



## A Comparative Study of Educational Problems of Exceptional Talents in Two Iranian Top-Ranked Universities (Shahid Beheshti University and University of Science and Technology)

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### ABSTRACT

*If the education system does not have the right attitude to cultivate exceptional talents and does not make any effort to identify and solve their problems, its negative impacts might outweigh the positive impacts. Therefore, it is extremely important to pay attention to the problems of exceptionally talented students. The present study aimed to compare the educational problems of exceptional talents regarding the exceptionally talented students' views at Shahid Beheshti University<sup>1</sup> and University of Science and Technology<sup>2</sup>. Besides, the definitions and methods of identifying and supporting exceptional talents in these two universities were presented. Finally, some appropriate solutions and strategies to solve the problems have been taken into account.*

*In Iran, the most obvious support for exceptionally talented students is to facilitate their further education. However, the regulations related to exceptional talents show that the admission capacity of talented schools without taking the exceptional talents test has increased compared to previous years. On the other hand, the number of applicants for higher education is decreasing compared to previous years (from 950000 applicants in 2014 to about 471000 in 2022)*

*Considering the number of universities in Iran, along with the increase in the admission capacity of exceptional talents, more students are known as talented students which might reduce the value burden of exceptional talents and elites.*

*Another issue which has been raised is: How much sufficient are the criteria to determine the talented and elite students? By examining the criteria to determine the talented students in the studied countries and Iran, it is suggested that multiple and stricter criteria be considered to determine the talented and elite students, and more serious and targeted measures be taken to support these valuable assets. It should be noted that extensive and supportive field research is needed to consider and set the criteria to determine exceptional talents and opportunities to develop them. They are important to make the best decisions and not to be satisfied just with the experiences of other countries in this field.*

*It is worth mentioning that today the National Elites Foundation provides valuable material and spiritual support to elites and exceptional talents. Therefore, it is suggested that in-depth and extensive studies be done to examine the students' satisfaction with the methods of supporting exceptional talents and their expectations.*

The Shahid Beheshti University of Iran is one of the best universities in the country. It admits students in all three <sup>1</sup> high school fields of study including Mathematics, Science, and Literature among the top students in Iran. According to QS World University Rankings (Kwakarelli Simonds), Shahid Beheshti University ranked fifth after Sharif, University of Science and Technology, Amirkabir, and Tehran universities in 2017 and 2018 for two consecutive years, respectively in the ranks of +701 and 1000-801. According to the Times Higher Education ranking system in 2016-2017, Shahid Beheshti University was ranked +1801. Also, according to the documents published by the Elite Foundation, it was the second selection of the Iranian exceptionally talented students in the fields of medicine and dentistry from 2006 to 2016.

University of Science and Technology is one of the best technical engineering universities in Iran. It was ranked <sup>2</sup> first in the Times rankings of the world's universities with a range of 251-300 and also ranked 87th in the best universities in Asia. Also, according to the documents published by the Elite Foundation, it was the fourth selection of the Iranian exceptionally talented undergraduate students from 2006 to 2016.

*Keywords:* Exceptional talents, Student, University, Educational problems

## INTRODUCTION

The issue of developing exceptional talents and providing special education programs for children and adolescents with incredible mental abilities and superior or above-average intelligence compared to their classmates has been raised in many countries. It leads to contradictory beliefs according to the common values of society.

In other words, regarding the important roles the gifted children play in the scientific and economic development of some societies, and also due to humanitarian reasons, officials of the education system maintain a positive attitude towards exceptionally talented students and plan special programs for them. However, in some other societies, investing in and paying special attention to especially talented students is considered a form of elitism, contrary to the goal of social equality. Proponents of this ideology reject the attention to the exceptionally talented students as their natural right of superiority, arguing that educational interventions should be made in favor of educationally disadvantaged children and those who need more support.

Some questions raised by many critics are: 1) what is the role of higher education, as a foundation that should model ethics and support the scientific and industrial activities of the country, in supporting and flourishing the exceptional talents of society, especially the talents that are recognized in high school and then go to the universities? 3) What are the required measures and facilities to achieve the desired goals? What have been done at universities to ensure the progress and success of students in this group?

The answer to this question is that higher education is basically for exceptional talents, and a review of the situation of universities in other countries reveals that governments are not able to pay high tuition of the university for all applicants, and if they are, it is neither logical nor reasonable. These educational institutions should provide the ground for the education of young people who have high capacity and talents and can meet the costs that society has paid for their socio-economic development and progress. Thus, if apart from finding exceptional talents another group is found in universities, the academic selection system is questioned. In this way, the idea of separating talented students from ordinary ones and providing special services to this group of students, which have their advocates, loses its relevance. It makes sense to set up a university facility for talented students who can complete their studies in a short period or take undergraduate and graduate courses at the same time with special conditions and equipment.

In this regard, to attract more special talent and prevent brain drain, faculties change their environment to a place with professionally attractive scientific staff, and educational and research facilities. Each faculty has a reputation in a special field and it should be centrally applied for education and research by talented and interested students in this field. Another step in supporting exceptional talents at the university is to set up a scientific research association where especially talented students are members to create a personalized advisory system.

However, society's expectations for higher education go far beyond providing professional services to a limited number of students. It may lead to an artificial classification of students and undermine the credibility of national higher education. All societies tend to eliminate groupings and integrate education, but in the case of such a classification, higher education must be responsible for its social consequences.



Higher education plays a role in working with other educational infrastructures in society to solve problems and create change and innovation by investigating and studying the problems associated with general education in the country and their shortcomings and inadequacies.

