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The Role Of Science Experiment Centers In Scientific Gifted Children's Science Education

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Abstract *- Intelligence is the according to a definition; it is an abstract name given to the observed effect on the behavior of harmonious, efficient and effective studies of all devices of the brain. In the determination of gifted individuals, this is reached through tests carried out in childhood. Science Experimental Centers are the names given to the environments that provide education in order to contribute to the development of knowledge, skills and production abilities with active, applied and experiential education and training, especially to increase the interest of children and young generation towards science, scientific thought, developing technologies. The gifted students may encounter the experimental setups and staff who can express themselves in Science Test Centers, whose numbers are increasing day by day. This study focuses on a model where Science Testing Centers can be a part of the education of gifted children.*

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Keywords – Gifted Children, Science Experiment Center

INTRODUCTION

Every scientific study that mentions a gifted individual begins by defining the concepts of "giftedness" or "superior intelligence Üstün. And although they all have different definitions, they complement each other. In reality, intelligence is an abstract name given to the observed effect on the behavior of the harmonious, efficient and effective work of all the devices of the brain [1].

In the determination of gifted individuals, this is reached through tests carried out in childhood. Of course, if he was lucky, he was confronted with such a test as a child. If not, she's tired of asking "why?" and she's locked into a room all questions. It's about not opening again.

The environments where gifted children can express themselves are quite limited. If he is lucky, his family can provide answers to his questions or find answers. If he is lucky again in school, his teacher can understand Him and develop programs specific to him. In addition, the number of science experiment centers in our country is growing every day lucky again if it can express itself with the experimental setups and officials can encounter.

OBJECTIVES OF THE STUDY

Science Experimental Centers are the names given to the environments that provide education in order to contribute to the development of knowledge, skills and production abilities with active, applied and experiential education and training, especially to increase the interest of children and young generation towards science, scientific thought, developing technologies.

In this study, a model of more effective use of Science Test Centers is presented in the education of gifted children..

METHOD

It is aimed to provide the necessary conditions for more effective learning in science centers. In these centers, the concepts, theories and relations that are required to be transferred

are tried to be gained through active and interesting experimental setups. The student who sees the experiment sees the causes and results, changing the variables and understanding the relationships between them. In this process the learner is active. In addition, the experimental setups must be able to understand the process and method. In this process, science center education activities and educators have important responsibilities. Scientific center organizations of reform movements in science education make great progress. Science centers lead science education with their aims. Therefore, it has an important responsibility in shaping the society. Studies show that reform in science is more likely to approach non-school activities, and interactive science centers have an impact on the basic understanding of science education, and these effects support environmental changes.

The purpose of the Science Experimental Centers is that especially children and young people like science and interactively learn some scientific concepts, so is it a special practice for gifted children to visit these centers? Or are special working hours organized for such children?

Science and Society Projects aim at providing information to the society in a comprehensible manner, and in doing so, to support the visualization of information as much as possible and to support it with interactive practices. In these projects, it is important not to convey as much information as possible to the participants by using classical education methods, but by triggering the participants to be aware of simple scientific facts, and to stimulate the feelings of curiosity, research and learning requests.

For this purpose, At the 23th meeting The Turkiye High Council of Science and Technology, especially children and young people to increase their curiosity and interest in science, technology, science centers will enable the use of more accurate:

- In all metropolitan cities as of 2016
- In all provinces in 2023

it was decided to carry out the works for the establishment of the project in cooperation with the local authorities.

In line with this decision, it is aimed to support science center projects in metropolitan cities in the first stage and in other cities in the second stage.

Has our country made a training study for the personnel to be employed in these centers? Is there a special study on gifted children?

Important studies are being carried out in some countries around the world. In the UK, for example, the Science Learning Center has announced that staff in East Midlands are taking courses on Gifted and Talented students, and continuing to organize courses to encourage special education activities for this group of students.

The countries with the center of educational administration at the local level, such as Turkey to open programs in public schools is almost impossible [3].

Science Centers can be an opportunity, so that the job is organized at the local level and has to be more open to innovations, which makes science teaching practical, and that families have access to it [4].

RESULTS AND DISCUSSION

First of all, it has been defined as a gifted group in Science Experimental Centers and working groups should be formed for known students. The trainers who will work in these working groups should be equipped to respond to the gifted students.

Many of the most important problems that may be of interest to gifted children are the interdisciplinary ones. For example, Physics-Chemistry, Physics-Biology, Physics-Music, Music-Biology, Chemistry-Biology. Of course, it is the right thing for the student to identify the problem himself and to guide him / her to solve the problem. It is the right thing not only for gifted students but for all students to do laboratory work and science education in this

way. The National Productivity Center's award-winning work in 1991 [5].

Science Experimental Centers usually aim to provide information and experience to the visitors through the set of experimental sets. In addition to this, with the courses to be organized and special training hours, it is possible to train especially gifted children and their families. How should this work? An example of a problem and solution can be as follows.

• In the Science Experiment Center, a working group should be formed for gifted children and their fields of interest such as Physics, Mathematics, Biology, Chemistry, Music and Painting should be determined.
• Gifted children are asked to share this in the study group by working on the topics they will determine in their areas of interest.

