



Learning Approaches, Self-Regulation Skills, Learning Strategies of Gifted Students and Factors Affecting Their Learning Characteristics

Research Article

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ABSTRACT

The aim of this study, which employed an experimental-psychological phenomenology approach, is to identify learning approaches, self-regulating learner skills, learning strategies of gifted students and factors that can influence the formation of these characteristics. The sample of this study consists of 28 students who attended Erzincan Science Art Centre in 2017-2018 academic year and agreed to voluntarily participate in the study. The data of the study were collected by the semi-structured interview form developed by the researchers. As a result of the research, it was seen that gifted students use three of the deep, surface and strategic learning approaches according to the characteristics of the perceived learning task. One of the most important factors influencing the formation of learning approaches is given as the teacher. It was also found that all of 28 students displayed self-regulatory learning features. In this context, learners stated that they started the studying process by setting goals, arranged the environment in line with their goals, they searched for information, and received help. In relation to the learning strategies used in the learning process; gifted students emphasized that they used lower-level learning strategies such as underlining and repetition more and used upper level learning strategies such as an initial letters strategy and outline strategy less frequently.

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Keywords:

Gifted Students, Learning Approaches, Self-Regulation Skills, Learning Strategies

Introduction

One of the biggest problems learners face in the 21st century is how to obtain information within a rapidly changing world order. Today, information advances swiftly and societies invest in producing and managing the information more. Therefore, rather than the accumulation of information, transfer, and development of information is emphasised (Watkins, Carnell, Lodge, Wagner & Whalley, 2000). Especially for

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developing countries, there is an increasing need for qualified human force who have learned how to learn in a real sense and who are equipped with high-level thinking skills. Learning process preferences of gifted students, who are generally described as curious, fast learners, having a strong memory and high level of problem-solving capacity, able to manage the learning process and creative, are important for developing countries in terms of meeting the 21st century requirements. In this respect, regarding the gifted students; addressing questions like “How do they learn and think? What are their learning approaches? How do they organize their learning? What are the learning strategies they use in learning? What influences their learning process? is significant for developing countries in terms of producing and managing the necessary information. In this context, the aim of the study is to identify learning approaches, self-regulating learner skills, and learning strategies of gifted students and factors that can influence the formation of these characteristics.

Learning Approach

Learning approach refers to *“a change made by the learner in the intention and behaviour in the form of work he/she has carried out for the learning task, depending on how they perceive the context they are in”* (Ilhan-Beyaztaş and Senemoğlu, 2015). These approaches are classified as deep, surface and strategic learning approaches within the scope of this intention.

The Deep Learning Approach: The deep learning approach is part of an intrinsic motivation and is characterized by the desire to perform a task in a meaningful and complete manner (Biggs, 2001, Curzon, 2004, Biggs and Tang, 2007). In this context, learners focus on the main idea and underlying meanings rather than the non-meaningful and contradictory details (Biggs, 2001).

The Surface Learning Approach: The surface learning approach is the intention of the learner to perform an assigned task with minimal effort (Biggs & Tang, 2007, p. 22). Since the task of learning is not seen as a whole, the content is perceived as disconnected and independent, and students solely focus on remembering and repeating the information (Curzon, 2004; Biggs and Tang, 2007).

The Strategic Learning Approach: Strategic learning approach is a component of external motivation, and the main intention to study is to be successful and get high marks (Newble and Entwistle, 1986). One of the most important features of this approach is that importance is attached to be organized both in terms of study methods and time management in order to be successful (Entwistle, 1995).

Self-Regulation

Zimmerman (1986) defined self-regulation as the ability of the individual to take initiatives cognitively, motivationally, and behaviourally during the learning process. A literature review indicates that although self-regulation is expressed in different ways by different theories, it is possible to say that three common features related to self-regulation have emerged. The first of these features is that learners who think that self-regulation processes are effective deliberately utilize special processes, strategies or responses to improve the academic success. The second characteristic is the availability of a feedback cycle that helps learners see the effectiveness of the methods and strategies they employ in relation to the teaching-learning process. The third common feature is the presence of motivational factors that lead students to use their self-regulatory processes, strategies and responses (Zimmerman and Schunk, 2001).

Zimmerman and Martinez-Pons (1986) identified 14 self-regulatory strategies based on self-regulation. These self-regulatory learning strategies that have an impact on learning are self-assessment, organizing and transforming, goal setting and planning, information seeking, record keeping and monitoring, environmental arrangement, drawing own conclusions, revision and memorization, social help-seeking and record reviewing (Nota, Soresi and Zimmerman, 2004).

