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## **Gifted Students' Perception of the IBDP and National Programme, and the Effects of these Programmes on their Academic Achievement: A Review within the Context of Turkey**

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### **Abstract**

The general objective of this study was to investigate the advantages and disadvantages of the national curriculum and IBDP according to the perception of gifted students, and to determine the effects of the programmes on the academic achievement of the aforementioned students. Data was collected with an information form. It was found significant difference between mean scores of English and the grade point average in respect of the IBDP students. The students of the IBDP mentioned the advantages of the programme, such as exploring skill areas, the opportunity to study abroad, acquiring self-discipline, developing awareness of responsibility, and developing creative and critical thinking ability. The national curriculum was criticized in terms of being based on competition and rote learning, not having the opportunity for practice, impairing creative and critical thinking skills, being an exam-oriented system, and requiring extensive daily study workload.

**Keywords:** International Baccalareate, gifted, Turkish national programme, GPA, achievement.

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## Introduction

In designing the curriculum of the International Baccalaureate (IB), the principles of high levels of abstraction of the content, depth, complexity, inter-disciplinary approach and creativity are based on the IB (2017a) by using this programme and the students' skills for self-directional learning and working independently (Poelzer, 1994). Moreover, the flexible structure of the curriculum allows skills to be explored and developed in various fields varying from art to science. Due to the characteristics mentioned above, the aforementioned IB programme might be considered to be an appropriate programme to satisfy the needs of gifted and high-ability students (Anderson, 1994; Hertberg–Davis, Callahan & Kyburg, 2006; Poelzer, 1994; Poelzer & Feldhusen, 1997; VanTassel–Baska, 2003).

One of the most comprehensive studies which analysed some effects of the IB high school (DP) programme was conducted by Hertberg-Davis, Callahan and Kyburg (2006). In the research report, the students stated that the IB programme motivated them to use their ability for critical thinking, provided an opportunity to collaborate with their peers at similar levels of motivation and ability, allowed them to communicate with their teachers as if they were adults, and was necessary to enrol in a good university in the future. However, that there was no need to think too much in the programme sustained by the scope of their general education. The difficulty level of the IBDP was appropriate and the students were able to access numerous opportunities which they cannot also access in the general education classrooms. The teachers pointed out that interactive education contributed to the development of thinking skills among the students.

Another study was conducted by Foust, Hertberg-Davis, and Callahan (2009b). In a study which included 85 students from 24 schools in seven US states, the researchers found that the IBDP had some advantages in terms of establishing a positive classroom climate, establishing a special connection among the participants, and developing academic self-reliance.

In a group of studies, grade point average (GPA) and other test scores of students who had completed the IBDP were analysed. It was found that there was a positive relationship between the first semester college GPA and high school GPA (Grumurthy, 2016), high school GPA and SAT II scores in English (Luo, 2013), and their readiness for university education was high (Anderson, 1994), additionally their academic achievement at university was higher than their peers (Coco et al., 2012; Culross & Tarver, 2007; Duevel, 1999; Foust et al., 2009a; Foust, Hertberg-Davis, & Callahan, 2009b; Frost, 2011; Poelzer ve Feldhusen, 1996; Saavedra, 2011; Sagun, Ateşkan, & Onur, 2016; Suldo, Shaunessy, Michalowski, & Shaffer, 2008; Shaunessy, Suldo, Hardesty, & Shaffer, 2006). In the study by Thomas (1988, 1999, as cited in Grumurthy, 2016), which enrolled in a university after the IBDP programmes in the UK, it was found that 98% of them graduated from university with a certificate of honour. The findings of Smith (2009) and Duevel (1999) were consistent with those results. The IBDP students were found to have 76% better university academic performance than their peers (Smith, 2009), and 92% of them graduated from university sooner than expected (Duevel, 1999). Based on the studies compared different test scores, it could be concluded that IBDP has effects on the more engagement in university level courses and having more academic success.

In another group of research, the qualifications of the students who completed an IBDP programme were analysed. It was found that these students had improved problem-solving skills, ability to cope with stress (Grumurthy, 2016), time management (Grumurthy, 2016; Sagun, Ateşkan, & Onur 2016; Tarc & Beatty, 2012; Taylor & Proath, 2006), cultural awareness, the use of verbal (Culross & Tarver, 2007) and written language (Culross & Tarver, 2007; Grumurthy, 2016), critical (Culross & Tarver, 2007; Demir, 2009; Sagun, et al., 2016) and creative thinking (Culross & Tarver, 2007; Taylor & Proath, 2006), critical reading and studying habits (Tarc & Beatty, 2012; Sagun, et al., 2016), and perception of academic self-awareness (Sagun, et al., 2016; Shaunessy et al., 2006).

