own competences in the work with gifted at mathematics children positively, however, they wish to develop their pedagogical and subject knowledge which, in accordance to them, would allow to organize the education process more effectively; 3) The majority of teachers acknowledge the exceptional gifted at mathematics children's needs that require enough attention in the educational process of both formal and non-formal education. The indicated tendencies allows to draw the conclusion that the majority of teachers have the basis in the work with the children who are gifted at mathematics (they positively assessed the necessity of accommodation of educational needs of the children who are gifted at mathematics, acknowledge the exceptionality of such children, etc.), however, it is necessary to pay more attention to the teachers' preparation for the work with such children. This work should involve both pedagogical-psychological as well as pedagogical and subject competences.

3.2. Qualitative research: the expression of teachers' competence in the teachers' and children's educational experience

3.2.1. The analysis of the experience of teachers who educate gifted at mathematics children

In this chapter, the results of teachers' interview are presented. The aim of this questionnaire was to establish the experienced teacher's view to the education of gifted at mathematics children. During the interview, it was strived to identify the expression of the component of their competence as well as to ascertain their view to this aspect. Summarizing the results of the interview in relation to the aspect of recognition of gifted at mathematics children, it is possible to state that the informants ascribe to such children various features which on the basis of both the analyzed literature in the theoretical part of the present study and the indicated features of the teachers who took part in the research may be distinguished into two groups: the ones which belong to the structure of mathematical capabilities and the ones which belong to the general capabilities. This allows to state that the teachers consider the capabilities in mathematics as specific capabilities, however they are inherent with general capabilities as well. During the identification, the teachers strive to establish whether a child can participate in the events which are intended for the children gifted at mathematics. While analyzing the identification methods proposed by the teachers, it was observed that the educational politics of the gifted children's education on the national level has the influence for the choice of identification methods, i.e. there is neither standardized methods of gifted at mathematics children recognition nor the specialists who would be responsible to carry out the identification. Thus the choice of the applied methods mostly depends on teachers' competence and the experience in this field.

The analysis of possibilities of choice and application of educational technologies while educating the children who are gifted at mathematics allows to

notice that informants admit the exceptional needs of the gifted at mathematics children and who need an appropriate education. The shift of education process, has to involve all dimensions of both the process itself and the preparation for this process. The teachers relate the peculiarities of these processes to the peculiarities of gifted children. For instance, the teachers indicate that they plan their work with such children only for a shorter time, as “*you never know as a child will cope with your suggested tasks*”. While organizing the lessons, such strategies are chosen which allow a gifted child to participate in both general class work and to develop individual capabilities. Furthermore, the teachers demonstrate the provision that the education corresponding to gifted at mathematics children’s needs is necessary in a group of contemporaries. Such education corresponds to the reality of education, however, mostly the teachers must educate gifted children’s individual capabilities while applying the methods of independent or additional education. As the main impediments of gifted at mathematics children’s education the teachers indicate the content of programme (it is too broad and not determined for a gifted child), the shortage of time, which occurs because of the large number of pupils in a class or because of different children’s capabilities. In accordance to the enumerated peculiarities of organization of education, an educational peculiarity of the children gifted at mathematics is emphasized – assessment. The teachers indicate that the assessment of gifted children is complex during a lesson as they firstly have to assess a child’s achievements considering the “programme” (the standards of education), child’s individual achievements and advancement is not the main aim of assessment during a lesson.

The informants prove the presumption proposed in the theoretical part that teachers’ view to gifted at mathematics children and their education are important. The recognition of gifted children’s need is important for a teacher as it influences the choice of educational technologies. Only the teacher who is positive towards gifted children and their education strives to ensure the flexibility and organization of educational process. A positive approach to such children provides the teacher with possibilities to change roles: teacher – deliver of knowledge to teacher – partner.

Furthermore, it is worth to mention that the teachers acknowledged the professional preparation as a significant component of competence for the work with the children who are gifted at mathematics. During the research, the teachers described the content of professional preparation as involving both preparation for the subject and pedagogical-psychological preparation for the work with gifted children. However, it should be noted that participants’ professional preparation for such work is based on personal initiative and is implemented by means of self-education and sharing the experience with other teachers interested in this problem.

3.2.2. The analysis of education experience of gifted at mathematics children

In this chapter, the results of interview with the children who are gifted at mathematics are presented. During the interview it was strived to research the expression of teachers’ competence while investigating the children’s representations about the education which is organized for them. The children, while describing the competence of the teachers who educate them, indicate the following structural elements: teacher’s personal and professional features, provisions to such children’s education, capabilities to sufficiently organize the educational process. While describing teachers’ personal features, children indicate that a teacher has to be not only “good”, “friendly”, “cheerful”, but also “demanding” and “strict”. As a significant teacher’s feature, the children indicated the preparation for the subject – “good at mathematics”, “able to solve everything”, “can explain everything”. In

summarizing, we can state that the informants assess such teacher's role when he/she is "a consultant", "a help", "show the way", but not provide the solution to the problem. Furthermore, while explicating the concept of a child who is gifted at mathematics, the children not only indicate the features inherent to such child, but also emphasize the importance of permanent work which is the basis of good results. While describing the process of education, the children indicate that for them are important both the work with the whole class and the individual work, when the educational content accommodating their needs is provided for them. The informants demonstrate the provision that they, while conceiving their oneness, wish to be a part of class community of both during the process of education and in other activities. Thus such teacher's competences are actualized which allow to organize the children's education in order to accommodate this principle

CONCLUSIONS

1. The analysis of scientific literature related to the education of gifted children has proved that their exceptional education needs require such teachers' competences which would let organize the qualitative education of gifted children. The quality of pedagogical activity results reflects teachers' competence, thus in his/her work it is possible to point out the inherent components.

On the basis of scientific literature, the following components of competence of the teachers who educate the children gifted at mathematics have been indicated: the recognition of gifted at mathematics children, the organization of education process, the planning and development of (self-)education content, the competences of achievement and advancement.

On the basis of the analyzed conception of competences, while interpreting competence as a person's feature which can not exist separately from a person, the component of competence model is considered to be significant and which characterizes teacher's personal features.

2. The results of quantitative research allowed to empirically verify the expression and peculiarities of competence components of the teachers who educate gifted at mathematics children.

The teachers do not pay additional attention to the identification process of children who are gifted at mathematics. It is identified with a child's activity and its results during a lesson (a test, observation during a lesson, etc.) or during non-formal events (Olympiads, competitions). Only a small part of the teachers state that they relate the identification procedure with the results of specialized mathematical tests or intelligence tests.

The teachers describe the children gifted at mathematics rather differently. The features pointed out by the teachers reflect their attitude to mathematical capabilities, which are interpreted as specific capabilities and they insufficiently relate them to psycho-emotional components of comprehensive capabilities of different fields.

The teachers mostly organize the education process of gifted children on the basis of traditional technologies of education, i.e. they do not differentiate them from the technologies which are applied to educate the whole class. While striving to accommodate such children's educational needs, the teachers apply the methods of differentiation more often and not so often – the methods of individualization (more tasks, separate tasks, additional tasks); they do not differentiate other components of education process adapted for the needs of children who are gifted at mathematics.

The teachers positively enough assess the additional education of children who are gifted at mathematics. Their preparation and participation in mathematical Olympiads is considered to be as one of the most important strategies of accommodation of gifted children's needs.

While analyzing the assessment peculiarities of education process of the children who are gifted at mathematics, it was noticed that their assessment process is oriented to the assessment of child's "correspondence to standards", i.e. a child's exceptional capabilities during a lesson can not be assessed. The assessment technologies proposed by teachers are "universal" for the whole class. Only a small part of teachers indicated that during the process of such children's assessment, the assessment instruments are supplemented by the tasks which are oriented to both quality and quantity.

While investigating the peculiarities of education process of gifted children, it was noted that the teacher's competence related to the planning is especially significant. The teachers opt for a temporal planning, i.e. they plan the educational process only

for a shorter time. While planning, for a teacher is important to establish the level of children's capabilities as well as to foresee the "problem" solving.