Some of the higher education measures in collaboration with the Education system that fit the great responsibility of this educational foundation are:

1. Carrying out studies and research by the faculty of universities in the form of in-practice research in cooperation with school teachers to create favorable conditions for education in schools to timely and accurately identify exceptional talents
2. Carrying out studies and examining the most effective methods for educating exceptionally talented children and adolescents and designing educational facilities appropriate to these methods. In this case, it is necessary to identify which program is more appropriate regarding the social values and facilities as well as the student abilities, from a wide range of support measures for talented children and adolescents
3. Providing specialized training courses in various fields of study (mathematics, physics, and biology) at the university by professors and specialists for the use of gifted high school students. In this case, the university can complement the services provided in high schools through space, specialized staff, and educational facilities
4. Making cooperation between Universities, Teacher Training Centers, and the General Directorate of In-Service Education in setting up educational programs for teachers to create a profound change in their attitudes toward dealing with individual differences of students in the classroom and school

Although schools and educational centers in Iran often have teachers with considerable teaching training and experience, these teachers have not received comprehensive training on the mental needs, expectations, and feelings of gifted students and they are unable to adapt teaching methods and deal with them.

Since not everyone can manage the class of exceptional talents and develop their abilities and teach them, the education of exceptionally talented students requires special teachers' characteristics and abilities including mental superiority, empathy, sympathy, acceptance, learning ability, flexibility, capacity to deal with complexity, patience, etc. Therefore, universities can help determine criteria in selecting qualified teachers and be effective in cooperation with institutions related to the supply and training of human resources in education to transfer and exchange the latest scientific research on teaching-learning methods.

5. Conducting research with systematic observations and providing support plans and programs not only for gifted children and adolescents but also for all students who cannot get the most out of educational opportunities in school due to the lack of such programs. Some of the exceptional students can be the ones who have limitations in learning due to physical or mental disabilities, students with special problems (slow learning, restlessness, low motivation, etc.), and students in deprived areas with economic, cultural, and social shortcomings of their parents are more exposed to academic backwardness than others.

Since recognizing the exceptional talents of a country and providing effective solutions to cultivate their abilities are considered the necessities of cultural and scientific independence of any nation, it is impossible to deny the effective role of talented, creative, and intellectual elites in sustainable development of the country. Rapid changes take place in the age of science and technology in various fields, so in the age of science, the life of human societies is based on



thought and thinkers and scientists of each society as brain cells of the same society have a fundamental role in the production of thought and knowledge. Thus, to keep them alive and healthy, it is necessary to plan and invest in nurturing and preserving brilliant thinkers and exceptional talents. This is especially important in Iranian society with ancient civilizations, scientific and cultural celebrities, and influential scientists while evidence of their talents does not require examples or explanations.

It should be borne in mind that the lack of an appropriate education system and trustee organization for talented people in higher education has led to the potential of the idea not being fully exploited in developing countries (including Iran). Even though most of the ideas and intellectual power of developed countries come from developing countries, these societies do not take basic and regular measures in this regard.

It is very important to improve the achievement of educational goals and train skilled people which is possible through determining the educational problems of students and then taking action to solve them. Meanwhile, it is necessary to make constructive changes by reviewing the support regulations and strategies to identify and determine exceptional talents and define the “elite” concept, gain basic information about the current situation, and also to determine the students' attitudes toward the provided services and regulations. These studies and information can strengthen the positive factors and correct the negative factors to achieve the students' satisfaction. Meanwhile, talented students need support, especially because of their special abilities, to make better use of their abilities. Regarding the small number of studies done on the problems of exceptional talents and due to the importance of recognizing the problems to solve them, this comparative study aimed to examine the educational problems from the perspective of exceptional talents at Shahid Beheshti University and University of Science and Technology.

#### **Definition and determination of exceptionally talented students**

Recognizing exceptional talents and providing efficient and effective solutions to cultivate their abilities is an important step towards the scientific independence of each country. University education is the gateway to employment and participation in the productive growth of society. Therefore, the identification and cultivation of elite students and top talents to create a productive society is not only very important but also essential. Talented students have a high ability to process information, identify problems and solve problems. They bridge the gap and come up with ideas through questions to come up with innovative solutions quickly and creatively (Sternberg 1985).

It has always been one of the most controversial issues to identify exceptionally talented people. There are many reasons for the absolute or relative belief in talent. More recent models emphasize the relativity of talent and relate it to issues such as a person's background and education level (Van Tassel-Baska 2007).

American Education Act of 1988 defined the talented and gifted children as children and adolescents who have evidence of high ability in areas such as intellectual, creative, artistic, or leadership skills, or in specific scientific fields which need services and activities that are not normally presented by the school to develop such abilities.” In 1991, this definition was revised to indicate that exceptional talent can occur in all groups and cultures and is not necessarily seen in test scores (Pirto 1999) Renzoli argued that talented individuals have at least four basic



characteristics that are interrelated: 1) General talent, 2) Serious commitment to work, 3) High level of creativity, and 4) Strong personality organization (Momayezi, et al. 2012). “Talented people are those who are high performing because of their outstanding abilities,” said Marland, chairman of the American Talent Education Commission. Therefore, these people need different educational programs and services to pay their debt to themselves and society (Marland 1972, quoted by Mohammad et al. 2013)

There are several criteria for the identification and verification of being an exceptional talent. In the United Kingdom, for example, criteria such as academic status, attitudes toward the field of study, extracurricular activities, interests, personality, motivation, and verbal and communication abilities are considered for admission to medical school (McManus 1998). Brown et al. (2005) enumerated the criteria to identify exceptional talent as individual statements, continuous evaluations, multiple identification criteria, and contextual factors.

A study conducted at a university in New Zealand examined the views of faculty members and students on the exceptionally talented student (Garth & Ruby-Davis, 2014). According to the faculty members and students' points of view, talented students earn A+ and A++ scores in the course and they are seriously involved in teaching and learning activities”.

Another implication was that talent is innate. However, both students and professors pointed out that getting good scores indicates one's talent. Some students believed that because of the scores they get in exams and assignments, they are known as top exceptional talents. However, students argued that other factors could potentially be important. Some professors stated that they identify exceptionally talented students by observing and paying attention to their interactions, the questions they ask, and also high-level thinking skills.

The students who participated in this study were also aware that they could get more attention from other students by participating in the classroom, especially by being willing to ask and answer questions. In general, an exceptionally talented student is defined as someone who has effective learning and study strategies and understands concepts quickly and easily.