In further studies, some findings related to the constraints and disadvantages of IBDP were determined. Some of these included intense work load (Hertberg–Davis, Callahan & Kyburg, 2006;

Foust, Hertberg–Davis & Callahan, 2009; Hertberg–Davis & Callahan, 2008; Tarc & Beatty, 2012; Taylor & Proath, 2006), being a costly application (Hertberg–Davis & Callahan, 2008; Smith, 2009; Wright & Lee, 2014), intensive stress (Feld & Shusterman, 2015), exhaustion and establishment of the perception of a negative stereotype which reduced social acceptance (Shaunessy et al., 2006). In another study, 9% of the students failed to benefit from the course of Theory of Knowledge, and 30% of them stated that the course of Creativity, Action and Service (CAS) had no academic contribution (Jenkins, 2003, as cited in Grumurty, 2016).

## Conceptual Framework

### International Baccalaureate

The content of the IBDP consists of courses under six main topics: native language and literature, acquisition of a second language, individuals and societies, mathematics, science, and arts. The students have to choose one course from each group. In addition, there are three major components: Theory of Knowledge, Extended Essay and CAS. The students have to take three courses at an intensive level (240 hours per course) and another three courses at a standard level (150 hours per course; International Baccalaureate, 2017b). The activities of the students are evaluated at two levels – national and international levels. To obtain the diploma, the students should achieve 150 hours CAS activities and also complete the Extended Essay and Theory of Knowledge presentation and paper, as well as all the homework and activities. The maximum score achievable from the courses is 45. In order for a student to succeed, he or she should obtain at least 24 in total score as a result of the evaluations both inside and out of the school.

In the Turkish National Education system, students who are enrolled in the IBDP programme receive some courses together with the students in the national curriculum. The common courses in the curriculum of the science high school comprise 17 hours in the 11<sup>th</sup> grade<sup>1</sup>, and 18 hours in the 12<sup>th</sup> grade<sup>2</sup>. In total, the IBDP has 22–28 hours of elective courses. The weekly course load is 40–45 hours (for the details of the programme; TTKB, 2015b).

### Turkish national curriculum

The Turkish National Education system has a hierarchical order. The curriculum of high schools is common at the national level. There are programmes at the high school levels considering the ability levels of the students (Author, 2015). The science high school is one such programme. The basic objective is to prepare high ability students in the fields of science and mathematics for the higher educational institutions in those fields.

The biggest difference between the programme in the science high schools and those of general high schools is related to content. The content of the courses is faster than the programme applied in the general high schools, there is more acceleration, challenge, abstract, and deeper work (Sak, 2010). The students of the 11<sup>th</sup> grade have to receive 37 hours of obligatory courses and 3 hours of optional courses, while the students in the 12<sup>th</sup> grade receive 36 hours of obligatory courses and 6 hours of optional courses, making a total of 40 hours a week (for the details of the programme; TTKB, 2015ba).

Those students who successfully complete the programmes take the university entrance exam which is executed nation-wide. The national university entrance exam measures knowledge and skills

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<sup>1</sup> *Common courses for 11<sup>th</sup> grades:* Language and expression, Turkish literature, education in religion and ethics, Turkish history of revolution and Kemalism, first and second foreign language, physical education, and counselling and guidance.

<sup>2</sup> *Common courses for 12<sup>th</sup> grades:* Language and expression, Turkish literature, education in religion and ethics, philosophy, traffic and first aid, first and second foreign language, physical education, and counselling and guidance.

that are gained through the courses in general education, and the exam does not differ based on students' cognitive level and programs they attend. According to the results of the exam, a central placement is implemented. The students decide to enrol at a university according to the results of the exam. For that reason, preparation for the examination has significant importance on the choice of programme content and teaching methods in scientific high schools.

### **Problem Statement**

The IBDP is applied in 4.583 schools worldwide. In Turkey, the IBDP programme was applied in 1994 for the first time, and has been employed in 46 high schools since 2007 (International Baccalaureate, 2017a). Although there is a rich international literature about the effects of the IB programme on gifted students, the analysis is from various dimensions. There are a limited number of studies which analyse its difference from the general curriculum. One of those studies was conducted by Poelzer and Feldhusen (1996). The researchers compared the academic achievements of students who received the IBDP programme at a higher level for physics, biology and chemistry courses, those who received the IBDP courses at a standard level, and those who were only taught the national curriculum. In the research of Hertberg-Davis, Callahan and Kyburg (2006), the opinions of the students related to IBDP were analysed. In consequence, it was found that there was no need for a great deal of thought in the programme within the context of general education, while IBDP had appropriate difficulty levels and the students had numerous opportunities which they were unable to access in the general education classes.

The IBDP is compatible with the Turkish education system. In the national literature, fifteen studies have analysed the effects of the IBDP programme. No study has been undertaken in relation to the comparison of students who follow the IBDP in Turkey with those who follow the national curriculum, either in terms of their academic achievement or an examination of their opinions about the programme. The opinions of the students related to a programme provide important clues about the social validity of that programme. Thus, such research is important in terms of obtaining the basic data required to determine the samples to be applied to obtain a high and perfect social validity about gifted students. Starting from this need, it was decided to conduct this research. The general objective of this research is to analyse whether the general curriculum and the IBDP have an effect on GPA (mathematics, foreign language [English], literature and the averages of science [physics, chemistry, biology] and year-end average scores). It also examines the advantages and disadvantages (limitations) of the national curriculum and the IBDP, according to the opinions of the students. Within this scope, answers to the following questions will be sought:

- 1- What are the advantages and disadvantages of the aforementioned programmes according to the opinions of the students enrolled in the IBDP programme and those who follow the national curriculum?
- 2- Do the academic achievements of the students of the IBDP programme (mathematics, foreign language, literature, science and year-end average scores) differ from those of the students who follow the national curriculum?