While assessing the teachers' didactical needs, it was noted that the teachers need a versatile help in this process, i.e. the teachers unanimously ascertain the provision that the education of gifted children has to be significant for all participants of education process. The teachers propose that the collaboration with other specialists may have influence on their work quality. As the teachers do not have experience in the collaboration with other specialists, they consider the help by the teacher who is experienced in the work with the children gifted at mathematics to be significant. As an important didactical need is an appropriate preparation for gifted children's education. In accordance to the teachers, its content should consist of the following: the technology of recognition; the organization of education process; psychological-pedagogical-social peculiarities of gifted children. The teachers explicitly state that the preparation for the work with the children who are gifted at mathematics is insufficient, so they ascribe this to the group of their didactic needs. Many teachers indicate that they gain the knowledge necessary for education of gifted at mathematics children independently, because not enough attention is paid during the process of pedagogical studies as well as in the events of in-service training.

While creating the reality of education of the gifted at mathematics children, the teachers' provisions towards the capabilities and their significance for the society are important. The teachers admit the exceptional education needs of such children and the corresponding necessity of their education.

3. The results of teachers' interview allowed to analyze the meaningfulness of experienced teachers' competence while educating the children who are gifted at mathematics.

While analyzing the data of the conception of phenomena of the child who is gifted at mathematics, it was noted that the teachers ascribe to the structure of mathematical capabilities such components as the speed of mathematical activity, logical thinking, not traditional way in the solving of mathematical problems, mathematical symbols, the conception and application of mathematical relations. Furthermore, while interpreting the results, it was noted that the teachers indicate such features as interest in mathematics and diligence. This allows to state that, in accordance to teachers, such unity of personal features is inherent to a child who is gifted at mathematics that ensures the efficiency of mathematical activity.

While analyzing the procedures of identification of the children who are capable at mathematics, it was noted that the teachers do not have experience in the application of identification methods which are indicated in the literature (the testing of intelligence, specialized mathematical tests, etc.). They ascribe the performance of this procedure to their own functions, thus they mostly perform this independently not paying the additional attention to this procedure during the lesson. The teachers indicate a child's observation during a lesson as a significant component of recognition of the child who is gifted at mathematics. A child's results while participating in mathematical Olympiads and competitions have the influence to a final conclusion, i.e. these events are ascribed with the function of diagnostics. Though the informants do not apply the specialized procedures in order to identify the capabilities, they emphasize that the identification is necessary to select the special tasks which differ from "standard tasks", which do not allow to assess the child's unusual capabilities. Such representation of teacher's experience allows to claim that the participants of the research emphasize the necessity of identification procedure, however, the procedure that is not determined has influence to their activity.

While analyzing the data in accordance to the aspect of education process of the children who are gifted at mathematics, it was noted, that mostly the education

process of such children is organized equally for all children. The teachers indicated that they perform the individualization of gifted children's education only "episodically". While constructing the reality of education, it is strived that a child would reach a level of capabilities corresponding the standards of education; the attention to gifted at mathematics children is paid only during the additional activities. The emphasized opportunities of education of gifted at mathematics children are analyzed in both homogenic and heterogenic groups of children's education.

While analyzing the description of assessment process, it is worth to mention that during the lesson the teachers tend to assess the correspondence to standards of capability level of children gifted at mathematics. Thus the teachers mostly choose the assessment forms appropriate for the whole class – independent works, tests, etc. The teachers state that they do not have the possibilities to assess children's exceptional capabilities during the lesson as the content of education is not adapted to the children who are gifted at mathematics. According to the participants, their capabilities are assessed during non-formal events, such as Olympiads.

While analyzing a teacher's competence for the education of children who are gifted at mathematics, teacher's self-assessment and identification are important. The analysis of data allows to state that the viewpoint to gifted children and their education has the influence to teacher's competence. The conception of problem itself is significant for the formation of positive provision. In this way, the teachers emphasize the necessity of preparation for the work with gifted children. As many informants emphasized that they had not been acquainted with the problems of education of the children who are gifted at mathematics neither during the study years, nor at in-service training courses, thus, in accordance to them, such aspects are significant while training the teachers. Summarizing the data, it is also worth to note that the teachers unanimously state that they miss the regulation of education of the gifted at mathematics children.

4. The analysis of experience of educating the children who are gifted at mathematics allowed to assess the significance of component expression of teachers' competence for the children.

It is worth to note that the children precisely define the components of competence differentiating them to professional and personal constituents. While describing the teachers' personal features, the children indicate such features which relate to the accommodation of their social and cognitive needs. As a significant teacher's feature, the children assessed his/her preparation for the subject.

The children who are gifted at mathematics make sense of teacher's role in the process of education. The teacher is ascribed with the role of "a consultant" and "a help". The indication of these roles emphasizes the importance of active pedagogical interrelationship for the children.

While describing the process of education, the children indicate that both are important: the work with the whole class and the individual work, when they are provided with the content of education corresponding to their needs. The informants demonstrate the provision that they, while conceiving their exceptionality, wish to be a part of class in both the process of education and in other activities. Thus such teacher's competences are actualized which allow to organize the children's education in order to accommodate this principle.

The children themselves, while explicating the concept of gifted at mathematics children, precisely indicate the features inherent to such children. They emphasize the importance of permanent work as a condition to develop their potential.

RECOMENDATIONS

For schools

The communities of schools could contribute to the politics of education of gifted children of Lithuania, while creating and implementing the programmes of education of gifted children in their institutions. As the conducted researches have proved, the teachers alongside to their present needs for the work with gifted children attribute the absence of the system of work with gifted children. The politics of education of gifted children on school level should help to all participants of this process: the children's right to get the education corresponding to their capabilities, to provide teachers with help, involvement and consultation of parents.

For teachers

1. The acknowledgement and recognition of phenomenon of "gifted child" is important for the recognition and qualitative education of gifted at mathematics children.
2. To strive for necessary competences in order to organize the education process of gifted at mathematics children. The investigations showed that in the existing reality of education, the teachers mostly opt for the traditional strategies which are general for all children, so it is necessary to pay more attention to educational technologies, which give the possibility to organize flexible, systematic, corresponding to child's capabilities education.
3. To organize the education of gifted at mathematics children on the basis of the following principles: *flexibility* (while organizing the process of education, it is necessary to consider that due to gifted child's individual features, the education may be changed during the process); *organization* (the education of gifted child can not be fragmentary); *the recognition and acknowledgement of child's potential, needs, interests* (the education of gifted child is effective only in this case when a child's educational and social needs are accommodated); *communication and collaboration* (during the process of education, it is necessary for all participants to become equal partners).
4. While organizing the process of education of gifted at mathematics child to liaise with his/her family.
5. While designing your own strategies while educating gifted children to contribute to the creation of school politics of education of gifted children.
6. To participate in the dissemination of the experience of "good" practice on both town and country levels.

For the institutions training and developing teachers

To provide the teachers with competences which are significant while organizing the qualitative education of gifted child: recognition and competences of education process and its organization. The investigation proved that namely these competences are significant for teacher's competences in the work with gifted children. To achieve this aim, it is necessary to foresee the modules intended for the questions of education of gifted children in study programmes.

To provide the teachers with opportunity to participate in the courses of in-service training, when relevant problems of education of gifted children would be solved.