Learning Strategies

The learning strategies, also called cognitive strategies (Arends, 1998), can be described with the simplest definition as the steps students have taken to actualize their own learning (Oxford, 1990). Literature review shows that Arends (1998) grouped learning strategies under five headings as recalling, articulation, organizing, and executive cognitive strategies, Oxford (1990) as direct and indirect strategies and Weinstein and Mayer (1983) as recalling, articulation, organizing, monitoring and affective strategies. Although different points are emphasized in classifications, it is fair to say that classifications are generally made within the scope of cognitive and executive (metacognition) cognition (İlhan-Beyaztaş and Göçer-Şahin, 2017).

Learning Characteristics of Gifted Students

In the Three-Ring Conception of Giftedness, Renzuli (1978) defined the characteristics of gifted individuals as an above-the-average capacity in abstract reasoning and information processing and stated that the driving force in carrying out an undertaken task arises from the motivation to explore and desire to learn. Similarly, in a study they conducted by summarizing the findings of many different studies, Olszewski-Kubilius, Kullieke and Krasney (1988) point out that learning-focused studying is one of the most important sources of motivation urging them to study. Kanevsky (1992) also stated that gifted students make more efforts to perform a task because they approach the task of learning with curiosity and interest. Sternberg (1997) maintains that “gifted individuals are people with a high level of capacity to analyse and evaluate components that constitute a phenomenon, and organize and relate information”. Thus, it can be said that the deep learning approach categorized by an intrinsic motivation and learning-based approach is parallel to the characteristics of the gifted students.

Gifted children also organize the problem-solving process with a more systematic approach (Porter, 1999). In this process, they effectively employ skills such as the description of the problem, organization of the information, use of strategies, monitor and control of the solution process (Sternberg, 1997). It is also stated that gifted students use high-level strategies such as elaboration (Scruggs and Mastropieri, 1985), memory-aiding cues (mnemonics) in the learning process (Levin, Dretzke, McCormick, Scruggs, McGivern and Mastropieri, 1983). Accordingly, it can be said that gifted students are both self-regulating learners and they can use learning strategies effectively in this process.

A review of the literature indicates that there are many studies on the learning characteristics of gifted students. However, learning experiences of gifted students and contextual factors influencing them are far from being understood, as the learning characteristics of them are investigated within the scope of one or two variables pre-determined by researchers (such as self-esteem) (Walker, Shore, French, 2011). In addition, it is seen that most of the studies carried out are outcome-oriented considering success and consequently, factors leading to success or failure are addressed superficially. Patrick, Bangel, Jeon and Townsend (2005) note that the success or failure of studies conducted on gifted learners needs to be considered taking into account the context, interactions in the task undertaken and process, rather than a success or outcome-oriented approach. VanTassel-Baska, Landrum & Peterson (1992) also stated that observation and interview-oriented studies should directly focus on the learning process. In this scope, the following research questions are sought in order to identify the learning characteristics of gifted children, both in depth and holistically.

1. What are the learning approaches that gifted students prefer?
2. What are the self-regulating skills that gifted students use?
3. What are the learning strategies that gifted students use?
4. What are the factors that influence the learning approaches gifted learners prefer, self-regulatory skills and learning strategies they use?

Method

Study Design

In this study, empirical-transcendental phenomenological approach, which is one of the qualitative research methods, was employed so as to determine the learning approaches of gifted students, learning strategies that gifted learners use, the self-regulatory learner characteristics they possess and factors affecting their learning characteristics. The experimental-transcendental phenomenological approach is one of the approaches used to describe and make sense of the participant experience rather than the interpretations of researchers (Moustakas, 1994).

Sample

The sample of this study consisted of 28 students who agreed to participate as volunteers out of 73 intellectually gifted students. All participants were enrolled in Erzincan Science and Art Centre in 2017-2018 school year. Four students from all grades (except Grade 7) agreed to participate in the study; 11 of these students were female and 17 were male.

Data Collection Tool

A semi-structured interview form, developed by researchers, was administered to identify learning approaches, self-regulation skills, learning strategies of gifted students and factors affecting their learning characteristics. The following steps were followed during the preparation and implementation of the semi-structured interview form:

1. Literature was reviewed to ascertain the learning approaches, self-regulating learner characteristics and basic features and scope of learning strategies used and factors affecting their learning characteristics.
2. A draft form of 20 questions was created based on the criteria set within the scope of the findings obtained past studies. Opinions were taken from 3 subject-matter experts, a Turkish domain expert and an assessment and evaluation expert to ensure the scope validity of the prepared draft form. The necessary arrangements and amendments were made in line with the views received.
3. With the aim of determining the appropriateness of the prepared draft form in terms of relevance and comprehensibility, a preliminary interview was held with four students studying at BİLSEM (Science and Art Centre) (SAC).
4. In line with the suggestions from the students, necessary corrections were made on the interview questions and the interview form consisting of 17 questions was finalized by taking opinions of three subject-matter experts once again. There are open-ended questions in the interview form such as "Why do you study?", "For which reasons do you study?", "What do you do to make yourself motivated to study before you start?", "What learning paths do you use when you are studying?"