### **Method**

#### **The Design of the Research**

The research used the descriptive survey model. Among survey models, the descriptive cross-sectional design was employed in this study. Survey models are research approaches which aim to describe a past or existing event as it is (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2009). The reason for choosing the descriptive survey model in this study was to analyse the academic achievements of the students and their opinions related to the national and IBDP programmes.

## Study Group

The research study group consisted of 84 students who attended Turkish Education Foundation İnanç Türkeş Private High School (TEVITOL) during the 2016–2017 academic year. The aforementioned institution is the only school in Turkey at high school level which evaluates the students' intelligence scores and all students in attendance are gifted. The school employs the curriculum of science high schools and the IBDP in parallel. To select the students, they were required to receive +2 *Sd* or higher scores from at least one of the WISC–R IV verbal intelligence test, performance and total scores, and be free from adaptive and behavioural problems. The student prefers which program to register. All the students of the aforementioned school in the 11th and 12th grades were included in the study. Of the students who were enrolled in the IBDP, 19 (43.20%) were female, and 25 (56.68%) were male. Of the students who attended the national curriculum, 20 (52.40%) were female while 20 (47.60%) were male.

## Data Collecting Instrument

### Data collection form

In the study, both qualitative and quantitative data was obtained through a data collection form prepared by the researcher. Related to the quantitative data, the gender, class level, academic achievement and their status or being enrolled in the IBDP were collected by self-reported. The GPA of the students and their year-end average scores for the spring 2016–2017 academic year were considered. The scores of the students who were not able to remember their scores were determined from the school management. Regarding the qualitative data, the opinions of the students related to the advantages and disadvantages of both curriculums were collected through two open-ended questions. The aforementioned questions are as follows:

- 1-What type of advantages does IBDP/ National program provide to you?
- 2-What are the negative aspects of IBDP/ National program that you do not like?

### The Validity and Reliability of the Data

Throughout the process, from the collection of data in the study to its analysis, a number of precautions were taken in order to increase the validity and reliability. Before the application, the teacher, who was a graduate student of the researcher and also teaches to the research student groups, gave information related to the objectives of the study and its contribution to society. The students were encouraged to willingly participate in the study. While answering the research instrument questions, there was no limitation related to time, thus, it was aimed that the students answer as many open-ended questions as possible. The data was collected during the study time hours through face-to-face interviews.

To increase the external validity of the quantitative data, the strategy of consulting an expert was conducted. Within this scope, an expert's opinion was taken prior to the prepared of the application form. To increase the internal validity or cogency, the data was collected through written open-ended questions. Thus, there was an opportunity to analyse the data more than once without any loss of information. In order to increase the internal reliability or consistency, the consistency levels among the evaluations were analysed. During the calculations, the formula of "*Reliability = consensus/consensus + divergence X 100*" was employed. A reliability level of .70 and over indicates that the research data is reliable (LeCompte & Goetz, 1982, as cited in Yıldırım & Şimşek, 2011: 263). During the calculation, the researcher repeated the process of setting codes and establishing sub and main categories every two weeks. Afterwards, the sum of the frequency of the responses given in each category and sub-category was measured. At the end of the measurements, the general consistency of

the research was estimated as .87. Then, the codes presented by the researcher, sub-categories and the structures related to categories were presented to an expert who was experienced in qualitative studies. His opinions related to the consistency of the codes, sub-categories and categories. Considering the suggestions, two different opinions in two different sections were connected under a single expression since they contained similar meaning and the name of one of the sub-categories was changed to give the final form. The results related to the sub-categories and categories were enriched through a descriptive approach, employing the citations from the participants. To provide external reliability or confirmed availability, as will be mentioned in the next chapter, a systematic method was employed to decode and analyse the data. The internal validity of the quantitative data was analysed through use of the Cronbach Alpha internal consistency coefficient.

### **Decoding and Analysing the Data**

The quantitative data was analysed using the SPSS package program version 16.0. Related to academic achievement, the scores of the students for the courses of mathematics, foreign language, literature, and science, as well as their GPA were separately analysed. The score of foreign language was also considered. The average score of the science course was calculated employing the arithmetic averages of the courses physics, chemistry, and biology. The arithmetical average of all the courses (year-end average scores) considered for the GPA was evaluated according to the 100-point grading system. In case the results were significant between the compared binary groups, Cohen *d* was employed as the size of effect.