DISCUSSION

The problems of teaching gifted children is a significant object of scientific investigations. The nowadays scientists acknowledge that till now there is no unanimous answer to many questions related to the phenomenon of gifted children. However, it is unanimously acknowledged that the education of gifted children in

order to reveal and develop his/her potential is beneficial only for a society where a child lives (Narkevičienė, 2007; Rost, 2007). Thus the scientists of different countries are striving to answer to the questions related to the education of gifted children. Firstly, many psychologists and specialists of education strive to solve out the problem of recognition (identification) of gifted children. During the last decades many diagnostic instruments have been designed, however, the diversity and complexity of the problem itself do not allow to state that the problem of recognition of gifted children is solved out. Secondly, in different countries, the experience of gifted children's education is different, however, even the analysis of the latter would not allow to answer to the question "how to educate gifted children?". The answer of this question is partially influenced by the diversity of the concept of capabilities, as according to J. Freeman (2007), this concept is "flexible and always relative". Thus the researchers have the possibility to determine the limits in relation to the capabilities. In accordance to the analysis of scientific literature, it is possible to state that there is no a unanimous answer to the questions about the structure of capabilities and their influencing factors. This is illustrated by the models of capabilities presented in scientists' works, whose relevance for the exact reality of education is a separate direction of scientific researches. The discussions about the relationship of capabilities with such variables as environment (both (self-)education and social), sex, heredity, etc. are significant. However, whatever conception we rely to, we would notice the acknowledgement of education significance, as it is an essential condition to develop the capabilities.

While upbringing the possibilities of gifted children's education, the researches investigating the teachers' role in this process are significant. Thus many researchers need to answer to the question: "Whether each teacher can be a teacher of a gifted child?". As there are no certified specialists who are able to educate gifted children as well as there is no system of teachers' certification, so it is only partially possible to answer to this question "In each class may be a gifted child". This allows to actualize a new discussion "Why some teachers, while educating gifted children, achieve good results and others not?" and "What influences this?". During the analysis of scientific literature, the significant research object conducted by foreign scientists was noticed – the references of effective teachers who educate gifted children. Thus it is possible to state that in the reality you can meet an "efficient" or "inefficient" teacher who educates gifted children. Such conditional division of teachers presupposes another question "What is the difference between such teachers?" or "What is necessary to become an efficient teacher who educates gifted children?". While discussing the teachers' effective activity, it is worth to remember that person's effective activity is often conceived as person's competence for some definite activity. Thus what makes the basis of effective activity of the teacher who educates gifted children? To put in other terms, what is the structure of competence while educating gifted children? This question was one of the most essential, which had to be answered during the process of dissertational research. In the theoretical part, the model of competence of the teachers of primary and basic schools was substantiated; in the empirical part of the research, the competence expression was empirically investigated while educating gifted at mathematics children

During the process of research, it was established that theoretical competence, while educating gifted at mathematics children, involves the most significant components for the education of gifted children; however, for its empirical investigation it is necessary to have additional researches, which would allow to assess not only the teachers' opinion about the peculiarities of the education process of gifted children, but also would allow to assess the expression of competence components in the reality of education. The investigation of such researches would allow to define the

components of teachers' professional preparation while educating gifted children. The results obtained during the process of research reveal that the investigated components of competence not only involve the requirements, but also reflect the teacher's correspondence to that level, i.e. the more the teacher corresponds to these requirements, the more competent he/she is. Furthermore, the significant is the fact that similar investigations would contribute to the development of educational politics of gifted children. In *The Programme of Education of Gifted and Talented Children* (2009), the main problems of education of gifted children in our country were identified, however, their investigation is insufficient, so the analysis of "good" experience would contribute to the direction of this research.

INFORMATION ABOUT THE AUTHOR

Education

In 1996-2000, she graduated from Šiauliai University, Faculty of Mathematics and Physics and gained the bachelor's degree (qualification of mathematics-informatics teacher) in Social Sciences (Education);

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In 2004-2009: doctoral studies at Šiauliai University, Social Sciences (Education).

Work experience

In 2002-2006, she was working as an assistant of Department of Mathematic Didactics of Education Faculty, Šiauliai University;

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PRADINĖS IR PAGRINDINĖS MOKYKLOS PEDAGOGŲ KOMPETINGUMAS UGDANT MATEMATIKAI GABIUS VAIKUS REZIUMĖ

Dabartinė švietimo politika vis labiau skatina atkreipti dėmesį į kiekvieno vaiko individualius poreikius. *Lietuvos švietimo įstatyme* (2003) teigiama, kad kiekvienas vaikas turi gauti jo gebėjimus atitinkantį išsilavinimą. Vaiko individualių savybių vertinimas ir pripažinimas vienas pagrindinių principų, kuriuo siūloma vadovautis organizuojant ugdymo procesą tiek individualiu, tiek instituciniu lygmeniu (*Pradinio ir pagrindinio ugdymo bendrosios programos*, 2008). Tačiau, kaip pažymi V. Adaškevičienė ir kt. (2008), „gabūs vaikai yra viena labiausiai edukacine prasme apleistų vaikų grupių“. Europos Tarybos Generalinė Asamblėja 1994 m. suformulavo rekomendacijas dėl gabių vaikų ugdymo sistemos sukūrimo, jose nurodyta, kad gabių vaikų specialiesiems poreikiams tenkinti būtina kurti tinkamą švietimo sistemą, tačiau pokyčių ir tinkamo dėmesio susilaukta tik pastaraisiais metais.

Mūsų šalies švietimo politikoje vaikų išskirtinių edukacinių poreikių pripažinimas vyko keliais etapais. Pirmiausia 1998 m. buvo reglamentuota specialiųjų poreikių vaikų edukacinių poreikių tenkinimo sistema (Aidukienė ir kt., 2003). Gabių vaikų edukacinių poreikių pripažinimas bei jų ugdymo sistema kol kas neapibrėžta. *Lietuvos švietimo koncepcijoje* (1992) minima, kad gimnazijų paskirtis – teikti bendrąjį išsilavinimą keliant aukštesnius reikalavimus, taip sudarant sąlygas gimnazijoms įgyti mokyklų, skirtų gabiems vaikams, statusą. Gimnazijos apibūdinamos kaip *bendrojo lavinimo institucijos, skirtos mokiniams, gabiems kuriai nors veiklos sričiai (humanitariniams ar gamtos mokslams, menui, technikai) ir turintiems anksti subrandintą mokymosi motyvaciją*. Tačiau dabartiniuose švietimo dokumentuose gimnazijų paskirtis nesiejama tik su gabių vaikų ugdymu. Tik 2005 m. buvo priimta *Gabių vaikų ir jaunuolių ugdymo strategija* (2005), kurios tikslas – „sukurti veiksmingą gabių vaikų ir jaunuolių ugdymo sistemą, sudarant edukacines, psichologines, socialines, finansines sąlygas gabiems vaikams ir jaunuoliams, nepaisant jų socialinės padėties, gyvenamosios vietos, mokyklos tipo, amžiaus, lyties, kalbinės aplinkos ir kt., rinktis jų poreikius ir interesus atitinkantį ugdymą(-si) ir lygias saviugdodos galimybes“. Po ketverių metų 2009 m. parengtame ir patvirtintame dokumente *Gabių ir talentingų vaikų ugdymo programa*, reglamentuojančiame gabių ir talentingų vaikų ugdymą, vis dar įvardijama viena esminių problemų, kad iki šiol šalyje „dar nėra sukurta bendros gabių vaikų atpažinimo, įvertinimo ir ugdymo sistemos, kuri apimtų visus amžiaus tarpsnius ir visas ugdymo programas“.