Data Collection and Analysis

Following steps were followed in the implementation of the semi-structured interview form and the analysis process of the data:

1. Interviews held using the semi-structured interview form lasted an average of 15 to 35 minutes. During the interviews, the interviews were recorded on the voice recorder with the consent of the participants. The interviews recorded on the voice recorder were transcribed by researchers.
2. The content analysis technique was used to interpret the data obtained from the interviews of the students. During the content analysis process, the procedural steps defined by Elo and Kynagäs (2008,

p.100) were followed. In this context, the data of 6 students were independently read by four researchers to form codes. Data and codes were sent back to the researchers using the Delphi method to identify the common points in the codes and themes created by four researchers. After reading the data for the second time, the data was re-read according to the determined codes and themes, and the data was reorganized according to these codes and themes using the MAXQDA software program. In this sense, the content analysis was carried out under the themes of "Learning Approaches", "Self-Regulation Skills", "Learning Strategies" and "Factors Affecting Learning Characteristics". A descriptive analysis was also conducted to better reflect the existing situation.

3. The formula proposed by Miles and Huberman (1994, p. 64) for the calculation of reliability in qualitative data was used and the interrater consistency (coders) was found to be 0.72.

Findings

The content analysis of qualitative data for identifying the learning characteristics of gifted students was conducted under the themes of "Learning Approaches", "Self-Regulation Skills", "Learning Strategies" and "Factors Affecting Learning Features".

Learning Approaches

The content analysis of qualitative data for identifying the learning approaches that gifted students adopted are given in Table 1 below under the themes of deep learning approach and strategic learning approach.

Table 1. Learning Approaches Adopted by Gifted Students

Themes	Codes	5 th Grade	6 th Grade	7 th Grade	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
The number of students who adopted the deep learning approach		1	1	-	1	2	1	-	3
Deep learning approach	Meaning seeking	1	-	-	-	1	1	-	-
	Continuing to study until learning takes place	-	-	-	-	1	-	-	2
	Relating ideas with each other	-	1	-	-	1	-	-	1
	Liking doing research	1	1	-	1	2	1	-	3
	Having interest and enthusiasm for learning	1	1	-	1	1	1	-	3
The number of students who adopted the strategic learning approach		3	3	-	3	2	3	4	1
Strategic Learning Approach	Focusing on the success	3	3	-	3	2	3	4	1
	Considering assessment criteria	3	3	-	3	2	3	4	1
	Organizing studies and exerting Efforts	3	3	-	3	2	3	4	1
	Monitoring the effectiveness of learning	-	-	-	-	1	-	1	-
	Effective time management	3	1	-	2	2	1	1	-
	Self-rewarding	3	-	-	1	1	1	1	1

Table 1 indicates that 9 (32%) of 28 gifted students preferred the deep learning approach and 19 students (68%) preferred the strategic learning approach. Accordingly, 9 (32%) of the students who adopted the deep

learning approach expressed that they liked doing research. Regarding liking research, participant M8 said, *“Frankly speaking, regardless of the fact that my teacher asks me to buy extra resources, I definitely need to resort to an extra source to do research. I use the sources that I buy to reinforce the subject I learn.”* and demonstrated that he/she does research instinctively and willingly while learning a subject. Likewise, 8 students (28%) expressed that they had an interest and enthusiasm for learning. Participant M12 said *“Rather than proving something to other people, my aim in studying is to extend my knowledge. I want to be informed about almost every subject, that’s why I study. My aim is to learn things that are important to me.”* and emphasized that the main motivation for studying is learning. Participant M9 also said, *“Especially this year, I study in a way to learn the subject irrespective of how much it takes studying the subject. Be it 15 minutes or 3 hours. What is important is learning the subject I determined.”* and emphasized that the learning process continues until the learning occurs. When participant statements are taken into consideration, it is found that 9 learners emphasized the deep learning approach.

All 19 students who adopted the strategic learning approach stated that success was important in the studying process, assessment criteria are taken into account and that their study is organized in a way to achieve success. In this context, participant F5 replied, *“To come to a better place, to go to a better high school, to be in a better position in the classroom, to be highly successful in the examinations.”* in response to the question *“Why are you studying?”* Participant F11 replied *“I usually underline the points that our teacher highlights in the classroom. Then I look at them at home. I only study those important points at home. I place emphasis on important points because they can be tested later. I give a little more importance to them.”* It was seen that this participant emphasized strategic learning approach.

Self-Regulatory Skills

The content analysis of qualitative data to determine the self-regulatory learning characteristics that gifted students use is given in Table 2.