Respondents stated that exceptional talents have many abilities. Exceptional talents can study in two different fields of study and are talented in various fields such as music, sports, and cultural subjects. The characteristics of the top talented students found in this study are persistence and insistence on learning, curiosity, enjoyment of challenges, love of learning, satisfaction from hard work, self-regulated learning, and eagerness to learn. The characteristics that were mentioned by many people are: talented students are creative, problem solvers, and innovative. Many professors stated that talented students tend to be recognized and noticed by professors. They like to take advantage of opportunities and benefits such as summer scholarships and summer jobs or collaborate on professors' research projects. Some professors and students participating in the research introduced the talented student as a multi-talented student. A multi-talented student is defined as a student who has superior abilities and personal characteristics in various fields inside and outside the scientific field. They also cited the outstanding skills of individuals, personal initiative, and leadership abilities as indicators of exceptional talent for undergraduate students.

According to Davis et al. (2011), effective procedures to identify exceptional talents include giving widely used and standard tests. According to Hahn and Marvin (2000), to identify exceptional talents properly and successfully, the followings should be considered:

A) Giving a clear definition of exceptional talents



- B) Avoiding the absolute use of the score
- C) Using multiple criteria
- D) Using different tools to evaluate different areas of intelligence
- E) Paying attention to the fact that talent can manifest in different forms
- F) Repeating assessments to identify other exceptionally talented students

In the Iranian strategic document in the affairs related to the elites (2012), the elite and the exceptional talents are defined as follows:

**Elite:** This concept refers to a prominent and efficient person who has a significant impact on the creation and development of science and technology, art, literature, culture, and management of the country within the framework of Islamic values. Besides, his/her activities are on one hand consistent with his/her intelligence, creativity, motivation, and intrinsic abilities; and on the other hand, according to the acquired expertise, specialties, and capabilities that can accelerate the progress and development of the country.

**Exceptional talent:** It refers to those who, due to their unique qualities, may reach the elite level, but have not yet provided the necessary evidence for the complete identification and deployment of their extraordinary talent.

#### **Support for Exceptional Talents**

There are various types of supporting exceptional talents. One of the most obvious ways to identify exceptionally talented students was done through the students' gained scores at a university in New Zealand. In one of the faculties, in particular, the identification of exceptional talents was done before entering the university. High school seniors can apply for the accelerated pathway program based on their high school scores. This program enables exceptional talents to study in the second year of university and, as a result, complete a four-year undergraduate course in three academic years. Students are expected to maintain "first-class standards" during their three academic years, and many graduate students take their master's courses in the fourth year. The New Zealand Ministry of Education (2012) has promoted dual enrollment as a part of educational planning options, but there is still no law to formalize it. Dual enrollment is a form of advocacy for exceptionally talented students, providing talented students with the opportunity to study beyond their expected age in one or more disciplines. At the university under study, talented students can enroll in one semester in the final year of high school. Students who complete the courses can enroll directly in the second year. Another support for exceptionally talented students is the Max program (Mathematical, Acceleration, and eXtension).

Accelerated math learning opportunities for talented students in their final year of high school enable them to spend their first year of college in one of the dual or simultaneous enrollment options. In this university, outstanding students are identified among the exceptional talents in the second year of university education for the honors program. This program is an academic initiative designed to attract undergraduate students to graduate ones. This program includes a master's degree course and a full-time or two-year part-time thesis. The most exceptional talents are prominent in the student body, and the result is that their graduation rate in graduate programs is almost 100%.

In general, some of the opportunities for exceptional talents include the Acceleration Program, the Honors Program, and the Max Program. In addition to these programs, talented students can be hired as teaching assistants and private tutors for other students in their early years of college.



Other support for exceptional talents includes a Summer Internship as well as a Summer Scholarship Program. The Summer Scholarship Program enables the exceptional talents to collaborate with a professor on a research project during the summer and they are given financial aid.

This program is specifically designed to encourage students to continue their studies in graduate school.

Dual enrollment is also possible in the United States where the government law ensured that high school and talented students had faster access to a college education which increased dual enrollment opportunities. (McCarthy, 1999).

Dual enrollment was decentralized in the 1970s and 1980s to challenge exceptionally talented students, facilitate an easy transition between high school and college, and enhance professionalism (Klofstein and Liuli 2012). An example of dual enrollment is Polk State College which was founded in 1964. In this college, the dual enrollment program provides an accelerating opportunity for exceptional talents. The program allows high school students to take college courses while they are at school and receive credit for the courses they have taken, which counts for both a high school diploma and a university degree.

Another kind of support for exceptional talents is financial support. For example, one such support can be found at the Amsterdam School of the Arts (AHK) which has designed a Talent Grant for talented students from outside the European Economic Area (EEA). Students with exceptional qualifications can apply for a scholarship to cover part of their tuition fees. Due to recent government policies, Dutch universities and higher education institutions do not cover tuition fees for students of non-European nationalities. As a result, higher education institutions, including Amsterdam School of the Arts (AHK), offer such grants to talented students and specially qualified non-European students. In addition, at the University of Groningen School of Art, Grant has awarded talent to top non-European students from Mexico, Russia, China, Brazil, Korea, and Indonesia who applied for a Master of Arts degree. This grant is a scholarship that covers part of the annual student registration costs.

Some of the policies to support exceptional talents and the elite in the world can be seen in Table 1.