Problemos aktualumą patvirtina ir tas faktas, kad moksliniai tyrimai šioje srityje atliekami, tačiau probleminių klausimų išspręsti taip ir nepavyksta. Gabių vaikų ugdymo problemos moksliniuose tyrimuose buvo aktualios jau nuo pirmųjų dvidešimtojo amžiaus dešimtmečių, pirmieji jų siejami tik su intelekto lygio nustatymų testais (Terman, Oden, 1925; Thurstone, 1938; cit. Лосева, 2004; Штерн, 1997). Lietuvoje gabių vaikų ugdymo problemas savo darbuose analizavo A. Gučas (1959), J. Vabalas-Gudaitis (1983), kurie pirmieji bandė apibūdinti gabumus, atskleisti gabių vaikų identifikacijos problemas ir jų reikšmę. Gabių vaikų ugdymo galimybes, atsižvelgiant į individualius jų skirtumus, diferencijuojant ir individualizuojant mokymą, buvo nagrinėjamos J. Laužiko (1974), L. Jovaišos (1978) darbuose. Tokio ugdymo svarbą visuomenės vystymuisi savo darbuose pabrėžė A. Maceina (1934), St. Šalkauskis (1936). Dabartiniu metu, kaip pažymi B. Narkevičienė (2007 a), gabumo tyrimų spektras gana platus: tiriama gabių vaikų identifikacija (Hagen, 1989; Heller, 2000, 2004; Rost, 1991, 1998 ir kt.), mokytojų darbo su gabiais vaikais ypatumai (Woods, 2004; Sumreungwong, 2003; Lee, 2004 ir kt.), specialiųjų mokymo programų efektyvumas ir jų sudarymo principai (Bleske-Rechek ir kt., 2004;

Van Tassel-Baska, 2002 ir kt.), psichologinės gabių vaikų problemos bei psichosocialinės adaptacijos ypatumai (Gudonis ir kt., 2005, Матюшкин, 2006, Лейтес, 1996 ir kt.). Tačiau ir tokia tyrimų įvairovė iki šiol neleidžia vienareikšmiškai atsakyti į klausimus, kurie yra reikšmingi kuriant gabių vaikų ugdymo sistemą.

Mūsų šalyje nepakankamai ištirti įvairių amžiaus tarpsnių gabių vaikų ugdymo teoriniai pagrindai. Pavyzdžiui, L. Ušeckienės, R. Ališauskienės (2003), D. Kiseliovos (2002), D. Kiseliovos, A. Kiseliovo (2004) atlikti tyrimai rodo, kad šalyje nepakankamai ištirti gabių pradinių klasių mokinių ugdymo klausimai – tiek gabių vaikų psichologiniai, emociniai ypatumai, socialinės kompetencijos, tiek jų atpažinimo galimybės. Nepakanka tyrimų, analizuojančių ir pagrindinės mokyklos gabių vaikų ugdymo ypatumus. Atlikti moksliniai tyrimai orientuoti į gabių aukštesniųjų klasių moksleivių problematiką. Itin gabių aukštesniųjų klasių moksleivių ugdymo situacijos analizę atliko B. Narkevičienė (2002), paauglių (IX–X kl.) požiūrį į gabius bendraklasius vertino A. Brandišauskienė (2006). Tačiau pasigendama analogiškų tyrimų, nagrinėjančių jaunesniojo mokyklinio amžiaus gabių vaikų ugdymo problemas.

Taip pat reiktų pažymėti, jog nepakanka tyrimų, kurie atskleistų skirtingoms gabumų sritims gabių vaikų atpažinimo ir ugdymo(-si) situaciją šalies bendrojo lavinimo mokyklose. Šios problemos reikšmingumas pripažįstamas taip pat *Gabių ir talentingų vaikų ugdymo programoje* (2009). Skirtingų gabumų vaikų ugdymo(-si) galimybes ir ypatumus nagrinėja palyginti nedaug mokslininkų. A. Vilkelienė (2003) analizuoja muzikai gabių vaikų ugdymo problemas, D. Kiseliova (2002), D. Kiseliova, A. Kiseliovas (2004) – matematikai gabių vaikų matematinių gebėjimų diagnostikos bei ugdymo pradinėje mokykloje problemas. Ir tik 2007 m. po Lietuvoje įvykusios tarptautinės mokslinės konferencijos *Itin gabūs vaikai: iššūkiai ir galimybės* organizatorių parengtame leidinyje šią tyrimų kryptį papildė praktiku darbai, kuriuose analizuojamas lietuvių kalbai ir literatūrai, užsienio kalboms, gamtos mokslams ir kt. gabių vaikų ugdymas, kas akcentuoja šios krypties tyrimų svarbą.

Tačiau minėtuose darbuose nepakankamai ištirtas pedagogų vaidmuo ir funkcijos gabių vaikų ugdymo procese, nenagrinėta pedagogo profesinių kompetencijų raiška, ugdant gabius vaikus. Pasak T. Tamošiūno (2002), ugdymo procese labai svarbios yra mokytojo pedagoginės, psichologinės kompetencijos bei asmenybės savybės, leidžiančios efektyviai ir kūrybingai dirbti pedagoginį darbą. A. Rudienės (2004) teigimu, būtent jos yra stiprus mokinių mokymosi rezultatus lemiantis veiksnys. Kaip teigia K. Pukelis (2009), būtent kompetencijos yra būtina kompetentingumo sąlyga ir jo sudėtinė dalis, kurios lemia pedagoginės veiklos kokybiškumą bei efektyvumą. Pedagoginio kompetentingumo turinį ir struktūrą teoriškai ir empiriškai pagrindė E. Rodzevičiūtė (2006), nurodydama, kad jį sudaro raiškos, pedagoginio-psichologinio, vadybinio, šiuolaikinio socialinio bei informacinių technologijų taikymo kompetentingumo visuma, kurią sudaro tam tikros kompetencijos. *Mokytojo profesijos kompetencijos apraše* (2007) nurodomos reikšmingiausios mokytojo profesijai kompetencijos, kurios apima bendrakultūrinę, profesines, bendrąsias ir specialiąsias kompetencijas. Visų išvardytų kompetencijų įvaldymas ir dermė su šiuolaikiniais iššūkiais tiek visai švietimo sistemai, tiek mokytojų profesiniam rengimui, tiek visuomenės poreikiams yra didžiausia pedagogų rengimo sistemos siekiamybė. Tačiau šiame kontekste kol kas neapibrėžtas pedagogo kompetentingumas ugdyti gabius vaikus.

Vyraujanti nuostata, kad atsakomybė už gabaus vaiko ugdymą pirmiausia tenka mokyklai, įpareigoja spręsti iškilusius įvairius ugdymo sunkumus, kurių svarbiausi – pastebėti gabumus turinčius vaikus ir sukurti jiems tinkamas ugdymo(-si) formas, kurios padėtų atsiskleisti vaiko gebėjimams. Todėl būtent nuo mokytojo kompetentingumo ugdyti gabius vaikus priklauso, ar jis gebės vaikui padėti atskleisti

jo potencialą ir jį plėtoti. Daugelis užsienio autorių (Lee-Corbin, Denicolo, 1998; Feldhusen, 1985; cit. Narkevičienė, 2007 a; Vialle ir kt., 2002; Leder, 1988 ir kt.) savo moksliniuose darbuose bandė analizuoti ir sudaryti mokytojo, sėkmingai dirbančio su gabiu vaiku „portretą“, kokiomis savybėmis jis turi pasižymėti, kuo svarbus jo pasirengimas, kvalifikacija ir kt. Tačiau, kaip pažymi B. Graffam (2006), net ir dabartiniu metu nepakanka tyrimų, nagrinėjančių mokytojų kompetentingumo dirbti su gabiais vaikais klausimus. Pasak JAV psichologės J. Gallagher (1958), dauguma mokytojų bijo dirbti su tokiais vaikais, nes jiems atpažinti nėra vieningų taisyklių, reikia atitinkamų ugdymo sąlygų, specialaus lavinimo ir pan. Taip pat 2002 m. Švietimo ir mokslo ministerijos užsakymu atliktą tyrimą *Itin gabių vaikų ugdymo situacijos Lietuvoje analizė* rekomendacijose nurodoma, kad mokytojai, dirbantys su gabiais vaikais, turėtų įgyti atitinkamą kvalifikaciją aukštojoje mokykloje ar kvalifikacijos kėlimo kursuose. Kadangi šalies mokyklose sertifikuotų specialistų, dirbančių su gabiais vaikais, nėra, todėl būtina peržiūrėti mokytojų rengimo ir tobulinimo sistemą bei numatyti pokyčius, užtikrinančius šios problemos sprendimą. Mokytojų kompetencijų svarba akcentuojama *Gabių ir talentingų vaikų ugdymo programoje (2009)*, šios kompetencijos įvardijamos kaip vienos svarbiausių siekiant įgyvendinti sėkmingą gabių vaikų ugdymą.

