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GIFTED PUPILS' LEARNING LINKS

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Abstract. *The article aims at revealing the links of gifted pupils' learning. Seeking to achieve the aim, a qualitative research, which involved 13 gifted learners of the first-second grades in secondary school, and quantitative research in learning environment have been conducted. The quantitative research was carried out employing What is Happening in the Classroom Questionnaire to survey gifted pupils (334 pupils). The research findings allow maintaining that gifted surface learning is more characteristic of gifted learning than deep learning, whereas the essence of learning compliant with the level of their abilities, interests and inclinations, is often unspecified. The learners with exceptional intellectual abilities tend to learn by using the techniques of memorisation; therefore, learning is rarely related to positive experiences. Moreover, the pupils' inclination to surface learning is confirmed by the research into class environment: the majority of high school learners claim that they rarely discuss, express their opinion, ask questions or provide explanations of problem-solving in the classroom, i.e. they miss opportunities to actively construct own learning in the process of education.*
Keywords: *gifted, deep and surface learning.*

Introduction

The recently published research findings are both encouraging and cause concern. The international research of Mathematics and Natural Sciences TIMSS of 2015 reveals a statistically significant increase in the number of 8th grade learners of Lithuania, who have achieved the average and higher levels of achievement in mathematics since 2011, as well as there also is a statistically significant increase in the number of learners having high-level achievements in natural sciences (Dukynaitė & Stundžia, 2016a). However, EBPO PISA findings demonstrate that Lithuania takes positions 36-38 out of 70 for science literacy (475 points), which is statistically significantly lower than the average of EBPO countries; considering reading abilities Lithuania takes position 39 out of 70 (472 points), which is statistically significantly lower than EBPO average, whereas mathematical literacy is allotted 478, position 36 out of 70, which is also statistically lower than the average of EBPO countries (Dukynaitė & Stundžia, 2016b). It is noteworthy that the research data on the learning outcomes of Lithuanian pupils according to the levels of achievements shows that in our

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country considerable attention is allocated to educating learners with lower and average abilities, yet it is obvious that gifted pupils are not given sufficient attention. The part of gifted learners demonstrating the highest level of achievements (levels 5 and 6) in our country in all the investigated areas was considerably smaller than the average of the EBPO countries, it especially pertains to the highest – the 6th – PISA level of achievements (Lithuania. State and Regional Education. Learner Achievements, 2016, p. 22).

Researchers of Lithuania and other countries analyse different teaching/learning processes trying to explore what determines high learning achievements. The value of learning, which occurs between the individual and the process of knowledge acquisition or its results, can become one of the research objects (Pouliot et al., 2010). It is common knowledge that the value of learning is a changing phenomenon. In this regard, a learner seeks to attain a particular aim, chooses learning strategies, etc. According to Ramsden (2000), it all pertains not to particular psychological differences of learners, but to how a person signifies a particular learning assignment. Hence, the scholar refers to a person's relation to a specific task as an approach to learning, and hence highlights two possibilities: surface and in-depth attitude towards learning. The first (surface approach) is related to a person's aspiration to conform to the requirements and reproduce knowledge, whereas the other (in-depth approach) is connected to willingness to understand ideas, i.e. transform them (Entwistle, 2000). The learners having a surface approach to learning will strive for knowledge devoid of reflection, whereas those who have in-depth attitude will reflect and relate own learning to everyday experience. Consequently, these approaches will determine different learning outcomes: according to Ramsden (2000), the first group is characterised by worse results, dissatisfaction, resentment, oppression and anxiety, whereas the second group demonstrate better qualitative results, higher evaluations, involvement, problem-solving, personal satisfaction and pleasure.

The scientific discussion about deep and surface learning has continued for more than a hundred years. These concepts (deep and surface learning were developed in the 1970s and 1980s by four main groups the Lancaster Group, led by Entwistle; the Australian Group, led by Biggs; the Swedish Group, led by Marton; the Richmond Group, led by Pask (Beatte et al., 1997). On the one hand, tools meant for the evaluation of learners' approach to learning are created and revised on the basis of the work of the afore-said scientists, e.g. Approaches to Studying Inventory (Entwistle, 2000), Study Process Questionnaire (Biggs et al., 2001). Moreover, attempts are made to search for connections between the approach to learning and other variables: students' interests (Brown et al., 2015), culture (Zhang, 2000), academic achievements (Trigwell et al., 2013), learning experience (Wong, 2014), outcomes (Akyol & Garrison, 2011), etc.