*Table 1. Policies to Support Exceptional Talents and Elite in Countries around the World*

Country	Definition	Identification mechanism	Is acceleration allowed?	Source
Australia	A multidimensional and dynamic concept of talent: High performance in the intellectual, emotional, social, artistic, and sports fields. Exceptional talent is related to the processes that result from the interaction between	Through individual performance and scores and by gaining high scores on psychometric tests	Yes High school students are allowed to take university courses	European Commission (2006), Ricsh (2014), Weringer (2013)



	people's talents, their ability to shape their development, and the impact of education			
United Kingdom	Exceptional talent refers to learners who can study one or more subjects such as English, performing arts, or technology. Exceptional talents refer to learners who can succeed and excel in practical skills such as sports, leadership, artistic performance, or applied skills.	Government requirements to use a percentage-based identification strategy to encourage the use of test-based quantitative measurements to create exceptional talents groups		Cauchy and Pinter To-Torres (2013)
Germany	A person's potential for outstanding and special success, non-cognitive personality traits (such as motivation, attitude to work), and environmental factors are both important for success.		Yes Enrolling in university courses Early admission; Taking university courses while studying in high school	Fisher and Müller (2014)
Korea	Cognitive talent as well as talent in music, sports, art, language, poetry, and so on	Teacher's letter of recommendation, aptitude tests, creative problem-solving ability tests in mathematics and science, interviews, and scientific experiments	Yes Special admission to universities for winners of international science awards and mathematics Olympiads	Han (2007)
Netherlands	Talent is a natural ability that must be developed, the development of this talent depends on a		Yes	De Boyer et al. (2013)



	strong and supportive environment. Each student is talented and can excel in specific areas.			
Singapore	Exceptional talent is identified through four sources of information: psychological information-report, progress test scores, work samples, and a teacher's letter of recommendation.	The top 10 percent in exams are eligible to take the supplementary exams	Yes accelerator Subject: The student is placed at a higher level in a particular subject than other students. High school students are allowed to take university courses.	Iba - Arns (2012) Nihart & Theo (2013)
Switzerland	Most educators and faculty consider exceptional talents to be "multiple intelligences": musical, artistic, sporting, social skills, as well as enhanced scientific abilities.	Thinking and learning style as well as students' motivation and self-concept are the selection criteria. Screening is usually done in the third grade by qualified experts.	Yes High school students are allowed to take university courses. Curriculum compression	Müller-Oveilger (2014)
India	Talent is a divine gift that society should play an effective role in supporting and flourishing.	Teacher's letter of recommendations, aptitude tests, creative problem-solving ability tests in mathematics and science, interviews, and scientific experiments	Yes High school students are allowed to take university courses.	Sugata Mitra (2008)



In Iran, the National Elite Foundation is the official and legal reference for identifying, attracting, and presenting material and spiritual support for the elites. It was established by the Supreme Council of the Cultural Revolution under the special support of the Supreme Leader of Iran. It is

a center in which the main priority is to attract, retain, employ and support the elites to promote the production of science, technology, and the cultural and scientific development of the country. Supporting elites and exceptional talents has material and spiritual aspects.

Some of the foundation's support for the elite include:

- Awarding scholarships to elite and exceptional talents
- Awarding research grant
- Awarding Shahid Ahadi Internal Scholarship
- Considering the priority of elites in examining scientific competence for admission to universities and higher education centers
- Giving mortgage lending
- Granting a housing deposit
- Supporting master's theses and doctoral dissertations in the field of research related to elite affairs

A look at the Exceptional Talents Regulations

The following is a summary of some of the regulations for the exceptional talents:

Admission Regulations without Taking the Talent Test

For the implementation of the policies to support and guide the talented people approved by the 419th session dated 1998/5/12 of the Supreme Council of the Cultural Revolution and paragraph 5 of section C of Article 2 of the Law of Objectives, Duties and Organization of the Ministry of Science, Research and Technology approved at the session dated 2004/8/8 of the Islamic Consultative Assembly plans to identify and support talented people and guide them to the country's strategic priorities in various fields of science, as well as in the implementation of Article 18 of the Fifth Five-Year Development Plan of the Islamic Republic of Iran on targeted material and spiritual support for the elites and innovators of science and technology, and in order to facilitate the further education of the selected scientific applicants, the Admission regulations without taking the test by exceptional talents in the master's course (dated 2014/7/27) and the doctoral course (dated 2014/5/6 and amended on 2014 / 7/9) was compiled.

Some notable items stated in the Admission regulations without taking a talent test in the master's course are as follows:

Article 1: The University has the authority to allocate a maximum of 10% of the capacity of state-funded master's courses in each field to undergraduate students (both state-funded and tuition-paying students) above the admission capacity by examining and observing the following conditions:

- 1.1. After 6 semesters, by passing at least 110 courses, in terms of the total average, it should be among the top 10% of students both fellow majors and fellow entrances.
- 1.2. To be educated for a maximum of 8 semesters
- 1.3. Admission for the academic year is possible immediately after graduation and only once
- 1.4. Admission is possible in the fields of study related to the diagnosis of the educational department and the approval of the University Educational Council
- 1.5. Achieving the specific conditions of the university

Note 1: The University has the right to admit applicants who had graduated in six semesters and have been placed in the top ten percent in terms of the total average compared to the average of



the eight semesters of students who entered the university in the same field and year, above admission capacity without taking master for the master degree.

Note 2: If the top ten percent of students were eligible for this article, due to cancellation or lack of demand, or they did not use the relevant facilities, or the capacity of ten percent of the master's degree was not completed, then the university is allowed to replace only the next top ten percent of the same university regarding the priority is given to the rank of applicants in that field.

Article 2: The University has the right to admit the winners of the first to fifteenth ranks of the scientific-student Olympiads to enter the same field or fields related to the discretion of the Higher Educational Planning Council of the Ministry, or to submit a letter of introduction from the Olympiad secretariat above the admission capacity with taking the admission test.

Article 3: It is not allowed to change the field or place of study of the admitted people according to this regulation.

Article 4: Payame Noor University, Islamic Azad, non-governmental, non-profit, scientific-applied, and international (autonomous) campuses are not allowed to use this regulation to accept exceptional talents.