Apibendrinant problemos aktualumą pagrindžiančius teiginius galima suformuluoti ir disertacinio tyrimo **probleminį klausimą**: kaip pasireiškia pradinės ir pagrindinės mokyklos pedagogų kompetentingumas ugdant matematikai gabius vaikus, kokios profesinės kompetencijos ir asmeninės savybės reikalingos šioje veikloje.

Tyrimo objektas – pradinių ir pagrindinių mokyklų pedagogų, ugdančių matematikai gabius vaikus, kompetentingumas.

Tyrimo hipotezė. Pedagogų kompetentingumą ugdant matematikai gabius vaikus sudaro matematikai gabių vaikų atpažinimo, ugdymo proceso valdymo, ugdymo(-si) turinio planavimo ir tobulinimo, pasiekimų ir pažangos vertinimo kompetencijos bei asmeninių ir profesinių savybių visumos dermė, įtakos turi pedagogo profesinio darbo patirtis bei atitinkamas pasirengimas. **Tikslas** – teoriškai pagrįsti ir empiriškai ištirti pradinės ir pagrindinės mokyklos pedagogų kompetentingumą ugdant matematikai gabius vaikus.

Tyrimo uždaviniai:

5. Sudaryti ir teoriškai pagrįsti pradinės ir pagrindinės mokyklos pedagogų kompetentingumo modelį ugdant matematikai gabius vaikus.
6. Apibūdinti mokytojų patirtį siekiant empiriškai pagrįsti pradinės ir pagrindinės mokyklos pedagogų kompetentingumą ugdant matematikai gabius vaikus.
7. Ištirti pedagogų profesinių kompetencijų ir asmeninių savybių raišką, siekiant pagrįsti kompetentingumo komponentų raišką.
8. Tiriant matematikai gabių vaikų ugdymo patirtį, įvertinti pedagogų kompetentingumo ugdant matematikai gabius vaikus komponentų raišką.

Tyrimo metodologija grindžiama šiais esminiais požiūriais bei koncepcijomis:

Tiriant pedagogų kompetentingumą ugdant matematikai gabius vaikus buvo remiamasi *humanistinės pedagogikos* nuostatomis. Pedagogas organizuodamas MGV ugdymą turi jam padėti suvokti savo poreikius, plėtoti savo potencialą ir asmenybės tapsmą. Pedagogas remiasi nuostata, kad išmokyti tokio vaiko neįmanoma, galima tik padėti jam mokytis. Jis įsisavina tik tai, kas atitinka jo poreikius. Ugdymo proceso valdymo pagrindas – ugdytinių poreikiai, jų savęs vertinimas. Ugdymo(-si) proceso būtina sąlyga – ugdytinio ir pedagogo bendravimas ir bendradarbiavimas (Bitinas, 2000).

Pedagogų taikomų ugdymo(-si) technologijų analizės kontekste svarbios yra **pragmatizmo idėjos**, kurios akcentuoja kiekvieno vaiko individualius poreikius,

todėl pedagogams organizuojant ugdymo procesą svarbu vaikus mokyti spręsti įvairias problemas (Bitinas, 2000). Organizuojant MGV ugdymą tai ypač reikšminga, nes aukštiesiems rezultatams pasiekti svarbus yra „nešabloniškas“ mąstymas.

Tiriant matematikai gabių vaikų (MGV) ugdymo proceso organizavimo ypatumus buvo laikomasi **laisvojo ugdymo paradigmos** nuostatų, kurios aktualizuoja vaiko prigimtį, „siekiama sudaryti kuo palankesnes sąlygas ugdytinio vidinių galių plėtotei ir saviraiškai, keliant tikslą ugdyti laisvą, kūrybingą asmenybę“ (Monkevičienė, 2008) ir pripažįsta „išskirtinumo galimybes ugdymo procese, besimokančiojo laisvę ir teisę rinktis individualią pažintinę ir pamokinę veiklą, patenkinti savo poreikius ir subjektyvias vertybes“ (Narkevičienė, 2007 a). Veikiant šios paradigmos kontekste kinta pedagogo vaidmuo ugdymo procese, „pedagogas turi būti ne autoritetas, bet pagalbininkas, turintis savo teises ir akademinį autonomiškumą“ (Ruškus ir kt., 2010). Būtent šių nuostatų realizavimas yra reikšmingas siekiant užtikrinti išskirtinius matematikai gabių vaikų edukacinius poreikius.

Analizuojant gabių vaikų ugdymo galimybes reikšmingos **į vaiką orientuoto ugdymo** nuostatos, kuriomis remiantis ugdymas turi būti pritaikytas kiekvienam vaikui atsižvelgiant į jo jau turimas žinias, patirtį, mokymo stilių bei interesų sritis. Pedagogui reikšmingas mokinių savęs vertinimas, jo keliami tikslai. Toks ugdymo paskirties suvokimas gali turėti įtakos pedagogo kompetentingumui.

Laikant reikšmingais MGV edukacinius poreikius svarbios ir **konstruktyvizmo teorijos** nuostatos į ugdymo procesą, jomis akcentuojama, kad ugdymas yra konstruktyvus ir aktyvus procesas (Jucevičienė ir kt., 2005). Kiekvienas vaikas konstruoja sau reikalingas žinias greičiau, nei jas perteikia mokytojas, taip įgydamas jam reikalingų gebėjimų ir įgūdžių, sąveikaudamas su aplinka (Muijs, 2005). Todėl pedagogui reikšmingos vadybinės kompetencijos (planuoti, organizuoti, vertinti ir kt.) siekiant sudaryti sąlygas efektyviam MGV ugdymo procesui.

Tiriant pedagogų **kompetentingumą** ugdant matematikai gabius vaikus buvo laikomasi R. Laužacko, V. Dienio (2004) bei K. Pukelio (2009) sąvokos aiškinimų, kurie nurodo, kad „kompetentingumas“ pabrėžia „pedagogo veiklos efektyvumą, jos kokybę, kurią užtikrina įgyta kvalifikacija ir sukaupta profesinė patirtis profesinėje veikloje“.

Mokslinio tyrimo metodai, panaudoti disertacijoje

- **Mokslinės literatūros ir dokumentų analize** siekiama teoriškai pagrįsti pradinės ir pagrindinės mokyklos pedagogų, ugdančių matematikai gabius vaikus, kompetentingumo struktūrą ir turinį.
- **Kiekybinis tyrimo metodas (apklausa raštu)** leido empiriškai ištirti pradinės ir pagrindinės mokyklos pedagogų kompetentingumo komponentus, analizuojant jų patirtį bei požiūrį matematikai gabių vaikų ugdymo aspektais.
- **Kokybinis tyrimo metodas (interviu)** padėjo išanalizuoti pedagogų kompetentingumo ugdant matematikai gabius vaikus komponentų raišką bei matematikai gabių vaikų ugdymo patirtį, siekiant nurodyti pedagogo kompetentingumo komponentų raišką.
- **Statistiniai metodai.** Tyrimo duomenims apdoroti taikyta SPSS (Statistical Package for the Social Sciences) 13.0 programinė įranga, naudojant aprašomosios ir daugiamačės statistikos metodus. Iš daugiamačių metodų taikomi faktorinė ir klasterinė analizė.

Šis darbas prisideda prie gabių vaikų ugdymo problemų tyrinėjimų, kurių aktualumas pabrėžiamas bei pagrindžiamas mūsų šalies bei užsienio mokslininkų darbuose. Disertacinio darbo **mokslinis naujumas** – teoriškai bei empiriškai pagrįstas pradinės ir pagrindinės mokyklos pedagogų kompetentingumas ugdant matematikai gabius vaikus.

Teorinis rezultatų reikšmingumas

- Išsiaiškinta matematikai gabių vaikų samprata, analizuojamos jų identifikavimo bei ugdymo proceso organizavimo problemos.
- Atskleisti pagrindiniai pedagogų kompetentingumo ugdant matematikai gabius vaikus komponentai.
- Analizuojami pedagogų asmeninių savybių, profesinės patirties bei profesinio pasirengimo reikšmė kompetentingumui ugdant matematikai gabius vaikus.