Qualitative data was analysed through inductive analysis, one of content analysis. The codings related to such type of analysis are employed to create a conceptual structure especially related to the non-hypothesized issues (Yıldırım & Şimşek, 2011). According to Stauss and Corbin (as cited in Yıldırım & Simsek, 2011: 227), an inductive analyze is required when there is not a theoretical baseline for examined concept. In content analysis, the answers of the participants related to the questions were analysed and those unrelated were extracted.

To codify and analyse the listed data, the three-stage procedure presented by Stauss and Corbin (1990, as cited in Yıldırım & Şimşek, 2011: 227) was employed. In the first stage of codifying, all data was reviewed and analysed line by line to select categories. In the following stage, sub-themes were established. This process contributed to the collection of data necessary to present the relationships between the categories. Afterwards, the relationships were categorized and labelled. In the final stage, which is known as selective codifying, the main categories on the horizontal axis were defined. It was aimed to establish a system throughout the study by employing sub-themes which emerged in relation to the answers for the advantages and disadvantages of the national curriculum and IBDP, and employing concepts as similar as possible. Related to the presentation of the data, the intensity (different opinions), capacity for explanation (thematic compliance), diversity and extreme examples were considered in the selection of the citations (Carley, 1992, as cited in Memduhoğlu, 2012). The opinions of the participants were codified in the forms of S1, S2, S3 ... S86 to protect the identity of the students.

## **FINDINGS**

In the research, the answer to the question: “What are the advantages and disadvantages of the curriculum according to the opinions of the students who follow the national curriculum?” was investigated. The emerging themes and sub-themes were formed in accordance with the answers of the participants within the scope of the objectives of the research. In Table 1, the distribution of the students’ opinions to the themes and samples of the participants’ opinions is given.

**Table 1.** The Themes, Sub-Themes and Citations from the Sample Expressions Related to the Advantages and Disadvantages of the National Curriculum

	Themes	Sub-themes	Sample expressions of sub-themes	Examples of the participants' opinions
Advantages	Personal development	Building discipline	Habit of studying regularly, time-planning, self-directed learning, efficiency of solving tests...	<i>The sole contribution of the curriculum to me is the study discipline. Because, being prepared for two years later requires a very big plan, motivation and discipline. Those aspects of the curriculum improved my ability (S57).</i>
		Development of skills and general culture	Selecting various courses, development in the general culture, multi-directional development, gaining information on various fields, exploring the fields of interest...	<i>...obviously, I think that the information I learn is useful for me. For example, mathematics and geometry improve our skill to see events from different perspectives. Or, we explore ourselves in biology through learning the human body and systems. In the literature course, we analyse our own language and our skills improve (S60). Since I am a student of equal ability and there are more of the verbal courses, such as history and philosophy, than the courses in science, I think the curriculum contributes to the general culture greatly (S47).</i>
	Thinking skills	General thinking skills	Thinking faster, development in solving questions, development in the skill of memorizing, analytical thinking...	<i>My skills of thinking faster and solving tests faster improved. I can find the correct option in five seconds (S79).</i>
	Programme	Vision	The targets are apparent, the limits of the issue are distinct, the criteria of success are simple and distinct, the probability of receiving a scholarship increases, preparing for the university entrance exam...	<i>Knowing what is expected from me (the OSS score) and the criteria for my acceptance to university, and seeing the rough lines of the road in front of me gives me comfort (S61). Frankly, its biggest contribution is the lack of risks about finding scholarships or being rejected (S78).</i>
		Management	It is free of charge, comfortable and free of stress...	<i>...If you ask me the reason why I don't take the IB, I have no money. IB means abroad and that means money.... We are comfortable, we aren't stressed. We have less responsibility than compared to IBs (S47).</i>
	Personal development	Development of skills	Exploring the fields of ability, development of the fields of ability, passiveness of the student, limitations for the freedom of selecting courses, lack of encouragement for intellectual development, obligation for working out of the fields of interest...	<i>I don't think it provides me with the necessary information about life. Instead of guiding people according to their skills, it draws the outlines of their dreams by testing them through an examination which consists of only required issues and courses... Instead of studying in line with my skills and desires, I memorize the types of questions and try to avoid being deceived (S53).</i>
Disadvantage	Programme	Structural	It is an examination-oriented system, a memorization-based system, a competition-based system, too much	<i>It is a completely routine programme. It is a system which allows nothing but studying lessons and solving tests; it ranks people according to the period of time they study and places them in a so-called rank</i>

		daily class load, an intensive and compressed curriculum... (S51).	
	Functional	No applications are employed, being detached from real life, unable to prepare for real life...	<i>The daily course hours should be decreased. The students should be more active during the lesson. Through this system, we learn a lot but we instantly forget ... I won't study unless my family forces me ... The system is so bad. There is theory but there is no practice... (S64).</i>
Thinking skills	Limitation	Quitting questioning, unable to develop thinking skills, dulling the creativity...	<i>...I stopped questioning things and turned to a mechanism only focused on doing something. I think less and I memorize more (S51).</i>