In the admission regulations without taking the admission test of exceptional talents in the doctoral course, some notable items are as follows:

Amendment of Article 1- The University has the right to admit a maximum of 20% of the admission capacity by examining the teaching-research method of its state-funded doctoral course in any field of the study place from among the graduates of the internal master's and approved by the Ministry above the capacity, subject to the following conditions:

- 1.1. Passing not more than two years from the graduation date of the applicant
- 1.2. Obtaining at least 70 points from educational, research, and interview activities according to the evaluation table
- 1.3. Obtaining a total average of 16 in the undergraduate course and an average of 17 (excluding the dissertation score) in the master's course (or the equivalent average of each of the mentioned courses according to the instructions approved by the University Graduate Council)
- 1.4. Obtaining a minimum score of 50 from the language test (MCHE or its equivalent in other tests) before the comprehensive doctoral exam (under the doctoral course regulations approved by the Ministry)
- 1.5. Scoring the candidates in each of the rows of the evaluation tables is done according to the instructions approved by the University Graduate Council, which must be notified to everyone through the university call before registering the applicants.

To facilitate the implementation of the Admission regulations without taking the talent test in the Master's Degree (2014/7/27) and Doctorate (Date 2014/7/9 and Amendment on 2015/3/7) enactment approved by the Talented Steering Council, 2018/3/3, are as follows:

1. The cap of admission capacity without taking exams in the master's course increased as follows:

- 1.1. Level one and two universities: up to 40% of the admission capacity with exams.
- 1.2. Level three universities: up to 30% of the admission capacity with exams
- 1.3. Other universities: up to 20% of the admission capacity with exams

2. Level one universities are required to admit one-third of the admitted without exams among the applicants of other universities.



3. Article 1 of the Admission Regulations without the Talent Test in the Master's Degree Program is amended as follows:

Clause 1.1: After 6 semesters and passing at least 3 quarters of the courses, in terms of total, the student is among the top 15% of students both fellow major and fellow entrance.

Note 1: The University has the right to admit applicants who graduate in six semesters and are in the top fifteen percent in terms of the total average compared to the average of the eight semesters of students who are fellow majors but not the fellow entrance, above admission capacity without exams in the master course.

Note 2: If the top fifteen percent of students eligible for this article did not use the relevant facilities due to cancellation or lack of demand and the admission capacity was not completed without a master's degree exam (appropriate to the university level), then the university is allowed to replace only 10 percent of the next top of the same university with the priority of the rank of applicants in that field.

4. The authority to determine the indicators and how to calculate the scores of Table 1 of the Admission Regulations without the Talent Test in the doctoral program (up to 40 points) is delegated to levels one and two universities.

Admission Regulations with Exceptional Talent Test in undergraduate (continuous and discontinuous) and postgraduate courses

This regulation was approved by the Talent Guidance Council in the Ministry of Science, Research and Technology on 2014/7/16 and was replaced by the "Regulation on providing facilities to selected scientific students to enter higher education courses" (Announcement dated 2012/5/22).

Some notable items in this regulation are:

Article 1. Academic candidates with the following conditions, if they participate in the national entrance exam for a higher course and obtain the academic quorum of at least 90% of the last score accepted in each code of the place of study, will be introduced to one of the universities by the National Organization of Educational Testing above capacity.

A) Undergraduate course (continuous and discontinuous)

1. Holders of national gold, silver, and bronze medals in High school Student Olympiads (subject to the approvals of the Supreme Council of the Cultural Revolution) with the introduction of relevant authorities

2. Exemplary students of the country in the associate degree with the introduction of the Student Affairs Organization to enter the discontinuous bachelor's course

3. The first to third final ranks of Kharazmi Young Festival in student or associate courses, provided at least 50% participation in the rank achievement, to enter the next academic course (continuous and discontinuous bachelor)

4. Graduate of the first rank of an associate degree (continuous and discontinuous) among the students with fellow majors and fellow entrance graduated in four semesters to enter the part-time bachelor's degree

B) Discontinuous master's degree

1. The winners of the first to fifteenth ranks of the final stage of Scientific and Student Olympiads

2. Exemplary students of the country in the undergraduate course with the introduction of the Student Affairs Organization



3. The first to third final ranks of Kharazmi Festival, Javan Kharazmi, Razi, Ibn Sina, and Farabi in the continuous or discontinuous bachelor course, with the participation of at least 50% in the top-rated achievement

4. Graduate of the first rank of the undergraduate course among the students both fellow majors and fellow entrances graduated in eight semesters.

5. Graduate of the first rank of the discontinuous bachelor's course among the fellow majors and fellow entrances who graduated in four semesters.

Article 2. National Organization of Educational Testing is obliged to allocate a maximum of 10 percent (with an additional approximation) in each code of the higher education institution based on the priority of the score and the selection of the applicants' field to those who meet the conditions of this regulation.

### **Regulations for Simultaneous Study of Exceptionally Talented Students in Two Undergraduate Fields of Study**

This regulation was approved by the Talent Steering Council of the Ministry of Science, Research and Technology on 2014/12/15 and entered into force on the date of approval. Article 2 of the regulations states:

Article 2. Undergraduate and graduate students who have spent at least two semesters and a maximum of four semesters with a minimum average score of 17 and have one of the following characteristics are allowed to choose an undergraduate field of study in addition to their field of study simultaneously for their further education.

A) Those who have been admitted to the national entrance exam for undergraduate and postgraduate courses, whose total test score, according to the National Organization of Educational Testing is 2.5 deviations from the average of the scores of the participants in the relevant experimental groups.

B) Holders of the national gold medal of the Student Scientific Olympiads, with the approval of the Ministry of Education

C) The winners of the first rank of Kharazmi and Razi festivals on the national stage with the approval of the secretariat of each festival

D) Students who have talented characteristics according to the approved instructions of the university.

### **The Importance of Examining the Problems of Exceptionally Talented Students**

As one of the pillars of the university, students will form the center of various organizations and societies in the future. Their satisfaction with all achievements at the university can influence their attitude towards their field of study to maintain and improve the quality of education. To achieve the desired university and satisfy students, the services provided by the university need to be provided more desirably, and university staff should pay more attention to the service provisions. Meanwhile, educational services in universities are sensitive services that require the staff's efforts to provide appropriate services to the students. In the meantime, paying attention to talented students is particularly sensitive because educational services for students should be provided in such a way that learners feel that they are in a safe environment and thus provide them with psychological preparation for further learning. Studies also show that the higher the students' satisfaction with educational services, the greater their mental health and positive interactions will be (Nasrabadi & Nozari). Conversely, when students are dissatisfied with the educational services, they show behaviors such as withdrawing from classrooms and aggressive



behaviors. On the contrary, students' satisfaction with education can be effective in the educational performance of students at school, university, and in their future jobs. It can also create constructive interactions and positive dependence on the university in the students. Few studies have been conducted on the satisfaction of talented students with educational services or educational problems, while many studies have been conducted on the satisfaction of ordinary students with educational services.