Disertacinio darbo **praktinį reikšmingumą** pagrindžia tai, kad atlikus matematikai gabių vaikų ugdymo patirties analizę apibrėžti ir empiriškai pagrįsti pradinės ir pagrindinės mokyklos matematikai gabių vaikų ugdymui reikšmingi pedagogų kompetentingumo komponentai, parengtos empiriškai pagrįstos rekomendacijos gabių vaikų ugdymo proceso modeliavimui bei mokytojų rengimui.

Tyrimo perspektyva. Darbe teoriškai pagrįstas ir empiriškai ištirtas pradinė ir pagrindinių mokyklų pedagogų kompetentingumas ugdant matematikai gabius vaikus. Atliktas tyrimas gali būti papildytas atlikus efektyvių gabių vaikų pedagogų veiklos stebėjimą bei analizę. Tai leistų stebėti kompetentingumo komponentų raišką ugdymo realybėje, identifikuoti veiksnius, lemiančius kompetentingumą.

Ginamieji disertacijos teiginiai

- Pedagogų praktinėje veikloje galima nurodyti komponentus, kurie turi įtakos matematikai gabių vaikų ugdymo kokybei, tai ir sudaro jų kompetentingumo pagrindą.
- Pedagogų kompetentingumą ugdant matematikai gabius vaikus sudaro: matematikai gabių vaikų atpažinimo, ugdymo proceso valdymo, pasiekimų ir pažangos vertinimo, ugdymo turinio planavimo, tobulinimo kompetencijos ir pedagogo asmeninių bei profesinių savybių visuma.
- Pedagogo kompetentingumą ugdant matematikai gabius vaikus lemia daugelis veiksnių, tarp kurių svarbiausi: pedagogo pasirengimas gabių vaikų ugdymui bei nuostatos į gabumus ir gabių vaikų ugdymą.

IŠVADOS

1. Mokslinės literatūros gabių vaikų ugdymo klausimais analizė parodė, kad šių vaikų išskirtiniai edukaciniai poreikiai reikalauja tokių mokytojų kompetencijų, kurios leistų organizuoti kokybišką gabių vaikų ugdymą. Pedagoginės veiklos rezultatų kokybė atspindi pedagogo kompetentingumą, todėl jo veikloje galima nurodyti jam būdingus komponentus.

Mokslinės literatūros pagrindu pateikti (išskirti) pedagogų, ugdančių matematikai gabius vaikus, šie kompetentingumo komponentai: matematikai gabių vaikų atpažinimo, ugdymo proceso valdymo, ugdymo(-si) turinio planavimo ir tobulinimo, pasiekimų ir pažangos vertinimo kompetencijos.

Remiantis išanalizuota kompetentingumo koncepcija, interpretuojant kompetentingumą kaip asmens savybę, negalinčią egzistuoti atskirai nuo asmens, kaip reikšmingas laikomas kompetentingumo modelio komponentas, charakterizuojantis pedagogo asmenines savybes.

2. Kiekybinio tyrimo rezultatai leido empiriškai patikrinti pedagogų, ugdančių matematikai gabius vaikus, kompetentingumo komponentų raišką ir jos ypatumus.

Matematikai gabių vaikų identifikacijos procesui mokytojai neskiria papildomai dėmesio. Jis tapatinimas su vaiko veikla per pamoką (kontroliniai darbai, mokinio stebėjimas) arba neformalių renginių (olimpiadų, konkursų) rezultatais. Tik nedaugelis pedagogų teigia, kad identifikacijos procedūrą sieja su specializuotų matematinių ar intelekto testų rezultatais.

Gana skirtingai mokytojai apibūdina matematikai gabius vaikus, jiems būdingas savybes. Pedagogų nurodytos savybės atspindi jų požiūrį į matematinius gabumus, kuriuos interpretuoja kaip specifinius nepakankamai juos siedami su gabumų požymių psichoemociniais komponentais.

Matematikai gabių vaikų ugdymo procesą pedagogai dažniausiai organizuoja pasirinkdami tradicines ugdymo technologijas, kurios taikomos visai klasei ugdyti. Siekdami patenkinti šių vaikų edukacinius poreikius mokytojai dažniau taiko diferenciacijos metodus, rečiau individualizacijos. Vertindami šių metodų pritaikomumą, jie dažniau akcentuoja tik ugdymo turinio diferenciaciją ir individualizaciją (daugiau, kitokių, papildomų užduočių), neakcentuojamas kitų ugdymo proceso komponentų pritaikymas matematikai gabių vaikų reikmėms.

Palankiai mokytojai vertina papildomą matematikai gabių vaikų ugdymą. Jų rengimas ir dalyvavimas matematikos olimpiadose yra kaip viena pagrindinių gabių vaikų edukacinių poreikių tenkinimo strategija.

Analizuojant matematikai gabių vaikų ugdymo proceso vertinimo ypatumus pastebėta, kad jis orientuotas į „vaiko ir standarto atitikimą“, t. y. vaiko išskirtiniai gabumai pamokoje gali būti ir nevertinami. Pedagogų taikomos vertinimo technologijos yra „universalios“ visai klasei, tik nedaugelis pažymėjo, kad MGTV vertinimo instrumentus papildė uždaviniais, kurie būna orientuoti tiek į kiekybę, tiek į kokybę.

Tiriant matematikai gabių vaikų ugdymo proceso ypatumus planavimo aspektu, nustatyta, kad ši mokytojo kompetencija ypač reikšminga ir ypatinga. Mokytojai pasirenka trumpalaikį planavimą, t. y. jie planuoja ugdymo procesą tik trumpesniai laikui. Planuojant dažniausiai pedagogams svarbu nustatyti esamą vaikų gebėjimų lygį bei numatyti, kaip padėti vaikui įveikti „problemas“. Planavimo procese dažniausiai dalyvauja tik mokytojas, vaikas yra mokytojo sukurtos ugdymo realybės pasyvus dalyvis.

Vertinant mokytojų didaktinius poreikius pastebėta, kad jiems būtina įvairiapusiška parama šiame procese, t. y. mokytojai vieningai patvirtina nuostatą, kad gabių vaikų ugdymas turi būti reikšmingas visiems ugdymo proceso dalyviams. Mokytojai teigia, kad jų darbo kokybei įtakos gali turėti bendradarbiavimas su kitu specialistu, turinčiu tokios darbo patirties, ir tinkamas pasirėngimas, kurio turinį, pasak apklaustųjų, turėtų sudaryti: atpažinimo technologijos; ugdymo proceso organizavimo ir valdymo technologijos; psichologiniai-pedagoginiai-socialiniai gabių vaikų ypatumai. Savo pasirėngimą dirbti su MGTV jie vertina kaip nepakankamą, todėl ir priskiria tai savo didaktinių poreikių grupei. Dauguma pedagogų nurodo, kad žinių ir gebėjimų, būtinų MGTV ugdymui, įgyja savarankiškai, pedagoginių studijų procese ir kvalifikacijos tobulinimo renginiuose šiai tematikai nėra skiriama pakankamo dėmesio.

Kuriant matematikai gabių vaikų ugdymo realybę svarbios yra mokytojų nuostatos į gabumus bei jų reikšmę visuomenei. Apklaustieji pripažįsta išskirtinius MGTV vaikų edukacinius poreikius ir jų atitinkamo ugdymo būtinumą.

3. Pedagogų interviu rezultatai leido išanalizuoti patyrusių pedagogų kompetentingumo ugdant matematikai gabius vaikus komponentų raiškos prasmingumą.