Table 2. Self-Regulatory Skills Used by Gifted Students

Themes	Codes	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
		Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
Self-Regulatory Learner	Setting Goals and Making Plans	4	4	-	4	4	4	4	4
	Arranging the Environment	3	3	-	4	4	3	4	4
	Information Seeking/Doing Research	3	1	-	1	1	3	1	2
	Receiving Help	4	4	-	4	4	4	4	4
	Monitoring the effectiveness of learning and making plans according to the results	-	-	-	-	1	-	1	-

Table 2 shows that all of the 28 gifted learners display self-regulatory learning characteristics in the learning process. Within this scope, all of the students stated that they set their goals before they start studying and that they made plans to achieve this goal, and that they absolutely received helped if they encountered problems in this process. Regarding the code of goal setting, participant F5 said, *“I have goals such as being successful, getting high grades in exams, performing good at mock exams and having a good profession.”* Participant M8 said, *“I do not set a goal to myself to solve 100 multiple choice questions in a day. I just put one thing as a goal, which is I need to understand the subject. I set a goal, but I can answer 10 questions or 20 questions. What matters to me is to understand a little more, I succeed if I want it”.* Although all students state that they start by setting a goal

before they begin studying, when the statements of students are examined, it is seen that the two different scope of aims are evident. Concordantly, it is fair to say that student aims fall under two categories of learning and achievement-oriented. With regard to the same code again, concerning making plans, participant F5 said *"I usually put books of the courses I will study and revise on the top of each other. My dad prepared me a schedule. In line with that schedule, I revise the subject for 5-20 minutes first and then I take one test. I take a break for 10 minutes after that. I do it in an order. I study an average of 2 hours a day. I study on average 3 lessons per day."* and explained that he/she had a plan for daily studies. 25 of the gifted students (89%) stated that they organized the study environment in a way to study productively. In this regard, the participant M6 said, *"I remove unnecessary things. If I keep the books of the subjects in which I have assignments. I remove the others. If there is garbage, I collect them. I do not turn the music on. I start with the lessons that I like first to motivate myself. I continue with the lessons I do not like."* and stated that she/he made environmental arrangements to study and motivated himself/herself to study accordingly. Only 2 of the gifted students checked whether or not they studied effectively and made plans according to their results. Within this scope, participant F9 said *"I have studied all the same until this year. However, this year I got low grades in physics and mathematics. My physics grade was 67, math was 45. These grades were lower than my expectations. I changed the way I studied in order to be more successful. For example, I did not much care about physics. Because we have physics 2 hours a week. Instead, I was studying main courses more. But I started to care more about the physics. Obviously, I memorized those formulas you mentioned, I paid attention to where and how they are used and I solved more and more maths questions."* and underlined that he/she revised and reorganized his study habits considering the failure.

Learning Strategies

The content analysis of qualitative data to identify learning strategies that gifted students use is given in Table 3.

Table 3. Learning Strategies Used by Gifted Students

Themes	Codes	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th
		Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
Learning Strategies	Underlining	4	1	-	3	2	3	2	3
	Repeating	4	4	-	1	2	2	2	4
	Note taking	-	-	-	3	-	4	2	1
	Summarizing	1	1	-	3	3	2	1	1
	Outlining	-	-	-	1	1	-	-	-
	Schematization	-	-	-	1	-	-	1	2
	First letter mnemonics	1	-	-	-	2	2	-	-

Table 3 indicates that 18 (64%) of the 28 gifted students stated they study by underlining and 19 (67%) stated that they studied by repeating. In this context, participant F12 said *"I first read all of them with a highlighter without memorizing. I only highlight important points with a highlighter. When I come back, I only memorize the points I highlighted. I memorize and repeat as if I'm telling someone."* and expressed the learning strategy that he/she used. Moreover, 12 (42%) of the students stated that they use the summarization strategy and 10 (35%) use note taking strategy. Regarding summary and note taking, participant F11 *"I revise a couple of times and write notes about what I study to keep things in mind"*. Participant M9 *"I understand better when I study from my notes. That's why I make a summary of what I study after I finish studying. First, I summarize what is left my own mind. After that I look at the missing points between the book and the summary I wrote. I do not underline anything. I just summarize."* and stated that he/she applied to the note taking and summary strategies to ensure that what is studied becomes permanent. Of the students, 5 (17%) stated that they used the first letter mnemonics, only 2 (7%) stated that they used the outlining strategy. Within this scope, participant M8 said *"While I'm reading, I determine what the main topics are and what needs to be learned. I solve questions later."* Participant M10 said *"In order to keep what I learn in my mind, for example in geography, I code things and try to associate the initial letter and*

last letter with each other from somewhere." He/she said he/she used an outlining strategy and first-letter mnemonics.

Factors Affecting the Learning Characteristics

The content analysis of the qualitative data to determine the factors affecting the learning characteristics of the gifted students is given in Table 4.