On the other hand, deep and surface approaches to learning receive certain criticism. For instance, Howie and Bagnall (2013) criticise Biggs's model claiming that "there are significant problems with the model in the areas of supporting evidence, imprecise conceptualisation, ambiguous language, circularity, and a lack of definition of the underlying structure of deep and surface approaches to learning" (p. 389). Nevertheless, the analysis of scholarly literature on the education of gifted learners shows a lack of works dealing with the attitude of gifted learners towards learning. Acknowledging that the educational theory of gifted learners, like other specialised fields of art or science, is still in the search for own identity (Renzulli, 2012) and considering the results of international research, the current study:

- aims at revealing the links of gifted pupils' learning;
- sets the following objectives: 1) to define the development of pupils' relation to subject knowledge; 2) to search for the conditions that determine the links of gifted pupils' learning.

Methodology

The following methods were applied in the work:

1. Testing: a) an investigation into intellectual abilities of pupils during which it was sought to confirm abilities of the pupils selected by teachers (WISC-III^{lt}); b) an investigation into the learning environment of gifted pupils (WIHIC). This questionnaire (*What Is Happening In This Classroom)* contains statements that take place in this class. The exploratory factor analysis of the obtained results confirms the factors (scales) of the original tool (Aldrige & Fraser, 1997). Verifying the reliability of the internal compatibility of the questionnaire (*Cronbacho* α), the obtained estimates are presented in Table 1.
2. An individual deep semi-structured interview as a method of collecting data of gifted pupils.
3. The thematic analysis (Braun & Clarke, 2006) was used to analyse qualitative data.
4. Statistical data processing methods are methods of processing quantitative data of the investigation using variant 17 of software SPSS (Statistical Package for Social Science).

The research participants: 334 secondary school children. From this group - 13 gifted learners: 8 girls and 5 boys of the first-second grades in secondary school.

Table 1 **Estimates of the internal compatibility of the WIHIC questionnaire**

Dimensions	**Scales**	**Examples**	**Cronbach α**
Relationships	Student Cohesiveness	I worked well with other students.	0,821
	Teacher Support	The teacher helps me when I have trouble with the work.	0,865
	Involvement	The teacher asks me questions.	0,860
Personal development	Investigation	I am asked to think about the evidence for statements.	0,870
	Task Orientation	Getting a certain amount of work done is important to me.	0,829
	Cooperation	I get along with other students on class activities.	0,875
System maintenance and change	Equity	I get the same amount of help from the teacher as do the other students.	0,910

Research ethics and partiality of the researcher. In pursuance to retain the anonymity of the learners participated in the research, their names and other recognition data have been changed; the collected materials have been encoded and stored in the personal archives of the author and the psychologist.

Results

A gifted learner is frequently considered as a curious person, who searches for the meaning and main ideas of the materials, and solves tasks of different complexity, i.e. s/he actively seeks for learning, analyses and conceptualises own experience and creates new knowledge. Yet, it is true?

I learn because I want a good mark and good future or because I have to

It appears that the aim of gifted pupils' learning is frequently related to formal assessment or future benefit: "*Now I have decided to learn as I want a better mark"* (Ann), *"I want to achieve as good results as possible, well… to ensure a better future and that's all"* (Lisa), *"I tried to learn for the whole year because, as I have said, I did it for the mark, only for the mark"* (Helen). It may seem that the pupils do not have to put a lot of effort to achieve good marks, as they suffice their abilities: *"I always learn a bit, but there is no need to learn,*

I always get an eight if I revise a bit before the class, and I sometimes remember something" (Lisa), "*well… you come and you don't need to put effort to achieve good results in lessons. You just come, sit and talk"* (Linda). Helen provides interesting ideas about the importance of marks: "*why are marks considered important? I think it comes from the teachers themselves. Not everything can be estimated in numbers these days… The teachers often say "the mark is not important", yet they calculate everything, absolutely everything, there are no lessons where 'state exams' are not mentioned. We only learn for the exam, and we prepare for state exams"* (Helen). Hence, it is assumed that the importance of a high evaluation is formed and can depend on the teacher's attitude towards own work. In some cases, gifted pupils assess the teacher's "professionalism" in terms of the evaluation obtained for the state examinations: "*The teacher of Maths is an excellent teacher; the average mark for the exam passed by his students is 9.5"* (Ruth).