Analizuojant gautus duomenis matematikai gabaus vaiko fenomeno supratimo aspektu pastebėta, kad mokytojai matematinių gebėjimų struktūrai priskiria tokius komponentus, kaip matematinės veiklos greitumas, loginis mąstymas, netradicinių uždavinių sprendimo būdo parinkimas, matematinės simbolikos, matematinių ryšių supratimas ir taikymas. Taip pat interpretuojant rezultatus pastebėta, kad mokytojai nurodo tokius bruožus, kaip domėjimasis matematika, darbštumas. Tai leidžia konstatuoti, kad matematikai gabiam vaikui būdinga tokia asmeninių savybių visuma, kuri užtikrina matematinės veiklos rezultatyvumą.

Analizuojant kategorijas, apibūdinančias matematikai gabių vaikų identifikacijos procedūras, buvo pastebėta, kad mokytojai neturi patirties taikant literatūroje nurodytus identifikacijos metodus (intelektu testavimas, specializuoti matematiniai testai ir pan.). Šią procedūrą priskiria savo funkcijoms, todėl dažniausiai tai atlieka savarankiškai neskirdami papildomai dėmesio per pamoką. Mokytojai nurodo, kad vaiko veiklos stebėjimą per pamoką laiko kaip reikšmingą matematikai gabaus vaiko atpažinimo komponentą. Galutinei išvadai įtakos turi vaiko rezultatai matematinėse olimpiadose bei konkursuose, t. y. šiems renginiams priskiriamos diagnostinės funkcijos. Nors informantai ir netaiko specializuotų procedūrų gabumams identifikuoti, tačiau pabrėžia, kad identifikacijai būtina atrinkti specialius uždavinius, kurie skiriasi nuo „standartinių, programinių uždavinių“. Tokios mokytojų patirties reprezentacijos leidžia teigti, kad tyrimo dalyviai pabrėžia identifikacijos procedūros būtinumą, tačiau jų veiklai įtakos turi identifikacijos procedūros neapibrėžtumas.

Analizuojant duomenis matematikai gabių vaikų ugdymo proceso ypatumų aspektu buvo pastebėta, kad dažniausiai gabių vaikų ugdymo procesas organizuojamas vienoda visiems vaikams tvarka. Mokytojai nurodė, kad šių vaikų ugdymo individualizacija atliekama tik „epizodiškai“. Kuriant ugdymo realybę dažniausiai stengiamasi, kad vaikas pasiektų gebėjimų lygį, atitinkantį išsilavinimo standartus, išskirtinių vaiko gebėjimų ugdymui skiriamas dėmesys tik per papildomas veiklas. Išryškintos matematikai gabių vaikų ugdymo grupėse galimybės, analizuojamas tiek mokinių ugdymas homogeninėse, tiek heterogeninėse grupėse.

Apibūdinant matematikai gabių vaikų ugdymo proceso planavimo ir vertinimo ypatumus pažymėtina, kad MGTV ugdymo planavimo turinys yra siejamas su uždavinių paieška, jų sprendimu bei atranka, t. y. pagrindinis tikslas, kurio siekiama, – planuojant sudaryti gabiam vaikui jo potencialą atitinkantį ugdymo turinį. MGTV ugdymo planavimas pasižymi tokiomis savybėmis: trumpalaikis, neapibrėžtas. Analizuojant vertinimo ir tikrinimo proceso apibūdinimus, pažymėtina, kad mokytojai per pamoką linkę vertinti matematikai gabių vaikų gebėjimų lygio ir standartų atitikimą, todėl dažniausiai pasirenka bendras visai klasei tikrinimo bei vertinimo formas – kontrolinius, savarankiškus darbus. Mokytojai teigia, kad išskirtinius vaikų gebėjimus neturi galimybių įvertinti pamokoje, nes ugdymo turinys nėra pritaikytas matematikai gabiams vaikams. Pasak pedagogų, jų gabumai vertinami per neformalius renginius (pvz., olimpiadas).

Nagrinėjant pedagogų kompetentingumą matematikai gabių vaikų ugdymui, svarbus yra mokytojų savo kompetencijų įsivertinimas ir poreikių identifikavimas. Duomenų analizė šiuo aspektu leidžia teigti, kad mokytojo kompetentingumui įtakos turi jo nuostatos į gabų vaiką, į jo ugdymą. Mokytojai pabrėžia pasirengimo dirbti su gabiais vaikais būtinumą. Kadangi dauguma informantų pabrėžė, kad nebuvo susipažinę su matematikai gabių vaikų ugdymo problemomis nei studijų metu, nei kvalifikacijos tobulinimo renginiuose, todėl būtent šie aspektai, pasak jų, yra reikšmingi rengiant būsimuosius mokytojus. Apibendrinant duomenis, taip pat reikėtų pažymėti, kad mokytojai vieningai išsako nuomonę, kad labiausiai pasigenda matematikai gabių vaikų ugdymo reglamentavimo, sistemos nebuvimo šioje srityje.

4. Matematikai gabių vaikų ugdymo patirties analizė leido įvertinti pedagogo kompetentingumo komponentų raiškos prasmingumą vaikams.

Pažymėtina, kad vaikai tiksliai apibrėžia (nusako) kompetentingumo komponentus, skirstydami juos į profesines ir asmenines dedamąsias. Apibūdinami pedagogų asmenines savybes vaikai nurodo tokias, nuo kurių priklauso jų socialinių ir pažinimo poreikių tenkinimas. Kaip reikšmingą pedagogo savybę vaikai įvertino dalykinį pasirengimą.

Matematikai gabūs vaikai įprasmina pedagogo vaidmenį jų ugdymo procese. Jam priskiriamas „konsultanto“, „pagalbininko“ vaidmuo. Šių vaidmenų nurodymas akcentuoja aktyvios pedagoginės sąveikos svarbą vaikams.

Apibūdindami ugdymo procesą vaikai nurodo, kad jiems svarbus tiek darbas kartu su visa klase, tiek individualius poreikius tenkinantis ugdymo turinys. Informantai teigia, kad gabūs vaikai suvokdami savo išskirtinumą vis dėlto pageidauja būti su klasės bendruomene tiek ugdymo proceso metu, tiek kitoje veikloje. Todėl aktualizuojamos tokios mokytojo kompetencijos, kurios leidžia organizuoti vaikų ugdymą taip, kad būtų patenkintas šis principas.

Šiame tyrimo etape gauti rezultatai patvirtino prielaidą, kad matematikai gabių vaikų ugdymo proceso organizavimas ir valdymas nesiskiria nuo kitų vaikų. Vaikai pažymi, kad atlieka tas pačias užduotis per pamoką, jie taip pat tikrinami ir vertinami. Dažniausiai pedagogai pasirenka jų ugdymo turinio papildymo strategiją.

Mokiniai aiškindami matematikai gabaus vaiko sąvoką tiksliai nurodo tokiems vaikams būdingas savybes, jiems organizuojamo ugdymo proceso išskirtinumo būtinybę, akcentuoja nuolatinio darbo svarbą kaip jų potencialo plėtojimo būtiną sąlygą.

Rekomendacijos

Mokykloms

Mokyklų bendruomenės galėtų prisidėti prie šalies gabių vaikų ugdymo politikos, kuriant ir įgyvendinant gabių vaikų ugdymo programas savo įstaigose. Kaip parodė atlikti tyrimai, mokytojai pasigenda darbo su gabiais vaikais sistemos, ypač instituciniu lygmeniu. Gabių vaikų ugdymo politika mokyklos lygmeniu turėtų padėti visiems šio proceso dalyviams: vaikai gautų jų gebėjimus atitinkantį ugdymą, pedagogams būtų teikiama parama, tėvai įtraukiami į šią veiklą ir konsultuojami.

Mokytojams

7. Matematikai gabių vaikų atpažinimui bei kokybiškam jų ugdymui organizuoti svarbus yra *gabaus vaiko* fenomeno pažinimas ir pripažinimas.

8. Įgyti būtinų kompetencijų matematikai gabių vaikų ugdymo procesui organizuoti. Tyrimas parodė, kad esamoje ugdymo realybėje pedagogai dažniausiai pasirenka tradicines visiems vaikams bendras ugdymo strategijas, todėl būtina skirti daugiau dėmesio ugdymo technologijoms, kurios suteikia galimybę organizuoti lankstų, sistemingą, vaiko gebėjimus atitinkantį ugdymą.