Table 4. Factors Affecting the Learning Characteristics of Gifted Students

Themes	Sub-themes	Codes	Student	
			f	%
Factors Affecting Learning Approaches	Teacher	Field knowledge of the teacher affects learning approach	7	25
		Teachers' encouraging the learner do carry out research affect learning approach	10	35
		Teachers' encouraging the learner to memorize affect learning approach	9	32
		Feelings students have towards their teachers affect the learning approach	9	32
	Course Type and Attitude Towards the Course	Science the content of the course affects the learning approach.	12	42
		Non- science content of the course affects the learning approach.	13	46
		Failed courses affect the learning approach.	14	50
		The content being intense or flexible affects the learning approach	3	10
		Courses interested in affect the learning approach	10	35
		Courses not interested in affect the learning approach	12	42
	Workload	High number of assignments affect the learning approach	10	35
		Fun and student-centred learning environment at SAC affects the learning approach of learners	3	10
	SAC	Lack of grades and exam anxiety at SAC affect the learning approach	20	71
		Project oriented studying at SAC affects the studying approach of learners	2	7
		Administrative characteristics of the school affect the learning approach	3	10
	School and Circle of Friends	Physical characteristics of the school affect the learning approach	3	10
		Circle of friends affects the learning approach	14	50
		True/false type of exams affect the learning approach.	18	64
	Assessment	Gap-filling type of exams affect the learning approach.	18	64
		Multiple-choice type of exams affects the learning approach.	18	64
		Open-ended type of exams affects the learning approach.	18	64
		Exam-based educational policies	18	64
		Failed courses affect the learning approach	12	42
	Factors Affecting Self-Regulatory Skills	Insufficiency of teacher's field knowledge	10	35
		Family-environment	17	60

Table 4 demonstrates that factors affecting the learning characteristics of gifted students are classified under the categories of factors that affect learning approach, self-regulation skills and learning strategies.

Factors affecting learning approaches were classified under the teacher, course type and attitude towards course, workload, SAC, school, family-environment and assessment sub-themes. When the sub-themes are examined respectively; under the sub-theme of teacher 10 (%35) out of 28 students stated that their teachers' encouraging them to do research and 9 (32%) stated that their teachers' encouraging them to

memorize influenced their attitude towards learning. In this regard, participant M11 stated that *"Yes, it does influence. You have to show the teacher what kind of a student you are. So I memorize when the teacher wants me to memorize, I do research when she/he asks so. Then you become more interested, you question more. What is this? you say. Why is this happening? Because he or she holds you responsible for such a situation, otherwise you cannot get a good grade."* and underlined that when the teacher wanted him/her to memorize, he/she resorted to a surface learning approach and when the teacher wanted him/her to do research, he/she resorted to the deep learning approach, but he/she displayed the characteristics of strategic learning approach for getting a high grade because he/she essentially adopted the strategic learning approach. 9 (32%) of the students stated that the feelings they held towards their teachers affected their learning approaches. Participant F10 *"Let me give you an example. I was not keen on geography last year at all. Particularly for this reason, I would choose the science department to be exempt from geography. My lowest grade was geography. But my teacher said I know you study. I see your class participation. In fact, it depends on the teacher's trust in the student, the teacher pushes or pulls the student. I said to myself I needed to study. My second-semester grades got improved. My geography grade got higher while the grades of my friends who were better at geography than me decreased. I tried to listen to the lessons better. I looked at the notes my friends took. I exchanged notes with them. I took notes with them."* and stated that he/she started to adopt an deep learning approach when he/she had a positive attitude towards the teacher. In addition, 7 (25%) of the students stated that the learning approach adopted was affected in the case that the teacher does not have surface field knowledge. Participant M9 said *"It affects. If my teacher does not expertise in the subject, it feels like I have to strive more on the topic. It's not about time, it's like you have to exert more efforts, be more careful to learn more about this subject."* Participant F10 said, *"If the teacher does not know anything about that subject, I cannot learn anything. I wouldn't want to study that subject. But if the subject is tedious, I would like to study the subject if the teacher teaches that subject with all the details and all its good and bad sides. I would want to understand. If the teacher takes one step, I would take another."* In this context, two of the seven students stated that the teacher's lack of field knowledge resulted in the surface learning approach and the other five had stated that it resulted in adopting the deep learning approach.