Another aim of learning is related to the future, where learning is considered as a guarantee for future work: "*to learn means to improve so that when you grow up, you will do a certain job"* (Alex), "*to get excellent knowledge before university, as I want to enter a serious one"* (Lee), "*to learn means that I will get knowledge, which I will apply in the future and which will help me to achieve something and make a career so that I have something to eat, where to live and something to wear"* (Tom).

Finally, most gifted high school learners state that "*it is necessary to learn"* (Alex), "*firstly, it is my duty, I know I have to learn"* (Ann). However, they set this demand for themselves only as a "necessary" work: "*I do my homework, check what tests I will have or something, but in general I don't learn much"* (Lee). Therefore, it is assumed that they consider learning as a duty to do what is needed, i.e. to meet the requirements.

One of the main teaching/learning strategies is memorisation

Considering the aims of the learning aims of gifted learners, a question arises: do the indicated aims not presuppose surface learning? "*I do think myself what I need and what I can skip"* (Adam), "*At first, I do the most important things, and I do others during the break if I think they are less important"* (Lee), "*I don't learn other things, unimportant things because… What do I need them for?"* (Tom). It is noteworthy that learning for gifted learners is a duty mostly related to negative rather than positive feelings: "*well, if you do it, if you are made to do it up to class 10 <…> then you have to do it"* (Ann).

Most gifted pupils mention that the best ways of learning is "*to work a lot and not waste time during the lesson, then you have only to revise"* (Tom). Hence, the instrumental aim of learning frequently becomes aspiration "*to memorise*" (Tom). To attain the set aim, different strategies of *memorisation* are applied, e.g.

mechanical repetition: "*it sometimes happens that you need to memorise something but you can't, so you repeat, repeat, repeat…"* (Lee); associations: "*if I learn Physics, you don't learn it, you can revise it before the test, I mean the formulae, but I think of a lot of different complex sentences"* (Linda), identification of the main aspects from the totality: "*sometimes you try to shorten so that you can memorise more easily"* (Helen), and imagination: "*you sometimes try to imagine every detail, so that you can remember better"* (Raul).

Referring to the research data, it is possible to state that gifted learning apply the afore-said method of learning: "*test on History – I have a book in front of me. If I have studied for the whole month, I don't read again, I only look for the dates and specific things that I know I have to learn. I only make a brief summary and I study from it; I actually learn while writing it and only look through it afterwards. Well, test on Mathematics – I only look through the things that I know worst, for example formulae, and I try not to forget them"* (Adam). Yet, pupils note some drawbacks of this ways of learning: "*when you learn like this* (by memorising – A. B.), *and revise only before the test, it sometimes happens that it's all… If you are asked the same question that you revised five minutes ago, you simply can't write it"* (Lisa).

The gifted learners' replies reveal connections between their learning process and teachers' work. Requirements set for the learners are reflected in their learning strategies; therefore, it is possible to maintain that they are simply expected to reproduce the knowledge. This, in turn, promotes certain ways of learning, which is most often accompanied by negative rather than positive emotions and surface learning: "*There are certain things, like English for example, that you need to poke. But I…Well, I don't like such cases… such learning when you have to sit and poke. How to say… I don't like it. I often… well, often read such things or just look through and that's it"* (Ann).

Analysing the ideas (I learn for the mark or as a duty), as well as feelings and emotions of the pupils of high intellectual abilities, it is assumed that the real aims of their learning is related to mere accomplishment of a task, whereas the tasks themselves are considered as external and intrusive things.

I learn because I want to know and apply, and because it is interesting

It is impossible to unambiguously claim that the main aims of gifted pupils' learning are external motifs (good marks, future work) that presuppose a surface approach to learning and an assumption to merely accomplish the set tasks. Gifted learners claim that they want "*to find out new things, and not only to find them out, but also know how to apply them, explore and use them"* (Tom), "*to learn means to find out something new"* (Linda), "*to find out something new, memorise it and use it later. To tell the truth, learning is… well, I don't learn because I know*

I will later use it somewhere, I learn because I want to learn something new" (Alex).