Figure 1. Working Groups

• Those who would like to collaborate with these emerging ideas or the new working groups to be formed with the proposal of the instructor will make their next presentation together.
• These ideas are applied according to the possibilities of Science Experiment Center.

A student is working on the sound wave. Hence, he knows that the human ear is perceived differently depending on the frequency of each sound. The frequency values of sounds corresponding to musical notes as Hertz (Hz) are given in Table 1.

In addition, the student will have the following information during this research:

• The number of vibrations in a second is called frequency. The height of the sound is directly proportional to the frequency.
• Frequency is the measure of the height of the sound.
• The unit of the frequency is Hertz (Hz).
• The frequency depends only on the source. The frequency of the sound produced from the source does not change even if the environment changes. The larger the frequency, the thinner (treble), the smaller the frequency, the thicker the sound.
• Generally, female voice is thin (frequency is large), male voice is low (frequency is small).
• The feature that separates the slender sounds from the thick voices is the height of the sound, ie the frequency.
• The sensitivity of the ear to sound depends on the frequency of the sound as well as its frequency.

This student can hear these sounds with a xselefon.

Another student is studying the mechanics of stagnant fluids. And during this work he was able to calculate the energy required to remove a fluid from the tip of a jet to a height. As the diameter of the outlet of the liquid at the end of the fountain becomes smaller, the height at which the water may rise is increased.

When these two students worked together, they found that they could establish an experimental system by considering the differences between the frequencies of the sound notes.

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Figure 2. Some of the interdisciplinary groups that may occur among working groups

Figure 3. Xylophone to be used in the case study

Table 1. Frequency values of sounds corresponding to musical notes (Hz)

	Oktav 0	Oktav 1	Oktav 2	Oktav 3	Oktav 4	Oktav 5	Oktav 6	Oktav 7
DO	16,35	32,7	65,4	130,8	261,6	523,2	1046,4	2062,8
DO DİYEZ	17,32	34,64	69,28	138,56	277,12	554,24	1108,5	2217
RE	18,35	36,7	73,4	146,8	293,6	587,2	1174,4	2378,8
RE DİYEZ	19,45	38,9	77,8	115,6	311,2	622,4	1244,8	2489,6
Mİ	20,6	41,2	82,4	164,8	329,6	659,2	1318,4	2636,8
FA	21,83	43,66	87,32	174,64	349,28	698,56	1397,1	2794,2
FA DİYEZ	23,12	46,24	92,48	184,96	369,92	739,84	1479,7	2949,4
SOL	24,5	49	98	196	392	784	1568	3136
SOL DİYEZ	25,96	51,92	103,84	207,68	415,36	830,72	1661,4	3322,9
LA	27,5	55	110	220	440	880	1760	3520
LA DİYEZ	29,14	58,28	116,56	233,12	466,24	932,48	1865	3729,9
Sİ	30,87	61,74	123,48	246,96	493,92	987,84	1975,7	3951,4

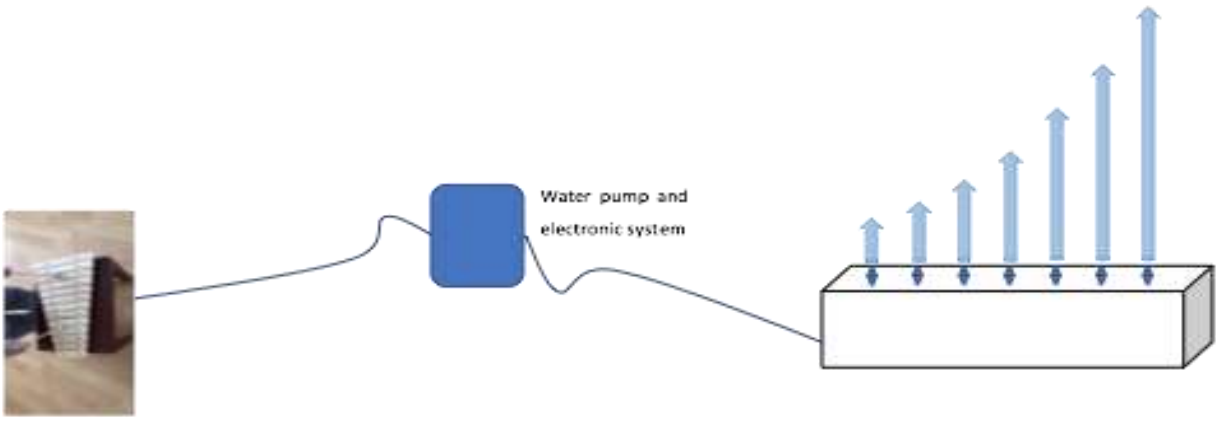

Figure 4. Installable mechanism for application work

CONCLUSION AND RECOMMENDATION

Science Experimental Centers are especially important for the development of 7-15 age group children's interest in scientific subjects and increasing their knowledge. Considering the problems experienced in our country in the education of gifted children, the contributions of the Science Test Centers to the education of these children cannot be denied. Considering the importance of interdisciplinary studies in the scientific world and today's technology, the importance of a model as suggested in this study to be applied in Science Experiments Centers will be better understood.

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