Examining the sub-type of course type and attitudes toward the course, it is seen that 14 (50%) of the students stated that courses they failed affected their learning approach. Participant F11 *"Biology, for example, I got 86. But I think it's not low in the sense of a grade, it's low in the sense of knowledge. I feel inadequate. I changed the way I studied in order to become successful. I used to revise my notebook. But that was not very effective either. Afterwards, I began to watch videos and so on, I began to write notes on my own. I began to spare more time in this way and started to research more."* and stated that he was adopting an deep learning approach in courses he/she failed. 13 (46%) of the students stated that non-science content of the lesson and 12 (42%) stated that the science content of the lesson affected the learning approach. In this context, participant M9 said *"Mathematics is a science course, Turkish is a non-science course, which requires memorization. If you do not memorize the concepts in Turkish language and literature you cannot succeed. You cannot succeed in maths if you are not familiar with the logic of the concepts. Therefore, while I try to memorize in Turkish language and literature, I try to grasp their logic like mathematics."* and stated that he/she preferred the surface learning approach in non-science lectures and deep approach in science lectures. In addition, 12 (42%) of the students said that lessons they are not interested in, and 10 (35%) lessons they are interested in affected the learning approach. Participant M12 said *"For example while studying literature, I cannot drive pleasure as I study physics. Since it's something about my area of interest, while studying literature I only take what is necessary for me. I do not delve into details; I wouldn't wonder what are the other pieces written by an author other than the literary works. But when I study physics, for example, there are very famous question-solving broadcasts in a channel these days and I study with them. I try to produce a solution myself first to create a concrete example. I try to come up with different ways of solutions. So I'm trying to transform things into the reality rather than memorizing them. My way of studying is this."* and stated that he/she adopted an deep learning

approach in lessons he/she is interested in and a surface learning approach in lessons he/she is less interested in.

When the workload sub-theme is examined, 10 out of 28 students (35%) stated that being assigned the high number of homework affected their learning approach. In this context, participant M9 said, *“When I’m trying to grasp a topic, I will do it only just for doing homework when it is assigned to me as a homework. It will impede my learning. Even if it makes a contribution, when doing the homework given by the teacher it will cause more disadvantage, rather than helping me grasp the topic. Because I will do it without learning the subject.”* and stated that the excessive number of assignments caused the surface learning approach to be adopted.

When the sub-theme of SAC is examined, 20 students (71%) out of 28 stated that the lack of anxiety about getting a low grade affected the learning approach. Participant F9 said *“We do not take notes in SAC. I do the work in SAC because I like it. I’m doing some things to learn some subjects because I am totally interested in them”*. Participant M8 said *“School and SAC are very different. There are school subjects at school. Those lessons all have an achievement test. You have to get prepared for the exam. You always think in an exam-oriented way. SAC does not pose such an anxiety. For example, when I am asked to research something, I carry out a research about something I am curious about, but at school the focus is placed on exams rather than learning a lot. SAC is better because we do not have quizzes like we said. There is no pressure on you, so you are more flexible. Even if they are the same, topics are taught in a more interesting way. They are more engaging for me.”* and expressed that they adopt the deep learning approach when they do not have the anxiety about grades and exams.

When the sub-theme of school and friends is examined, it is seen that 3 (10%) out of the 28 students (10%) said that both the physical and administrative characteristics of the school affected learning approach. In this context, participant F9 said *“The crowd at the school can be influential. I wasn’t accustomed to a crowded class and concentrating on the lesson was difficult. Thinking that I could not listen to that lesson sufficiently affected my studying at home. If I could not listen to the lesson, I start it all over again. I spend more time and I study more ... It does affect, for example, my school is more of a democratic school. They indulge us. We also try to pay back their value for us. Consequently, we study more willingly. It affects my studying positively.”* and stated that both because a crowded classroom poses a barrier to understanding the lesson and presence of a democratic school environment result in an deep learning approach. In addition, 14 out of 28 students (50%) reported that their circle of friends affected their learning approach. In this context, participant M12 said, *“Circle of friends influenced that I study. My friends in the school I transferred to had plans for the future. They were all studying, conscious and aware, but this was not the case in my previous school. At my previous school, studying did not exceed an hour and a half. Because after school they asked me to play football and go to a cafe. They asked me to go to the internet café with them and so on. But I was so surprised when I came here. When I first came they asked me to come to the library. I went to a place I was not used to. I was bored for one day and the next day as well, but on the third day, I began to like it. Honestly, I actually started to like it because we were studying comfortably. Because I felt like I grew up. Obviously, I was aware of some things and I was adapting myself accordingly.”* and stated that circle of friends directed to the deep learning approach. In the same context, another student E8 *“Well, let me start with my friends, I got 90 from an exam and the whole class got 100. I said to myself I was not inferior to them but I need to study more so that I can be like them. I can start getting 100 when I study hard as much as them.”* and stated that circle of friends was effective in the adopting a strategic learning approach.

