

WCES 2012

# An evaluation on science-art center implementation through the Bilsem teachers' opinion

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## Abstract

Science and Art Centers institution (BILSEM) was founded in order to treat gifted and talented children growing in our country in accordance with their talents. In this study, Science and Art Center model which have been implemented since 1995 is evaluated through the point of views of teachers working in the centers. In this study, descriptive scanning model is used. Using attitude scale method, data were collected from 227 of 294 teachers working in the 25 Science and Art Centers throughout seven geographical regions of Turkey. These data collected via correspondences were analyzed with SPSS for Windows 16.0 package program. In this study, BILSEM application was examined as to teachers' opinions in terms of four dimensions; education and training, guidance counselling, physical equipment and school-environment-center cooperation.

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*Keywords:* center, science and art center (BILSEM), the gifted children, teacher of center.

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## 1. Introduction

When we consider our education system as a whole, it aims primarily at enhancing medium-level skills of the majority, which causes the gifted students' skills cannot be developed in a desired level. Usually, skills of the gifted in school cannot be identified and thus they cannot be evaluated and this is why the gifted children should be included in the coverage of special education and supported by special centers implementing special programs. Therefore Science and Art Centers have been founded to identify and train these gifted children.

Science and Art Centers (BİLSEM) are education centers founded by General Directorate of Special Education, Guidance and Counselling Services, Ministry of National Education. (M.E.B., 2001). Science and Art Centers comprise six main departments. These departments are administrated by Science and Art Center teachers who are designated by the head of the center. Each department is administrated by a department head. Department heads are in charge of carrying out departmental activities, ensuring preparation and development of activity programs and supporting organization of projects and studies regarding activities of the department. Education model at Science and Art Centers differs from formal education. While elementary school students attempt to get a passing grade or prepare for exams, the organizational structure of Science and Art Centers do not include such objectives as getting good grades, passing a class etc. Instead, education is carried out with a project-based model and students are expected to complete projects with required qualities. Education at Science and Art Centers consists of five stages:

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orientation, supporting education, recognition of individual talents, development of special talents and project generation.

Science Art Centers were launched in various geographical regions of Turkey. As of 2012, the number has reached to 58 and these centers become ever increasingly widespread and it is also an important development that new centers are in foundation level in many provinces. However, in terms of functionality of the centers, student selection criteria and training program, school-center cooperation, investments on infrastructure, instructor training, development of project studies in the centers and making those widespread have crucial significance.

For the problems, the gifted face with in their training process in Science and Art Centers, effective solution ways should be revealed for the problems, which is a new field in our country. To realize this, first of all it was necessary to deeply examine various dimensions of the current application and consequently to set forth the shortcomings of the system clearly. In this framework, purpose of this study was to handle the system from the point of instructors taking role in the application and facing directly with the problems and to detect the attained condition in terms of these foundations having approximately 16-year history and having a crucial significance for the future of a country ever since the date they founded.

## 2. Problem Statement

In line with this, research problem to be answered may be stated as “How do teachers working at the Science and Art Centers evaluate the Science and Art Application?” Together with this main problem, four associated sub-problems like “Do evaluations of center teachers for educational and training conditions, guidance counselling conditions, physical equipment situations, school-environment cooperation conditions vary as for the implementation region for the center?” were endeavored to be solved.

## 3. Methodology

Research is based on the descriptive scanning model. With this method, teachers working at the below stated schools and centers in the school year of 2004-2005 presented their opinions in terms of the abovementioned four aspects: Ankara Yasemin Karakaya, Istanbul, Izmir Sıdıka Akdemir, Bursa Kemalpaşa Cevdet Nerse, Tekirdağ, Kastamonu, Bayburt, Denizli, Trabzon, Afyon, Uşak, Isparta, Amasya, Ordu, Zonguldak, Tokat, Van, Kaman, Siirt, Manisa, Sinop, Adana and Malatya Science and Art Centers. This centers were selected randomly (Balci, 2001).

Research was conducted with teachers working at Science and Art Centers in Turkey. Research sample; branch, classroom, guidance counseling and private education teachers working in 25 science-art centers in the Bilsem application. 227 of Bilsem teachers answered the questionnaire sent via mail to the centers. Therefore it is seen that the reply rate is 77%. In other words,  $\frac{3}{4}$  of the scales is returned. This condition can be assessed as a positive result in terms of the mail application criticized for the low reply rates.