Identifying the educational problems of students and then taking action to solve them will improve the achievement of educational goals and ultimately train skilled people and provide high-quality medical, engineering, and social services. On the other hand, to make constructive changes, it is necessary to have basic information about the current situation and information about students' attitudes toward the services provided. Using this information, positive factors can be strengthened and negative factors can be corrected, resulting in greater student satisfaction. Talented students, meanwhile, need support, especially because of their special abilities to make better use of their abilities.

Due to the small number of studies conducted on the educational problems of exceptional talents and the importance of recognizing these problems to solve them, the present study aimed to compare educational problems from the perspective of exceptionally talented students in two top-ranked universities in Iran. Establishing a special system and institution to attract, nurture and retain talent at the higher education level, in addition to the Talent Guidance Council in higher education, which is currently the only legal institution in the country to address many talent issues, is necessary. It seems that the process of nurturing exceptional talents should be done within the framework of measured, systematic, and scientific planning.

### **Methods**

The present study is a descriptive-analytical study that was conducted to compare the educational problems of exceptional talents at Shahid Beheshti University and the University of Science and Technology.

Inclusion criteria included students who, according to the regulations for acquiring exceptional talents and elites approved by the Supreme Council of the Cultural Revolution, have one of the most talented conditions and are registered in the Talent Office of Shahid Beheshti University and University of Science and Technology.

In this project, the sampling method was a census in which all Shahid Beheshti University and University of Science and Technology's exceptionally talented students who graduated from talented schools (Allameh Hilli 1, 2, 3, 4, 5, 10 and Farzanegan 2 and 1), Atomic Energy and Allameh Tabatabai in Tehran and were willing to participate were selected (The total number of students was 86, of which 46 completed and returned the questionnaire)

In this study, the criteria for recognizing students as talented was done based on gaining the top rank in the national entrance exam (less than 100 in mathematics and less than 50 in the Science and Literature) or winning national or international medals in the Student Scientific Olympiads approved by Young Scholars Club.

Data collection was done by using a questionnaire consisting of 3 parts and as follows. The first part contained the demographic characteristics of students (age, gender, field of study) and the second part included a study of students' educational problems in the form of fifteen 5-choice



questions. The third part contained some solutions to solve students' problems which were examined according to the students' views.

The content narration of the questionnaire was examined by reviewing the sources and opinions of qualified people, including experts from the Office of Talent of Shahid Beheshti, University of Science and Technology and Sharif Universities, National Elite Foundation, Deputy of Talent and Scholars Club of the Ministry of Education, and consulting with professors and education experts of the faculties and also interviewing the students and finally considering the opinions of the faculty members of the faculty and university research council. The reliability of the questionnaire was calculated through Cronbach's alpha and it was obtained at 0.80.

The scoring method of the questionnaire was such that according to the Likert scale, the range of changes of each question varied between 1 and 5 (score 5 meant complete agreement despite the educational problem and score 1 meant disagreement despite the problem). Finally, the score of each question was calculated on average based on 5 points and was calculated based on the difference between the groups of talented students of Shahid Beheshti University and University of Science and Technology.

Due to limited opportunities and restrictions of COVID-19, this study has not been approved by the ethics committees in the research of universities and talented university offices, but the consent of the participants has been obtained before filling out the questionnaire. To analyze the collected data, SPSS and descriptive and analytical statistical tests were used and the significant level of tests was considered 0.05.

### **Findings**

In the present study, 46 exceptional talents from Shahid Beheshti University and the University of Science and Technology were selected. The demographic study between the two groups showed no significant difference in some variables between the students under study. Due to the greater access of the researcher to the graduates of the talented boys' schools as well as the Olympiad students, the number of male students studied in the research was higher. Regarding the two groups of talented students, male students constitute about 65% of the statistical population, and also the majority of students in both groups were single (not married).

In this study, the majority of exceptional talents belonged to the School of Computer Engineering, Medicine, Computer Science, Electrical, and Dental, respectively. Due to the lack of cooperation between the talented offices of the universities, there was no complete access to graduate students and the majority of students were selected from undergraduate and general medicine. At Shahid Beheshti University, talented students were attracted from both scientific Olympiads and the top rank of the entrance exam, in this regard, a significant difference was observed between the two groups.

As can be seen in Table 2, there was no significant difference between the two study groups in other demographic variables.

The findings showed that regarding the exceptional talents' views the most educational problems in the two universities were:

- Lack of attention to the different talents of each student in the university
- Lack of attention to student enrichment programs due to individual differences and diversity of their talents
- Lack of professional academic counseling



- Lack of timely attention to the academic decline of exceptional talents and help to solve it
- Lack of attention to the needs of the exceptional talents, as the existing programs do not meet their needs

Findings also showed a significant difference in the field of attention to the different talents of each student in the university, lack of attention to enrichment programs for students due to individual differences and diversity of their talents, having professional academic counseling, lack of accurate information in educational regulations for students and their advisors among the exceptional talents of Shahid Beheshti University and University of Science and Technology. It seems that at Shahid Beheshti University, the information of advisor professors is less than the educational regulations of talented people compared to the University of Science and Technology and it can partly meet their needs (Table 3) ( $p < 0.05$ )

*Table 2: Comparison of Demographic Characteristics of Exceptional Talents of Shahid Beheshti University and University of Science and Technology*