On the other hand, their replies also reveal the significance of interest (involvement). Ann tells: "*to take interest, to learn… Well, I don't know. Talking about learning itself, not about interest, well, it is sometimes interesting when you find out something new. Well, but sometimes it is a mere routine and work."* Raul acknowledges that some lessons are interesting and he experiences positive feelings: "*to tell the truth, it is funny when you get some more interesting tasks*". As it seen, interest in teaching materials and challenges for gifted pupils to demonstrate their abilities provide conditions for them to concentrate on the content of teaching and presumably deepen their learning, since learning is attributed personal meaning and becomes significant. Learning for interest involves self-contained attention, which is highly more efficient than constrained effort.

Interest is a factor that can presuppose in-depth approach to learning

According to gifted high school learners, while learning they also seek to discover and identify certain connections, understand the essence, etc.: "*You draw own conclusions. I mean, you develop your own idea, well, if it is so, then it is the following…*" (Ann); "*simply to try to get involved into some new things. If I don't understand anything, I can sit at home for an hour or more and can try and try until I manage to do it"* (Lee); "*I try to understand, you can do it by establishing connections, and I look like this, I think if it is logical"* (Helen); "*speaking about exact sciences, then yes, you have to understand everything and think logically, as there is some logic there"* (Tom).

Analysing the ideas of gifted pupils from this aspect, it becomes obvious that the teacher's work, i.e. the level of knowledge and its presentation, is highly significant. It has clear connections not only with the cognitive abilities of gifted learners: "(I stopped solving mathematics tasks, as – A. B.) *I don't know, it was not interesting*) (Linda); *"Sometimes the tasks are so boring that you think others will do them and you will understand anyway… what they have done"* (Lee), but also with personal interests of high school pupils: "*naturally, it is interesting for me to learn certain things… as I say, I do certain things at home because they are interesting*" (Ann). When the pupils are unable to satisfy this need, they simply stop learning and striving for better results, and the foresee rational outcomes: "*I understand that my lack of interest is a problem that hinders achieving better results"* (Ruth).

Hence, gifted learners are inclined to learn a specific content more superficially than go into deep into its essence if it is not attractive and does not meet their interests and inclinations. High school student do not talk much about satisfaction and pleasure when learning; since their achievements are rather high,

it is difficult to note signs that they miss something at first sight. It highlights a pedagogical problem that gifted learners are bound to surface learning: they often tend to merely accomplish the tasks, and memorise information to get correspondent assessment devoid of deeper understanding of the underlying essence and principles. The obtained research results encourage searching for reasons that condition one or another approach to learning. Therefore, the results of the research into class environment that has been conducted in the classes of gifted learners will be presented.

Search for conditions determining the links of gifted pupils' learning: the results of the research into class environment

One of the parameters that is worth discussing the links of gifted pupils' learning is the distribution of the conceptions of gifted learners regarding their involvement into class work. It has been determined that 81 % of the pupils claim that their ideas are rarely discussed in the class, 66 % claim that they do not discuss with other learners how to solve problems, nearly a half of the respondents (49 %) believe that they have no opportunity to discuss their ideas with the classmates, whereas 58 % note that they are rarely asked by the teacher. A statistically significant difference in terms of gender and age (the first and second years of high school) has not been determined. Hence, it is assumed that active learning does not occur in the class, learners have few opportunities to discuss, express their opinion, ask questions and provide explanations of problem-solving.

Analysing the tendencies of the development of personality dimensions in the class environment, certain possibilities for high school students to develop, as well as problem-based aspects can be noted. The distribution of the learners' conception of exploratory activity in the class reveals a complicated image of the exploratory activities in the class. The majority of the learners (87 %) claim that when accomplishing practical assignments, they do not strive to search for an answer discussion questions, 84 % maintain that they rarely answer own or the teacher's questions and verify their ideas in practical work. It turns out that the learners are not provided with opportunities to search for answers in the process of education. The learner himself/herself has the largest impact on the variables of the scale, yet no statistically significant difference has been determined in terms of gender and age (the first and second years of high school).