### 3.1. Data Collection and Analysis

Data are collected in terms of literature scanning and attribution scale. A Likert-type scale was developed and implemented on the subjects. The prepared form was applied on 110 teachers working at 11 Science and Art Centers. First of all a factor analysis was performed on the data obtained as a result of the 71-item trial form implemented on the subjects. Data were assessed in SPSS 16.0 package program (Ural&Kılıç, 2005). In consequence of the factor analysis, Bartlett test value (Bartlett's Test of Sphericity) was determined as 4806.264. KMO value was found as 577. In conclusion of this analysis, 21 items were detected not to have any function in factor and these items were removed. Secondly, variance rate of the performed factor analysis explained 69.66% of the test. Furthermore it was revealed that Bartlett Test = 2842.717 and KMO = 749. These values indicated that the factor analysis could be implemented on the data.

To reveal that whether 48<sup>th</sup> item included into the scale after completion of the factor analysis could distinguish those having positive attribution from others, it was considered to be necessary to calculate the “distinction power of item”. Distinction powers of the items were evaluated through t test. As a result of the performed t test, as distinction power of the 42<sup>nd</sup> item was not accepted it was removed from the test and factor analysis was re-implemented on the scale. In the last performed factor analysis, it was found that KMO=749 and Bartlett test value = 2759.556. As a reliance study, Cronbach Alpha was implemented on this test consisting of 47 items. Reliance coefficient was found as 92.929. Thus it may be said that this scale has a homogeneous and unilateral feature.

### 3.2. Demographic Analysis

Bilsem teachers were compared in terms of education-training, guidance counseling, physical equipment situations of the centers and school-environment cooperation conditions of the Bilslems with unilateral variance analysis. In conclusion of the comparison, at least significance test (LSD) was used to determine between which groups there is a meaningful difference. When  $P < .05$  is found in Levene test, Kruskal Wallis-H Test and Mann Whitney-U Test were referred. The performed analysis was organized in tables and interpreted thereby. According to the findings with respect to the personal characteristics, number of teachers participated into the research in Bilsem of Amasya province among the centers has the largest rate with the level of 11%. Amasya is followed by Bursa with the rate of 8.8 % and Sinop with 5.7% rate, respectively. Among the districts, Kemalpaşa is the leading district with the rate of 3.9%. As for the gender variable, 61.6 percent of the subjects are male and 38.3 percent of the subjects are female. Working periods of the Bilsem teachers in the centers were concentrated on 1-12 months choice with the rate of 43.1 percent. This choice was followed by teachers having 2-year working period in the centers with 29 percent, those having 3-year working period with 12.33 percent, 4-year working period with 7 percent and 5 years and more working periods with 8.3 percent rate, respectively.

That these centers have been founded just recently and that teachers employed in these centers have their first professional experiences in these centers may be the reason for the professional working periods of the Bilsem teachers concentrating on the first ten years. When findings were examined in terms of the field variable, the highest rate pertained to the branch teachers with 81.93 percent. On the other hand, the lowest ratio was attained by the pre-school teachers with only 0.4 percent. The second lowest ratio pertained to the special education teachers with 0.8 percent. Number of guidance counselors in the coverage of the research took the third place with 5.2 percent. Guidance department of the centers have a distinct significance on personality development of the gifted children in need of special education. Expert persons in the Science and Art Centers should address to the students and their families in a correct way. In this regard, number of the guidance counselors working in the centers should be immediately re-defined and adjusted as per the need. Another important issue is the scarcity of pre-school and special education teachers. Expert teachers in these fields should take their places in these centers by all means.

## 4. Findings

Data collected from center teachers were analyzed and interpreted within the framework of the four specified aspects in order to evaluate the Science and Art Centre Implementation.

1. According to the teachers, the average rate of education-training situation at the centers differed significantly with respect to the region variable. Mann Whitney-U Test was performed in order to determine among which groups this difference is observed, and a significant difference was detected between Marmara Region and Aegean and Black Sea Regions; Aegean Region and Eastern Anatolia, Central Anatolia and Mediterranean Regions; Black Sea Region and Mediterranean, Eastern and Central Anatolia Regions.

The highest average regarding the education-training situation of the teachers at centers with respect to the region variable was that of the Bilsem teachers serving in Aegean Region with a rate of 4.1401. The programs implemented at the six Science and Art Centers in Aegean Region, the way such programs are conveyed to the

students and the way concepts such as student-oriented education, in-depth education, and education by discovery are implemented are considered good by the center teachers. The lowest average was that of Bilsem teachers in the Central Anatolia Region with a rate of 3.4405. The main reason for the difference between centers located in different regions may be that the environmental stimuli are more common in western regions and in terms of their economic and natural features geographical regions can influence teachers' thoughts.