Demographic variables		Shahid Beheshti's students (21 people)		University of Science and Technology students (25 people)		Test result
		F	Percentage	F	Percentage	
Age	Under 20 years	16	76.2	16	64.0	0.52
	20 years and higher	5	23.8	9	36.0	
Gender	Male	12	85.1	18	72.0	0.81
	Female	9	42.9	7	28.0	
Marital status	Single	15	71.4	21	84.0	0.44
	Married	6	28.6	4	16.0	
Faculty	Medical	10	47.6	0	0	0.01
	Dental	3	14.3	0	0	
	Electricity	0	0	4	16.0	
	Computer Engineering	5	23.8	10	40.0	
	computer science	2	9.5	8	32.0	
	Mechanics	0	0	2	8.0	
	Other	1	4.8	1	4.0	

Education Grade	Bachelor and General Doctorate (first to the fourth semester)	11	52.4	10	40.0	0.33
	Bachelor and General Doctorate (Fourth semester onwards)	7	33.3	8	32.0	
	Masters	1	4.8	7	28.0	
	Ph.D. and specialized doctorate	2	9.5	0	0	
Elite condition	Top rank in the entrance exam	6	28.6	0	0	0.044
	Scientific Olympiads	13	61.2	25	100	
	Both the top rank of the entrance exam and the winner of the Olympiad medal *3	2	9.5	0	0	
	Kharazmi Festival and...	0	0	0	0	



*Table 3: Comparison of Educational Problems of Talented Students of Shahid Beheshti University and University of Science and Technology*

Educational problems of university students	Talented students Shahid Beheshti University		Talented students University of Science and Industry		of and Significance level
	Mean	SD	Mean	SD	
1 Universities do not pay attention to the different talents of each student	3.61	1.12	3.1	1.14	0.037
2 The university curriculum does not take into account individual differences and diversity of students' talents	3.93	1.18	3.42	1.06	0.032
3 Proper information is not provided to students regarding the use of educational facilities	2.92	1.22	2.78	0.98	0.111
4 There is no professional academic counseling for students at the university	3.93	1.43	3.21	1.21	0.001

Since students with silver and bronze medals in the country are not exempt from the entrance exam and have a <sup>3</sup> quota of about 15%, a student may qualify for the elite in two ways.

5	In case of students' academic failure, their situation will not be addressed promptly	3.88	1.35	3.1	1.61	0.043
6	Authorities are behaving irresponsibly in dealing with students' educational problems	2.04	1.41	2.17	1.19	0.623
7	Accurate and timely information in the field of educational regulations is not provided to consulting professors or educational experts	3.25	1.17	2.41	1.04	0.039
8	Educational regulations are not enforced by the university	2.97	1.42	3.12	1.14	0.312
9	Educational regulations have ambiguities or shortcomings	3.06	1.14	3.39	0.91	0.814
10	The attitude of education officials in different universities towards the regulations of educational facilities is different	3.34	0.98	2.80	1.1	0.021
11	Some university education officials welcome the strict implementation of educational regulations	3.97	1.27	3.13	1.46	0.001
12	The educational experts of the university have not been properly justified concerning the educational regulations.	3.29	0.91	2.61	1.15	0.048
13	The information of my consoler about the educational regulations is low and his information does not meet my needs	2.92	1.24	2.71	0.94	0.421
14	I do not have access to my consoler when I am completing Add/drop form	3.32	1.52	2.41	1.4	0.001
15	Conventional university curricula do not meet the needs of students	3.14	1.07	3.88	1.19	0.04

Some of the suggested solutions according to the students' views to reduce educational problems were holding meetings to solve students' problems by the authorities, allocating subsidies and more scholarships to students, and using university-trained academic advisors for students (Table 4).

*Table 4. Frequency Distribution of Proposed Solutions to Reduce Educational Problems according to Views of Exceptionally Talented Students at Shahid Beheshti University and the University of Science and Technology*

Suggested solutions	Talented students Shahid Beheshti University		Talented students University of Science and Industry	

	F	P	F	P
1	20	76	18	73
2	18	68	17	62
3	15	54	18	64
4	18	65	12	42
5	13	46	17	62
6	10	36	14	48
7	8	31	13	44
8	3	10	6	19
9	19	70	17	62
10	15	51	20	76
11	4	12	11	62



### Discussion and Conclusion

Countries that experience real growth and development, in addition to natural resources, knowledge, and technology, have a highly knowledgeable, specialized, skilled, and capable workforce. If the purpose of higher education is to train people with qualifications and expertise to advance towards the goals of society and development, then only those with enough talent and ability should study in universities. On the other hand, if the exceptional talents and elites are identified and appropriate educational, research and support plans are considered for them, it will have a positive effect on their success and the development of society. As it can be seen in the regulations related to exceptional talents, the admission capacity without the Talent Test has increased compared to previous years.

1. The cap of admission capacity without taking exams in the master's degree course increased as follows:
  - 1.1. Level one and two universities: up to 40% of the admission capacity with exams
  - 1.2. Level 3 universities: up to 30% of the admission capacity with exams
  - 1.3. Other universities: up to 20% of the admission capacity with exams

The number of applicants for higher education is decreasing compared to previous years. The reduction in the number of applicants and the increase in the admission capacity as exceptional talents practically means that more students are known as exceptional talents, and this will reduce the value burden of exceptional talents and elites.

The question which is raised here is to what extent do the indicators used to identify elite and exceptional talents such as average, score, high rank in the entrance exams and other criteria have the necessary adequacy and scientific support? For example, because the scoring criteria are not the same in different universities and even different faculties and departments; if two students who study in the same field and at two different universities and both gained an average score of 17 can be considered the same? Are two students who are studying in different departments at the same university equal when they gained the same average scores? Therefore, it is necessary to use more specific indicators and criteria to identify and select the most exceptional talents. If score and rank are considered as a criterion for excellence, it is necessary to define other criteria such as personal characteristics and competence, and the ability of exceptionally talented people and include them along with the indicators. If a student gets the title of exceptional talent and because his average score is some percent higher than others he/she enters the next level without taking a test, there is a risk of raising the student's expectations and also it creates high expectations in the student and his family. Besides, after graduation, the student will have certain expectations in terms of the job. According to the results of other studies in other countries, more diverse and stricter criteria can be used to identify exceptional talent and the elite so that truly superior people can be called exceptional talents.