9. Matematikai gabių vaikų ugdymą organizuoti remiantis šiais principais: *lankstumu* (organizuojant ugdymo procesą būtina atsižvelgti, kad dėl gabaus vaiko individualių savybių ugdymas gali būti keičiamas proceso eigoje); *sistemingumu* (gabaus vaiko ugdymas negali būti fragmentiškas); *vaiko potencialo, poreikių, interesų pažinimu ir pripažinimu* (gabaus vaiko ugdymas yra efektyvus tik tuo atveju, kai patenkinami vaiko edukaciniai, socialiniai poreikiai); *bendravimu ir bendradarbiavimu* (ugdymo procese svarbu visiems ugdymo dalyviams tapti lygiaverčiais partneriais, tai įmanoma tik bendraujant ir bendradarbiaujant).

10. Organizuojant matematikai gabaus vaiko ugdymo procesą palaikyti ryšį su jo šeima.

11. Kuriant savo gabių vaikų ugdymo strategijas prisidėti prie mokyklos gabių vaikų ugdymo politikos kūrimo.

12. Skleisti gerąją darbo patirtį tiek mokyklos, tiek miesto ar šalies lygmeniu.

Pedagogus rengiančioms ir tobulinačioms institucijoms

Suteikti pedagogams kompetencijų, reikšmingų kokybiškam gabaus vaiko ugdymui organizuoti: atpažinimo, ugdymo proceso ir jo valdymo. Tyrimas parodė, kad būtent šios kompetencijos yra reikšmingos pedagogo kompetentingumui dirbant su gabiais vaikais. Šiam tikslui studijų programose būtina numatyti, kaip įgyvendinti

modulius, skirtus gabių vaikų ugdymo klausimams nagrinėti. Sudaryti pedagogams galimybę dalyvauti kvalifikacijos tobulinimo renginiuose, kurių metu būtų sprendžiamos jiems aktualios gabių vaikų ugdymo problemos.

Diskusija

Gabių vaikų ugdymas – reikšmingas mokslinių tyrimų objektas. Šiuolaikiniai mokslininkai teigia, kad iki šiol nepavyksta vienareikšmiškai atsakyti į daugelį klausimų apie gabaus vaiko fenomeną. Tačiau pripažįstama, kad gabiųjų ugdymas siekiant atskleisti ir plėtoti jų potencialą naudingas tai visuomenei, kurioje gyvena vaikas (Narkevičienė, 2007 a, Rost, 2007 ir kt.). Todėl įvairių šalių mokslininkai ieško atsakymų į visiems rūpimus klausimus apie gabių vaikų ugdymą. *Pirma*, dauguma psichologų bei edukologų stengiasi išspręsti gabių vaikų atpažinimo (identifikavimo) problemą. Per pastaruosius dešimtmečius sukurta nemažai diagnostinių instrumentų, tačiau šios problemos nevienareikšmiškumas bei sudėtingumas neleidžia teigti, kad gabių vaikų atpažinimo problema išspręsta. *Antra*, įvairiose šalyse yra skirtinga gabių vaikų ugdymo patirtis, tačiau net jos išsami analizė neleis atsakyti į klausimą: „Kaip ugdyti gabius vaikus?“ Šio klausimo išspręstumą iš dalies lemia ir *gabumų* sąvokos nevienareikšmiškumas, nes, kaip teigia J. Freeman (2007), ši sąvoka yra „lanksti ir visada reliatyvi“, todėl tyrėjai turi galimybę apibrėžti ribas, nuo kurių galima kalbėti apie gabumus. Mokslinės literatūros analizės pagrindu galima teigti, kad nėra vienareikšmiškai atsakyta į klausimus apie gabumų struktūrą, juos lemiančius veiksnius. Tai iliustruoja mokslininkų darbuose pateikiami gabumų modeliai, kurių tinkamumas konkrečiai ugdymo realybei yra atskira mokslinių tyrimų kryptis. Reikšmingos atrodo diskusijos apie gabumų sąsajas su tokiais kintamaisiais, kaip aplinka (tiek ugdymo(-si), tiek socialinė), lytis, paveldimumas ir kt., tačiau kokia mokslinė koncepcija šiais klausimais besiremtume, pastebėsime ugdymo reikšmės pripažinimą, nes būtent jis yra ta būtina sąlyga gabumų plėtotei.

Tiriant gabių vaikų ugdymo galimybes, reikšmingi yra tyrimai, nagrinėjantys gabaus vaiko pedagogo vaidmenį šiame procese. Todėl daugeliui tyrėjų reikšmingas yra atsakymas į klausimą: „Ar kiekvienas pedagogas gali būti gabaus vaiko pedagogu?“ Nesant šalyje sertifikuotų gabių vaikų ugdymo specialistų ar pedagogų sertifikavimo sistemos, galima sąlyginai atsakyti į šį klausimą taip: „Kiekvieno pedagogo klasėje gali būti gabus mokinys“. Tai leidžia aktualizuoti naują diskusiją: „Kodėl vieni pedagogai savo pedagoginėje praktikoje ugdydami gabius vaikus pasiekia gerų rezultatų, o kiti nepasiekia?“ „Kas tai lemia?“ Analizuojant mokslinę literatūrą pastebėtas užsienio mokslininkų reikšmingas tyrimo objektas – „efektyvių“ gabių vaikų pedagogų charakteristikos. Taigi galime teigti, kad ugdymo realybėje yra „efektyvių“ ir „neefektyvių“ gabių vaikų pedagogų. Toks sąlyginis pedagogų skirstymas suponuoja kitą klausimą: „Koks skirtumas tarp tokių pedagogų?“ arba „Ko reikia, kad pedagogas taptų „efektyviu“ gabių vaikų pedagogu?“ Kalbant apie pedagogo veiklą verta prisiminti, kad efektyvi asmens profesinė veikla dažnai suprantama kaip kompetentingumas tam tikrai veiklai. Tai kas gi sudaro pedagogo efektyvios veiklos ugdant gabius vaikus pagrindą arba, kitaip sakant, kokia yra kompetentingumo ugdant gabius vaikus komponentų raiška? Šis klausimas buvo vienas pagrindinių, į kurį buvo siekiama atsakyti disertacinio tyrimo metu. Teorinėje darbo dalyje pagrįstas pradinės ir pagrindinės mokyklos pedagogų kompetentingumo modelis, empirinėje darbo dalyje empiriškai ištirta kompetentingumo ugdant matematikai gabius vaikus raiška.

Per tyrimą nustatyta, kad teorinis kompetentingumo modelis apima reikšmingiausius gabių vaikų ugdymo komponentus, tačiau jo empiriniam iširtumui būtini papildomi tyrimai, kurie leistų įvertinti ne tik pedagogų nuomonę apie gabių

vaikų ugdymo proceso ypatumus, bet kartu leistų įvertinti kompetentingumo komponentų raišką ugdymo realybėje. Tokio pobūdžio tyrimai leistų apibrėžti pedagogų profesinio rengimo gabių vaikų ugdymui komponentus, kurie atitiktų pedagogų profesinio pasirengimo reikalavimus ugdant gabius vaikus. Tyrimo metu gauti rezultatai atskleidžia, kad nurodyti kompetentingumo komponentai ne tik apima šiuos reikalavimus, bet ir atspindi pedagogo ir jų atitikimo lygį. Taip pat reikšminga ir tai, kad panašūs tyrimai prisidėtų prie gabių vaikų ugdymo politikos tobulinimo. *Gabių ir talentingų vaikų ugdymo programoje (2009)* identifikuotos pagrindinės gabių vaikų ugdymo problemos mūsų šalyje, tačiau jų iširtumas nėra pakankamas, todėl gerosios patirties analizė prisidėtų prie šios tyrimo krypties.

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