2. As the regional variances were not homogenous as for the guidance counselling at BİLSEMs and since they did not meet the parametric conditions, the Kruskal-Wallis test was performed for individual groups. The test results show that there is a significant difference among teachers' average rate with respect to the region variable. The Mann Whitney-U Test was performed in order to determine among which groups such difference occurs. A significant difference was detected between Black Sea Region and Marmara, Aegean, Mediterranean and Eastern Anatolia Regions; and Aegean Region and Mediterranean Region. The U values of the comparisons made between regions were 1135.500, 1646.500, 250.500, 442.500, 178.500 between Black Sea region and Marmara region, Black Sea region and Aegean region, Black Sea region and Mediterranean region, Black Sea region and Eastern Anatolia region, and Aegean and Mediterranean region, respectively.

The opinions of the Bilsem teachers in Black Sea region were found to be different from Bilsem teachers working in the other four regions. Ninety four Bilsem teachers in Black Sea region responded positively with the highest rate of  $X=3.7246$ , agreeing with that the guidance counselling situation at the centers is at the desired level. This demonstrates that Bilsem teachers in Black Sea region think that the students can adapt to the center and staff at the centers, and activities for improving their career education are conducted at these centers

3. In analysis of the data from center teachers on physical equipment, since the regional variances were not homogenous and they did not meet the parametric conditions, the Kruskal-Wallis test was performed for individual groups. The test result was significant (at 0.5 level). The Mann Whitney-U test was performed. The results demonstrate that the opinions of Bilsem teachers in Marmara region are different from Bilsem teachers working in Aegean, Black Sea and South-eastern Anatolia regions. The U value was 691.000, 1001.000 and 45.500 respectively between Marmara and Aegean region, Marmara and Black Sea region, and Marmara and South-eastern Anatolia region.

Analysis of the findings demonstrates that the arithmetic average of Bilsem teachers in the Marmara region is the lowest ( $X=2.3760$ ) among other regions. Bilsem teachers in Marmara region suggest that their centers are not adequate with respect to physical equipment. Not only Marmara but other regions as well failed to demonstrate high average values. Table 6 shows that no region has an average value of 3.40 or above. Based on these data, it can be derived that staff teaching at such centers do not consider Bilses sufficient in terms of physical equipment. It is pleasing for the education of the gifted student that the current situation with respect to physical equipment does not reflect on education-training situation. Because previous data demonstrates that the center staff considers that the education-training situation at the centers is good. Considering this fact, we can conclude that teachers at these centers attempt to ensure a high level of education-training despite negative aspects in physical conditions.

4. Analysis of the data from the teachers on school-environment collaboration demonstrates that regional variances were not homogenous and they did not meet the parametric conditions. Thus, Kurksal-Wallis H test was performed for individual groups. The test result showed a significant difference level at 0.5. The Mann Whitney-U test was performed. The results demonstrated significant differences between Marmara region and Aegean and Black Sea regions, and Mediterranean region and Aegean and Black Sea regions. The U value was 636.000 between Marmara and Aegean regions, 1309.500 between Marmara and Black Sea regions, 180.000 between Mediterranean and Aegean regions, and 372.000 between Mediterranean and Black Sea regions. Based on these data, we can suggest that teachers working at the centers located in Aegean, Black Sea and South-eastern Anatolia regions where the arithmetic average was 3.40 and above think that Bilses work in collaboration with school and environment. We can also conclude from these findings that teachers working at the centers located in Marmara, Mediterranean, Central Anatolia and Eastern Anatolia regions think that there is not a collaboration between the centers and the

school-staff and the business centers in the environment, there is no communication between the school and center regarding the performance of the student and the gifted students can not share their products with the environment.

## 5. Conclusions

All subjects said that “they agree” with that the education-training implementation at centers are in accordance with the specified qualities. According to teachers’ opinion, it was concluded that the teachers at these centers encourage students to generate new ideas, enable them to express their opinions during courses, ensure that they associate their learning with real-life, provide in-depth education on subjects during courses, encourage students to learn subjects by discovering and questioning and direct them to project studies, etc. in order to educate the gifted students.

The center teachers state that they agree with the situations specified in the study in relation to guidance variable. In other words, it was concluded that they can pay attention to each student individually, the selected students can express their opinions better at these centers, they do not face much difficulty in adaptation to centers, they enthusiastically participate in group studies and professional guidance and counselling is provided at these centers etc.

The teachers suggest that the physical equipment at the centers are not sufficient. According to the teachers, the centers are not well-equipped physically and do not have sufficient material, tools, playground, computers, library facilities and sources.

The teachers state that the centers do not take part in school-environment collaboration. In other words, it is concluded that the schools are not well aware of Bilsem implementation, the school teachers and Bilsem teachers do not communicate to exchange their opinions about the student, the school teachers’ opinion is not incorporated in the education-training process at centers and this process is not carried out in collaboration with the student's school etc.

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