When the responses of the students were considered, three themes related to the advantages of the national curriculum emerged (see Table 1 for the details). The first theme is their personal development. Personal development has the sub-themes of providing discipline, and the development of talent and general culture. Related to providing discipline, the planned activities conducted within the scope of being prepared for the university entrance exam were emphasized. Another sub-discipline employed emphasized that the courses within the scope of the national curriculum supported the talents and development of general culture. One of the students commented:

*“...Obviously, I think the information I get is useful for me. For example, mathematics and geometry improve our ability to see events from various perspectives. Or, we explore ourselves through learning about the human body and systems. In the literature course, we analyse our language and our skills develop (S60, April 14, 2017).”*

Another theme was the skill of thinking, which included the sub-theme of general thinking skills. Implying the performance at solving tests, the students stated in this sub-theme that their performance of rapid thinking, and making decisions increased. The third theme was the programme which included sub-themes such as vision and management. Both sub-themes placed emphasis on the university entrance exam. It was stated that the national curriculum helped to make plans for university exams, uncertainties were abolished and the targets were concretized. When compared to the IBDP, the programme had lower costs, was comfortable and there were low levels of stress.

The disadvantages of the national curriculum emerged under three themes. First was the personal development with a sub-theme of self-improvement. The students assumed the national curriculum to be a programme within the axis of university entrance exams. S53 expressed his opinion related to the issue as follows:

*“I don't think it equips me with the necessary information. Instead of directing people in accordance with their talents, it draws the outlines of the dreams of them by forcing all of them to take the examinations which employs only the necessary courses and issues ... Instead of studying in accordance with my talents and desires, I prefer memorizing the question types and avoid being deceived (S53, April 14, 2017).”*

The second theme was the programme, with two sub-themes: structural and functional. Both themes were seen to be within the context of the structure of the national curriculum and the university entrance exam. Related to the third theme, thinking skills, the students determined that the national curriculum blunts thinking skills. S51 expressed his opinion by saying “...I stopped questioning the things and turned into a mechanism focused on exercising. I think far less and I memorize more. April

14, 2017.” In Table 3, the frequencies and percentages of the opinions related to the advantages and disadvantages of the national curriculum are given.

**Table 2.** The Frequencies and Percentages of the Themes Related to National Curriculum

	Themes	Sub-themes	f	%
Advantages	Personal development	Providing discipline	14	36.84*
		The development of talents and general culture	7	16.67
	Total		21	55.26
	Thinking skills	General thinking skills	4	10.53
		Total	4	10.53
	Programme	Vision	11	28.95
		Management	2	5.26
Total		13	34.21	
General Total		38	100.00	
Disadvantages	Personal development	Development of talents	14	22.22
		Total	14	22.22
	Programme	Structural	41	65.10
		Functional	4	6.35
	Total	45	71.43	
	Thinking skills	Limitation	4	6.35
		Total	4	6.35
General Total		63**	100.00	

\*Percentages were estimated through the sum of responses.

\*\*General total may be more than 42 since the students gave more than one answer.

Related to the advantages of the programme, 38 opinions were presented while 63 different opinions were obtained related to the disadvantages (see Table 2 for the details. Of all the students, 14 (33.33%) stated that the national curriculum had no advantages at all, while 9 (21.43%) stated that there was no disadvantage at all. As for the advantages, the theme of personal development was mentioned most frequently, while thinking skills were mentioned the least frequently. On the other hand, the theme of programme was mentioned most frequently as a disadvantage, while thinking skills were mentioned the least frequently. In the study, the answer to the question: “What are the advantages and disadvantages of the curriculum in accordance with the opinions of the students who follow the IBDP curriculum?” was investigated.

**Table 3.** The Citations from the Themes, Sub-Themes and Sample Expressions Related to the Advantages and Disadvantages of IBDP

	Themes	Sub-themes	Sample expressions related to sub-themes	Examples of participants' opinions
Advantages	Personal development	Providing discipline	Developing study habits, self-directed learning, sense of responsibility, problem solving, coping with pressure, group work, and stress management...	<i>Problem solving, time management, crisis management, my competencies developed (S43).</i> <i>I learned crisis management, the ability to do much work in a short time, coping with sleeplessness and fatigue, and standing on my own feet (S42).</i>
			Development of talents and general culture	Concentrating on the fields of interest, freedom to choose, development in general culture...
	Thinking skills	Critical thinking	Development in the ability of critical thinking,	<i>It provided me with different points of view from various perspectives from literary</i>