When the sub-theme of the assessment was examined, it is seen that 18 of the 28 students (64%) stated that the assessment model and the examination-based education policies affected the learning approach. In this context, participant F9 said *“I study more for open-ended tests. Let me explain the difference between the multiple-choice exam and the open-ended exam. The first exam of the biology was open-ended and I studied accordingly because I knew it would be difficult. I can recite everything about biology if I am asked now. But I studied less since I knew the second exam would be a multiple choice one. I mean, I studied for it for a day or two, but I still got a high grade on the*

exam. I learned more at the first test. Because I studied harder for it. When I have a true/false exam, I rather study sentence by sentence. This is because true/false is so predictable that I look at the sentences since it's easier. Often I look at the sentences or places the teacher underlined, or I care about parts which can be included in the exam and I memorize them. There are two types in the gap-filling exam. In the first one, they give the words. There is no need for studying because it's so easy to deduct. In the second type, words are not given, which is I think very overwhelming. Then I study for it like I study for an open ended exam." and added that he/she adopted a deep learning approach in open-ended and gap-filling exams, and a surface approach in multiple-choice and true/false exams. Regarding the influence of examination-based education policies on the learning approach, the same student said, "Our teachers generally tell us not to memorize. They always tell us to learn the subject. But after they tell you not to memorize, they give you 300 questions to answer. We already memorize, but we do not know whether they see this or not, but this is how the system works. Everybody complains about the examination system. They say it's better for us if we learn more, go to the lab, but they do not take us to the lab. Both the teachers and the examination system direct us to memorize, whether consciously or not." and said that the examination system directs to a surface learning approach.

Factors affecting self-regulation skills were formed around the codes of the courses failed and the inadequacy of the teacher's field knowledge. 12 (42%) of the learners stated that the courses they failed affected their self-regulation skills. In this context, participant F9 said "I must have studied the course I failed superficially. I must have said it was not important. I mean, I must have studied not the right subject. I must have done it only by listening to the lesson. But they cannot give all the details in class. I must have got a low score for that reason. Last semester I got 98 from the first exam of maths at which I considered myself bad. I got a very low grade in the second, I got 49. Maths is a subject I love so much. I was very upset about it but this means that I did not understand the topics that much. I revised the topics again and studied them during the winter break. I am currently studying on a regular basis." and underlined that from among self-regulatory learner characteristics, they used skills of monitoring the effectiveness of learning and making plans according to the results. In addition, 10 (35%) of the students also stated that self-regulation skills are influenced when the field knowledge of the teacher is insufficient. Participant E10 said "I think listening to the lesson is very important. If the teacher fails to teach, it definitely affects my studying at home. I study harder and I have to reinforce it with private lessons." and said that he/she had to make amendments in the planning and assistance receiving skills from among self-regulatory learner characteristics.

Factors that affect learning strategy skills are categorized around family-environment and assessment codes. 17 (60%) of the learners stated that the family and the environment affected the learning strategy. Within this context, participant M5 said, "Yes, I am influenced by my friends. When I was in the 3rd grade, I never did revision. I only took multiple choice tests. My friend was doing revision a lot. I went to his/her house. I waited for 1 hour to play games. I happened to learn that he/she was doing revision. She asked me why I was never doing revision? After that, I started to do repetition." and stated that the circle of friends was influential in shaping learning strategies.

Discussion

Examining the statements of gifted students, it is seen that 9 (32%) preferred the deep learning approach and 19 (68%) preferred the strategic learning approach. It was observed that students who adopted a deep learning approach like doing research, have an interest and enthusiasm to learn, and continue to study until learning takes place. Furthermore, they stated that they study by seeking the meaning of the subject and relating the ideas in the subject. When the statements of students who adopted the strategic learning approach are examined, they expressed that they study in a success-oriented way, they take into account assessment criteria to achieve success, organize their study and use time wisely to be successful. In the study by Brandisauskienė (2017), it was also found that gifted students preferred a deep and surface learning approach. However, when the student statements were examined, it was determined that the context of the study influenced learning approach preference. Accordingly, it was determined that the teacher, course type and attitude towards the course, work load, SAC, school, family-environment and assessment influenced

learning approaches of learners. A literature review shows that there is no research directly investigating the learning approaches of gifted students and the factors affecting these approaches. However, although there is no similarity in the context of the sample/study group, it is observed that findings similar to the results of different studies were obtained in the current study. In this context, when the sub-theme of the teacher is examined, learners pointed out that they preferred the deep learning approach when the teacher leads learners to do the research and when learners have a positive attitude towards the teacher. On the contrary, they preferred the surface learning approach if the teacher directs students to memorization. In the case that the teacher's knowledge of the field is inadequate, interestingly two students expressed that they preferred the surface learning approach, while five students expressed that they made more efforts to learn better in this case and therefore adopted an deep learning approach. As one of the factors encouraging learners to adopt surface learning approach, Biggs and Tang (2007) points out perceiving the learning environment as a setting in which recall of factual knowledge suffices, and as one of the factors encouraging learners to display an deep learning approach, they underlined "teaching based on the problems in a way to promote questioning and posing problems instead of teaching by explaining the subject".