In other words, it is necessary that his title just be given to special talents and elites so that this division is not artificial. The ordinary students should not get the title of exceptional talents and the value of exceptional talents and real elites need to be preserved. Selecting exceptional talents and not awarding those proper facilities will only lead to the students' dissatisfaction. However, if special facilities and services are provided for students who are talented and outstanding; qualified people can be supported properly and motivationally. Top and exceptional talents need to make use of distinctive training programs and services to be effective for themselves and society. Providing special learning and educational opportunities for exceptional talents is a way to motivate and support students in this group, for example by allowing them to complete their studies in less time than other students. Exceptional talents are often overlooked in higher education since universities are more inclined to attract exceptional talents, while the nature of special education and support programs for exceptional talents is not taken into account. Many exceptionally talented students do not seem to have much success. The failure of this group of students can be attributed to the frustration that students experience. Multzen (2008) argued that "there is a view in the school that it is important to distinguish between the curriculums according to the different levels of students' abilities, but in the university, the "approach of a unique model for all" is more appropriate."

He stated that the lack of distinctive learning opportunities in higher education can be an important factor in the failure and dissatisfaction of exceptionally talented students. Therefore, the development of special education programs and diverse learning opportunities for exceptionally talented students is a positive catalyst for students to learn and continue their education.



One of the items mentioned in the country's strategic document on elite affairs is: “National Action 2 (National Strategy 1, Macro Strategy 3): Designing and creating legal and incentive mechanisms for more and wider use of elites in scientific, educational, cultural and managerial processes of universities, research institutes and other institutions of the country”.

Accordingly, and regarding the importance of paving the way for the impact of elites in society, exceptional talents and elites need to be supported through the use of opportunities for educational and research assistance. Exceptional talents can teach part of the course or solve the exercises regarding the characteristics of the field of study. Also, they can assist in matters relating to the university laboratory. These students can be used to carry out projects commissioned by the university and faculty members and they are working on it. Thus, in this way in addition to developing the skills and abilities of exceptional talents, they can earn some money as well. Moreover, it makes relations between exceptionally talented students with other organizations and the industrial sector. Such people can be recruited and employed in related centers and so their scientific potential can be used for the development of the country. Scholarships are another way of supporting exceptionally talented students and elites that help them to promote more. This type of support was also examined in a study conducted in other countries. In Iran, there is also support such as lending grants and scholarships, but it is necessary to provide this type of support and facilities more purposefully and when the exceptional talents do research projects in priority areas they get financially supported. Therefore, the supportive measures raise the exceptional talents' motivation to work and solve the country's problems more and less brain drain will happen. Considering this issue is very significant since the migration of elites and exceptional talents leads to a huge lack of human capital and causes a lot of damage to society.

The country's strategic document on elite affairs states:

National Action 3 (National strategy 1, Macro-Strategy 4):

Establishment of a center for empowerment of exceptional talents under the supervision of Ministers of the Ministries of Science, Research and Technology and Health and Medical Education to develop the activities of the exceptional talents in various fields, based on the macro policies of the Elite Foundation.

Given that higher education is an important stage in the flourishing of society's exceptional talents, and at the same time and the possibility of attracting talent abroad, it is necessary to make serious plans to attract and retain talents. A study was conducted on the causes of anxiety in the elite students (Talebi Siavashi & Nouri Khajavi, 2013) and the results showed that the anxiety of elite students arises from several factors, which are:

Concerns about the lack of conditions for the realization of competencies, concerns about achieving the expected social status, and concerns about the lack of desirable educational facilities.

Therefore, if the ability and expertise of exceptionally talented students and elites are not used well, they will feel frustrated.

This reminds us of the need to empower and promote the activities of the exceptionally talented and elite students. It is worthwhile to identify the exceptional talents and elites from the moment they enter the university, and to support and provide services to these students more coherently and purposefully.



It should be noted that today the National Elite Foundation provides valuable material and spiritual support to elites and exceptional talents.

### **Recommendations**

Regarding the obtained results, it is recommended that the authorities pay more attention to solving the educational problems of students and make more use of the participation of lecturers, especially professors, and education experts in this regard. It may lead to anxiety and depression and on the other hand, a decrease in students' academic performance. Valuable guidelines and timely guidance of the talented students' thoughts and mindsets guide their future activities and an expert and capable advisor can result in intellectual cohesion and open-mindedness. The findings of the present study also indicate that students complain about the lack of a counselor who can help them in education and research. The results of a study conducted to assess the needs of exceptional talents at Iran University of Medical Sciences also showed that 89.9% of the studied population demanded to appoint a group of counselors among professors.

A study by Jebrailli et al. showed that the highest average score obtained in the field of academic achievement of exceptionally talented students was related to educational factors. According to the results of his research, the use of experienced and committed consulting professors who guide exceptional talents in planning education and ways of studying can flourish their talents. Therefore, according to the suggestions of exceptional talents and the experiences and studies of the researcher, the following recommendations can be presented:

- Considering different and more rigorous criteria to identify elites and exceptional talents requires more serious and targeted support for these valuable assets to increase the development of society.
- Examining students' satisfaction and their expectations of how to promote talented students through in-depth and extensive research as part of the evidence
- Applying methods to promote creativity and increase confidence in exceptional talents and their impact on their academic performance
- Making high efforts of managers and educational officials of universities and colleges to improve the quantity and quality of educational and welfare services of the university
- Taking measures such as adjusting the number of students admitted, and students' more familiarity with the university disciplines before participating in the Entrance exam to reduce their academic failure
- Establishing teacher-student chain links in counseling in various educational fields
- Strengthening the relationship between professors and students and increasing the level of guidance and counseling services
- Making an Effort to eliminate ambiguities and shortcomings in the educational regulations related to students
- Using counseling and academic support in the early years of undergraduate education
- Motivating the university staff to pay more attention to students' problems

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