		assessing the events from various perspectives....	<i>analysis to mathematical thinking. Especially thanks to the literature and economics courses, I think I can see the events from different perspectives and interpret them accordingly (S25).</i>
	General thinking skills	Analytical thinking, interrogative thinking...	<i>....my skills to express things I have learned and questioning improved. Being away from multiple choice exams which I had encountered earlier forced me to use the information by applying it (S28).</i>
Disadvantages	Programme	Structural	Detailed curriculum, profound curriculum, multi-directional curriculum, different perspectives...
			<i>Thanks to its detailed curriculum structure, it provided a positive effect in giving an international perspective... It is an education system based on interpretation not on memorization (S34). I think that its major contribution is the content of the curriculum of the programme. Opposite to the other curriculum, it has a philosophical depth which is rather useful. It reaches the notion that "The way to the result is as important as the result itself" (S73).</i>
		Functional	Society-based activities, connections with real life, interactive education, education abroad, a better future...
	Academic	Abilities of scientific process	Designing experiments, researching, writing essays and reports, reviewing books, preparing projects, employing scientific resources
	Program	Application	Intensive work load, a tiring, costly and, risky selection
		Content	International assessment
			<i>I think it provides me with a huge contribution especially on experiments and research. I improved my ability in designing experiments and writing reports and doing research. Instead of solving tests, I can write, make an analysis and read books [related to the topic] ... (S27). The work load is too much and you cannot feel sure about what you will encounter. From now on, I can follow the stage very seriously (S38). When I reconsider it now, I find it a risky business. The OSS exam is more boring but more guaranteed. I caused problems financially for my family (S36). Obviously, I find many aspects of the programme rather unnecessary: International assessments. Although the assessment of some courses is useful, Mathematical exploration [review] is actually something like death. Actually, the abundance of the assessments causes serious damage to the psychology of the students. I, personally, drew closer to depression while I was trying to write my extended essay (S37).</i>

The opinions of the students related to the advantages of the IBDP were classified under the titles of four themes (see Table 3 for the details). The first theme was personal development with sub-themes such as providing a discipline and talents, as well as general culture. Related to providing a

discipline, the students emphasized that their problem-solving, time management, crisis management and self-discipline improved. Within the context of development of talents and general culture, the students were given the opportunity of choosing courses which allowed them to focus on their talents.

The second theme was thinking skills, which consisted of sub-themes such as critical thinking and general thinking skills. The students emphasized that their ability to see events from different perspectives improved their skills of critical thinking. One of the students gave the following comment: *“It provided more, different perspectives from numerous dimensions from literary review to mathematical thinking. Especially, the courses of literature and economics allowed me see and interpret the events differently (S25, April 12, 2017)”*. Another sub-theme, general thinking skills, was said to improve the efficiencies of the students related to questioning and analysing the events. S28 stated following:

*“... My ability of expressing the things learned became better and seeing the events from a broader perspective and questioning them was improved. Being away from the multiple choice exam system which I had encountered previously encouraged me to employ my knowledge through applying it (S28, April 12, 2017).”*

The third theme was the programme, consisting of sub-themes such as structural and functional. In the sub-theme of structural, the philosophical depth of the programme was highlighted, and it was also stated that it was a programme structure based on interpretation, not memorization. S73 expressed his opinion as follows: *“It is good that it not only supports studying [lesson] but also the activities out of school ... on the contrary to the other [national curriculum], it teaches information that will be useful after I graduate (S73, April 14, 2017).”* Within the context of the functional sub-theme, it facilitates studying abroad, is a society-based programme and employs functional information.

The fourth theme was academic which contained the sub-theme of scientific process. In this sub-theme, the students noted that their skills of designing an experiment, undertaking research and writing reports were improved. S27 expressed his opinion as follows:

*“I think it provides me with a huge contribution, especially on experiments and research. I improved my ability in designing experiments and writing reports and undertaking research. Instead of solving tests, I can write, make an analysis and read books [related to the topic] ... (S27, April 12, 2017)”*.

The disadvantages of the IBDP emerged under the theme called programme, which contained the sub-themes such as application and content. As for the sub-theme of application, it was emphasized that it involved an intensive work load, was tiring and costly, and was a risky choice. S38 expressed his opinion as follows, *“The work load is too much and you may not know what exactly is waiting for you. From now on, I can follow the courses. April 13, 2017.”* while S36 stated as follows: *“When I consider it now, I find it a riskier business, SSS is more boring but it is more guaranteed. I risked my family financially. April 11, 2017.”* Related to the sub-theme of content, international assessment was regarded as unnecessary. S37 had striking opinions:

*“Obviously, I find many aspects of the programme rather unnecessary: international assessments. Although the assessment of some courses is useful, mathematical exploration [review] is actually something like death. Actually, the abundance of the assessments causes serious damage to the psychology of the students. I, personally, drew closer to depression while I was trying to write my extended essay (S37, April 11, 2017).”*

**Table 4.** The Frequencies and Percentages of the Themes of IBDP

	Themes	Sub-themes	F	%
Advantages	Personal development	Providing discipline	25	22.73*
		Development of the talents and general culture	16	14.54
	Total		41	37.27
	Thinking skills	General thinking skills	9	8.18
		Critical thinking	11	10.00
	Total		20	18.18
	Programme	Structural	6	5.45
		Functional	24	8.18
	Total		30	13.64
	Academic	Abilities of scientific process	19	17.27
Total		19	17.27	
General total		110**	100.00	
Disadvantages	Administrative problems	Application	13	86.67
		Content	2	13.33
	Total		15	100.00
General total		15	100.00	

\*The percentages were calculated according to the total of the responses.