Examining the subtype of course type and attitudes toward the lesson, it was determined that learners preferred the deep learning approach in the case of courses they failed, in science courses and when they liked the course, whereas they preferred the surface learning approach if lessons were non-math courses and not liked. It is seen that this finding is parallel with the literature. In the study by İlhan-Beyaztaş (2014), successful students who came in the first percentile of the university entrance exam adopted a superficial learning approach for non-math courses and an in-depth learning approach for science courses.

When the sub-theme of workload is examined, it was determined that excessive number of assignments causes students to adopt the surface learning approach. When the literature is reviewed, it is stated that perceiving workload overwhelming encourages students to use the surface learning approach (Entwistle and Ramsden, 1981; Kember and Leung, 1998). In the SAC sub-theme, learners stated that a school environment where there is no pressure of getting high marks and exams, the availability of a student-centred and project-oriented learning environment lead to the deep learning approach. A study conducted by Entwistle and Ramsden (1981) on 2208 students of 66 different departments at an English university found a positive relationship between the positive perception of the freedom environment given for the teaching and learning and a comprehension-based study approach, and accordingly a deep learning approach.

When the sub-theme of school and circle of friends is examined, students expressed that a democratic school environment and a crowded class lead to a deep learning approach because it encourages learners to make more effort to understand the lesson later on. As regards the friendship sub-theme, students expressed that the circle of friends is effective in both adopting the deep and the strategic learning approach. When the assessment sub-theme is examined, learners stated that they adopted an deep learning approach in open-ended and gap-filling exams, and a surface learning approach in multiple-choice and in true/false exams. It was also emphasized that examination-based education policies resulted in a surface learning approach. Especially learners who prefer the strategic learning approach prefer the deep learning if it is focused on seeking meaning within the perceived assessment process, whereas they prefer a surface approach if the cognitive processes based on recalling events and procedures are emphasized (Entwistle, 1995). In this context, it can be said that the way of studying preferred by gifted students who adopt the strategic learning approach is consistent with the relevant literature.

When the statements related to the self-regulation skills of gifted students were examined, it was seen that all 28 students exhibited self-regulating learner characteristics. In this context, learners initiated the studying process by setting goals, they arranged the study environment in line with these goals, searched for information and received help. Risemberg and Zimmerman (1992) maintained that gifted students organized,

monitored and controlled their own work more effectively and organized the environment according to their learning needs. In addition, Walker and Shore (2015) also found that gifted students tend to study by receiving help from others, contrary to what is believed. So, it can be said that these findings are parallel with the field literature. Factors affecting self-regulation skills were identified as the failed courses and the inadequacy of the teacher's field knowledge. In this context, the students stated that they reorganized their study processes to achieve success when they failed, and that they rescheduled their study process and received help when the field knowledge of the teacher is not sufficient.

In relation to the learning strategies used in the learning process, gifted students maintained that they used lower level learning strategies such as underlining and repetition more and used upper-level learning strategies such as first-letter mnemonics, an outline strategy less frequently. Similarly, in the study conducted by Brandišauskienė (2017), it was also found that gifted students emphasized the strategy of revision. However, when the literature is reviewed, it is seen that gifted students predominantly tend to employ higher level learning strategies (Levin, Dretzke, McCormick, Scruggs, McGivern and Mastropieri, 1983, Scruggs and Mastropieri, 1988). When the factors affecting the learning strategy are considered; it was found that family and environment affected the preference of learning strategy.

Conclusion and Recommendations

It appears that gifted students use the deep, surface and strategic learning approaches all according to the characteristics of the perceived learning task. One of the most important factors influencing the formation of learning approaches is given as the teacher. In this context, teachers need to be informed about learning approaches in order to develop a deep learning approach that is particularly effective to come up with creative ideas that are of utmost significance for the country's economy. It is thought the creation of a learning environment with interest-arising, rich and diverse stimuli will be beneficial for gifted learners as a heterogeneous group for making sense of and enhancing the knowledge. In this sense, in particular, in-service trainings and seminars on the characteristics of the gifted individual and factors influencing the learning process can be organized for the teacher and teacher candidates. It is seen that the assessment, yet another factor that is effective in the formation of learning approaches of the students, causes the gifted students to adopt a more strategic or surface approach. However, for such kind of students, it is necessary to develop and implement educational environments and curriculums that will stimulate the sense of curiosity of gifted learners during all educational processes and help them focus on studies to this end starting with the pre-school period. It is also stated that such students are more creative in free environments. In this sense, it is necessary to revise the examination policies that manifest themselves as an obstacle to the creativity of the gifted students and to save such students from the examination dilemma.

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