Finally, considering how the learners view accomplishment of tasks, other tendencies are highlighted: learners show attempts to understand what they are doing – 77 %, know how much they have to do – 74 %, know what they are expected to do – 72 %, and are ready for the beginning of a lesson – 69 %. According to the high school pupils, they consider it more difficult to discover the aims of a lesson or understand the importance of accomplishing a certain amount of work (61 % respectively). Analysing the replies of pupils in this scale, rather

high results of learners' orientation towards task completion is noted, which leads to an assumption that the learners seek to control the process of learning. The meanings of the variables on this scale are largely affected by the learners themselves. Despite the fact that no statistically significant difference has been determined in terms of age (the first and second years of high school), the learners' attitudes towards task completion is marked by statistically significant differences in terms of gender (t = -4,258, df = 331, p = 0,000).

Discussion

As it is seen, the gifted learners' relation to a (specific) learning task is not stable and forms in accordance with the situation. It is impossible to unambiguously state that the learners with high intellectual abilities learn by applying a surface approach to learning; yet, there is a tendency that the learners tend to learn a specific content mostly superficially rather than going into deep into its essence. The majority of the respondents indicate a good mark, future prospects and simply a duty as stimuli of their learning motivation. However, it is noteworthy that the feeling of duty is mostly related to formal accomplishment of the learning activities, whereas the motif of personal development is characteristic only of several gifted learners. It appears that the learners' relation to learning is based not only on the understanding of a subject, but also to their assumption to meet the teacher's demands, which is not complicated for pupils with high intellectual abilities. Other researches confirm the significance of teachers' work: fundamental to gifted pupils' learning experience is the classroom teacher's personality, competence, accessibility, and concern for students (Samardzija & Peterson, 2015), as well as fun learning experiences (i.e., intrinsic motivation, identified regulation) occur when teachers tailor learning activities to personalized interests and goals (Garn & Jolly, 2014).

It is noteworthy that high school learners do not tend to speak about satisfaction and pleasure while learning; since their achievements are high it is difficult to note that they miss something in their learning at first sight. The data of quantitative research confirm the findings of qualitative research. The scales of exploring the class environment highlight problem areas of active knowledge construction. Active and conscious exploratory learning could become a constructive process and can have a connection not with surface (when attempts are made to memorise and revise) but rather with deep learning (striving to conceptualise, to search for meaning and to manage own learning). On the other hand, it is obvious that teachers encourage the learners to take interest in a particular subject if they are provided with the conditions to assume responsibility for own learning process (concentrating on a task: its aim, accomplishment skills,

time planning, etc.) and if learning complies with the gifted pupils' interests and inclinations.

One more important issue of the research is considering how to generalise the obtained learning outcomes. It stands to reason that they cannot be applied to the overall sample of gifted learners, yet it is assumed that they can reveal the emerging general tendencies. According to the data of Lithuanian school assessment, it is obvious that teachers find difficulty in recognising and educating gifted learners and learners in special educational needs; education is rarely differentiated and individualised (Lithuania. State and Regional Education. Learners'Achievements, 2016). The generalised data on lesson observation demonstrate that teaching and organisation of passive work of learners prevail in lessons (learners frequently act as implementers of teachers' instructions, listen to teachers' explanations, demonstrations, lectures, etc.) (ibid), hence, there is a lack of creating conditions for active learning.

Summing up the research into the links of gifted pupils' learning, the complexity of pedagogical phenomena should be acknowledged, as the relation to learning that involves in-depth approach is very "fragile" according to Ramsden (2000): even when appropriate conditions are created, the learners' former experience and other factors can inhibit his/her total expression.

Conclusions

On the basis of qualitative research, it is obvious that gifted learners are characterised by surface rather than deep learning, whereas the level of their abilities, interests and inclinations compliant with the essence of learning are frequently undiscovered. The learners with high intellectual abilities that have participated in the research tend to learn using memorisation techniques; therefore, learning is often not related to positive feelings.

The results of the research into class environment define the conditions that can determine the links of gifted learners' surface learning: active learning does not always occur in the class, learners have little opportunity to discuss, express their opinion, ask questions or provide explanations of problem-solving, i.e. they miss opportunities to actively construct own learning in the process of education.

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