\*\*Since students gave more than one answer the general total may be more than 46.

In the study, 110 different opinions were obtained related to the advantages of the IBDP. Among the students, two (4.55%) stated that the IBDP had no advantages, while 34 (77.27%) claimed that it had no disadvantages. Related to the advantages, personal development was the most frequently mentioned theme, while academic was the least popular. Related to the disadvantages of the programme, all of the students' opinions consisted of administrative issues (it contains a heavy work load, it is costly and risky and employs limited international evaluation).

Within the scope of the research, the second question in the study analysed the GPA and year-end average scores of the students who attended the IBDP and those who followed the national curriculum. Before conducting the analysis, the set of quantitative data was analysed in terms of missing values and normality assumptions. There was no deficient value and the coefficients of stickiness and skewness covered the assumptions of normal distribution (the range of skewness:  $-.89 - .23$ ; the range of kurtosis:  $-.12 - .25$ ).

**Table 5.** Paired t-Test Table

Courses	Curriculum	n	$\bar{x}$	Sd	Df	t	p
Mathematics	IBDP	44	88.95	6.86	64.450	.180	.860
	National	42	88.57	12.05			
Foreign language	IBDP	44	93.98	4.75	63.970	3.972	.00*
	National	42	88.07	8.44			
Turkish literature	IBDP	44	92.36	5.13	68.050	1.060	.293
	National	42	90.79	8.24			
Science courses	IBDP	44	90.77	7.77	84	-.372	.710
	National	42	91.36	6.72			
Grade point average	IBDP	44	93.02	3.69	84	2.454	.016*
	National	42	90.74	4.89			

\* Significant at the level of  $p < .05$

When the students who attended the IBDP were compared to those who followed the national curriculum, according to their GPA, no significant difference was observed between mathematics, literature and science courses ( $p > .05$ ). Related to the GPA of foreign language and year-end average scores, there was a significant difference on behalf of IBDP ( $t_{(63,97)} = 3.972$  and  $t_{(84)} = 2.454$ ,  $p < .05$ ;  $d = .86$  and  $.53$ , respectively). It was determined that a high level of effect was observed in foreign

language, while there was a moderate level for year-end average scores. Besides, Cronbach's alpha coefficient of the year-end average scores were calculated as .80 for IBDP and to .78 national curriculum.

## Discussions and Conclusions

The most frequent criticism of the IBDP in other research was the work load. In their study, Taylor and Proath (2006) stated that work load is a factor which is intensive and unmanageable and influences the psychological health of the students negatively. In another group of studies, the density of the work load was determined as the most frequent limitation (Hertberg–Davis, Callahan & Kyburg, 2006; Foust, Hertberg–Davis & Callahan, 2009; Hertberg–Davis & Callahan, 2008; Tarc & Beatty, 2012). Those results are in line with the findings of this research. The students have to make an extra payment to enrol in the IBDP and take an international exam. This leads to the observation that the programme has disadvantages. In the studies by Smith (2009), Wright and Lee (2014), Hertberg-Davis and Callahan (2008), the IBDP was criticized for being costly. Those findings coincide with the results of this essay.

Higher levels of student satisfaction are in line with the results of the studies by Teke (2015) and Paris (2003). In the post graduate study of Teke, it was observed that students attending the IBDP programme have higher satisfaction levels than their peers attending the national curriculum. Paris (2003) determined that the majority of students found the IBDP more qualitative when the opinions of the students related to the national curriculum were compared to those of the students related to IBDP. The satisfaction levels of the students related to curriculum increase so long as their needs and expectations are met (Şahin, 2009). According to those results, it can be concluded that the IBDP meets the concerns, needs and expectations better when compared to the national curriculum.

The study contains some clues which indicate that the critical thinking skills of the students who attend IBDP improved. As for the national curriculum, such a sub-theme was not observed. On the contrary, the national curriculum was criticized by some students stating it limited their critical thinking skills. In the study by Aktaş and Güven (2015), the critical thinking skills of the IBDP students who received the score of A1 in the literature course (mother language) had higher values than the students of the national curriculum. In the studies by Culross and Tarver (2007), Sagun et al. (2016) and Demir (2009), it was apparent that the critical thinking skills developed depending on the IBDP programme. Those results indirectly support the findings of this study. According to Hill (2006), the aforementioned results were obtained because a detailed and interrogative perspective related to the universal culture was presented through the Information Theories course and, thus, the development of core cognitive skills, as well as the development of critical thinking skills was supported. The theme of academic was included in the advantages of the programme determined by the students of the IBDP. The long-term research nature may be the basic reason. Namely, the scientific processes of the IBDP students such as designing experiments, undertaking research, writing reports, reviewing books, preparing projects and using scientific resources are supported more than those of the students of the national curriculum.

One of the striking results that emerges in the study indicates that the IBDP develops the students' skills in relation to self-directed learning, taking responsibility, coping with pressure, management of crisis and stress, dimensions of sense of responsibility, and time management. Poelzer and Feldhusen (1996) stated that the teachers of IB students regarded that their students displayed higher levels of attitudes from the dimensions of "*passion of duty, interrogating, independence, skills of seeing the connections between the concepts, taking over responsibility related to learning*". The results of the aforementioned research support the findings of this study. In some research, IBDP students were found to develop time management skills (Grumurty, 2016; Sagun, et al., 2016; Tarc & Beatty, 2012; Taylor & Proath, 2006), the skills of problem-solving and coping with stress (Grumurty, 2016), studying habits (Tarc & Beatty, 2012; Sagun, et al., 2016) and perception of academic self-

sufficiency (Sagun, et al., 2016; Shaunessy et al., 2006). Those findings are also supported by the results of this research.

When the findings are evaluated in general, the differentiation of students' opinions related to the advantages and disadvantages of IBDP and the national curriculum may be the result of CAS, the courses Information Theories and Extended Essay which exist in the IBDP but do not exist in the national curriculum. Namely, the interaction of the students with individuals from different cultures, economic levels and social strata is supported through CAS activities, thus their international perspectives (Hinrich, 2003) and skills of leadership, cooperation and problem-solving increase (Resnik, 2009). In the Information Theories course the students are supported in reflecting about information in different ways, considering the role of information by considering their own culture and world cultures (Wright & Lee, 2014). In the study of Extended Essay, the students are expected to implement their academic skills in practice and mentally explore them through the processes of researching and writing (Inkelas et al., 2013).

One of the general reasons for the high level of students' satisfaction with the IBDP when compared to the national curriculum is that more difficult tasks exist in the IBDP than the national curriculum (Hertberg-Davis & Callahan, 2008; Hertberg-Davis et al., 2006). Due to the cognitive differences, gifted students preferred challenging tasks more than their peers (VanTassel-Baska, 2003). The findings of this study support those results. One of the other major issues analysed in this study was whether the students who attend the national curriculum and the IBDP differ in terms of academic achievement. The results of analysis indicate that the scores of the students who attend the IBDP for the GPA of English course and year-end average scores was higher than their peers who attend the national curriculum. Within the context of the IBDP programme, the students receive 22 hours of lessons per week during the preparatory class, 8 hours in the first class and 5 hours of lessons during the second class. In the national curriculum (science high schools), the English course is 22 hours of lessons per week during the preparatory class and 5 hours during the first and second year. In both curriculums, the courses are taught in English. Although the lesson periods have similar levels for both curriculums, the students of the IBDP programme obtained higher levels of achievement since their other written activities may be conducted in English. Since no data was obtained related to the English levels of the students at the beginning, no comments were made related to the other factors.

No significant difference was noted between the scores of the students in the courses of mathematics, literature and science. In the study by Poelzer and Feldhusen (1996), the academic achievement of the students who attended the IBDP with high levels for the courses of physics, biology and chemistry was found to be higher than that of the students who attended the national curriculum. The results of the science course are contradictory to the results of the aforementioned study. According to the researcher, the contradictory factor may be explained within the scope of the students' access to the talents and educational opportunities. In this study, both groups of students compared attended the same school and they jointly received some of the courses. For example, the common courses during the 9th and 10th years were mathematics and science, while the common courses during the 11th and 12th years were language and expression and Turkish literature. The significant difference in the aforementioned lessons may be for that reason. The significant difference in the overall performance related to lessons may be a reflection of different courses taken incidentally to the curriculums. In another study, collecting data related to the attitudes and motivations of the students towards the courses and some variances, such as the methods of teaching which may influence the academic achievement, may help in access to detailed information related to this issue.

This research has some limitations. First, limitation is the number of participants. The data was collected from a limited number of participants and at a single school. The reason for this is that students who had been identified as gifted consisted of the subjects of the research. The only institution in Turkey which accepts students in accordance with the results of intelligence tests and consists of only gifted students at the level of high school is TEVITOL. In the aforementioned institution, data was collected from all of the students in the first and second grade. For that reason, it was quite difficult to enlarge the study group.

Another limitation of the study is related to the content of the qualitative data obtained in the study. In this study, data was collected through open-ended questions in order to reveal the differences depending on numerous variances in a wide range which had not previously been analysed in Turkey. Considering all the factors within this framework, it is naturally difficult to profoundly and multiply reveal the advantages and disadvantages of the IBDP and the national curriculum through the information accessed. For that reason, it can be stated that general conclusions were obtained related to the advantages and disadvantages of both programmes. Paying regard to this study as a pioneer research or preliminary results, profound information may be obtained through considering each of the emerging themes and sub-themes as research topics in different studies.

One of the other limitations of the study is related to the academic achievements of the students. Students take some common courses. This may influence the results related to the GPA of the students. In another future study, both curriculums could be compared by collecting comprehensive data related to deficiency courses and this may lead to clearer results related to the academic achievement of the students. Moreover, the findings that emerged in the study (acquisition of academic achievement, the development of critical thinking skills) are limited to the opinions of the students. The differences between the opinions of the students could be analysed through performance-based tests and more precise results may be revealed related to both curriculums.

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