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Full Length Research Paper

Analysis of the relation between creativity level and problem solving skills of gifted and talented students

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Received 24 July, 2019; Accepted 4 September, 2019

The aim of this study is to analyze the relationship between intellect and creativity level of students with gifted, and to understand the relationship between their creativity level and creative problem solving skills. The target group of this study consists of a total of 20 primary school students between the ages 7 and 10; it is determined by the counseling and research center that the students involved in the study have gifted and talented. The study is carried out in Nezahat Gökyiğit Botanical Garden in Turkey; the Botanical Garden presents a natural living and learning environment to students who voluntarily participated in this study. A and B forms of The Test for Creative Thinking—Drawing Production TCT-DP is used in the study to determine the creativity levels of students. Students carried out extensive discussions about building hydroelectric power plants on the basis of Six Thinking Hats method and creative problem solving stages. The students wrote down their thoughts about each step to the study guides specifically designed for this purpose. After completing the answering and application processes, semi-structured interviews are held with students and data are collected. The obtained data indicates that there is not a meaningful difference between IQ score and creativity levels of students. According to the study results, there is a relationship between Urban Creativity test scores and creative problem solving skills. It is observed that students with high scores create more ideas (fluency), they have more ideas in different categories (flexibility) and their ideas are more extraordinary (originality). On the other hand, it is determined that there is no difference between groups in terms of detailing thoughts (elaboration).

Key words: Gifted and talented education, relationship between creativity and intellect, creative problem solving-creativity relationship.

INTRODUCTION

When we take a look at the skills that are necessary in the New Age, it can be seen that an individual should know how to learn, should have the skills of listening and speaking, have the responsibility to take part in teamwork and be cooperative, have high self-respect and motivation besides the abilities of creative thinking and problem solving. We can say that there has been an increase in the need for creativity and problem solving.
skills in the modern world. Quote source of information.

It can be said that there is an attempt to analyze and explain the notion of creativity in the related literature in a wide perspective: creativity is analyzed in the scope of different disciplines and specialties (Amabile, 1996; De Bono, 1995; Stacey, 1996; Sternberg, 1999). When the information about gifted children and their education in the related literature are researched, it is seen that the literature presents some patterns to researchers; studies in the field are mostly about the relationship between creativity and intellect (Getzels and Jackson, 1962; Sternberg, 2003; Silvia, 2015), about defining, assessing and developing creativity in general or about domain-specific creativity (Adams and Hamm, 2010; Akgül, 2014; Ayas and Sak, 2014; Balka, 1974; Kanli, 2014; Mann, 2006; Moravcsik, 1981).

The question about the relationship between intellect and creativity is an important issue not only for the studies about personality, but also for researches and studies about gifted children (Getzels and Jackson, 1962; Renzulli, 1990). According to the research and study results of some researchers, there is a relationship between intellect and creativity (Sternberg and O’Hara, 1999). This relationship can be conceptualized on the basis of the possible relationship between two basic sets; for instance, while some researchers claim that creativity is a subset of intellect, some claim that intellect is a subset of creativity. Different from these two viewpoints, some researchers believe that these two groups are overlapping or discrete sets. Studies on the relationship between intellect and creativity are especially important for defining and analyzing the notion of ‘being gifted’ (Sternberg and O’Hara, 1999; Renzulli, 2016; Sak, 2016).

It can be said that Marland (1972) report is the first official document which clearly emphasizes creativity as an inseparable part of being gifted. Giftedness and creativity literature involves various studies focusing on the association of creativity with intellect, and defining and developing general and domain specific creativity types. Besides, separate from its relationship with intellect, creativity is a highly important notion in the education of gifted children; it is assumed that creativity is as important as intellect in education process. There is a great deal of emphasis on developing creative abilities in program developing studies. The issue of general creativity is analyzed in the first studies and curriculums are based on improving this ability. On the other hand, it can be seen that domain-specific creativity has become more important in recent studies. According to Sternberg et al. (2004), “a general skill or aspect could actually be specific to a domain or sometimes to a duty” (p. 13). Domain-specific creativity studies are extended in a way that they now involve science and mathematics education in these domains.

Despite the fact that there has been an increase in the interest about creativity in specific domains such as science and mathematics, it is yet impossible to say that there is sufficient number of study or research data about the relationship between creativity and intellect; and the same goes for the studies in Turkey.

It can be said that it is crucial to give importance to the projects of education in the nature which prioritize finding solutions to the problems of nature. Using creative techniques in these processes will not only reveal the solution suggestions of gifted children, but also give us the chance to analyze their viewpoints and original assessments; this is why, in depth and explanatory studies are important to obtain valuable data. There are some contradictory results in the literature about intellect and general creativity. The goal of this study is to find some proofs about the creativity of gifted children who received science education in the nature in the scope of the understanding of ‘education in nature’.

Creativity and education of creativity

There is a variety of definitions about creativity and unfortunately it is not possible to say that there is a specific and common definition about the notion. On the other hand, there are some aspects that are commonly attributed to the notion of creativity by many researchers. Sak (2016) says that “When all of the theoretical studies in the field of creativity are combined to reach a reliable definition, we reach this result: When a product is new and proper, it involves creativity” (p.14). We can say that it is necessary to satisfy the criteria of innovation and appropriateness to reach something “creative” (Sak, 2016). At this point, it is important to note that innovation and appropriateness are necessary, but not sufficient. Qualification and importance of creative products are other determinants in assessment of creativity level of a product (Sternberg and Lubart, 1995 cit. Sak, 2016).

Although there was the belief that creative abilities of individuals were transmitted through genetic aspects, this belief has changed in years; today, it is believed that there are individual differences in creative abilities and creativity can be supported and developed when proper education is given. It is believed that when students have the chance to get proper learning opportunities, when they have proper conditions and teaching practices in education process, they will learn ‘creativity’ and develop their potential in this respect (Sak, 2016; Tok, 2008; Tezci, 2002; Johns, Morse and Morse, 2000; Singer and Singer, 2008; Torrance, 1995, 1968; Shalley, 1991). Results of researches about developing creativity indicate that qualification of education about developing creative thinking is highly important (Tezci, 2002; Johns et al., 2000; Singer and Singer, 1998; Torrance, 1995, 1968; Shalley, 1991; Karataş and Özcan, 2010).

On the basis of these data, it can be said that every individual has some level of creativity (Runcio, 2004); but various factors such as family, educational environment, socio-cultural and socio-economic environment have important effects on the emergence and development of creativity. People living in societies that don’t put
individuality at the center have lower chance to discover their creativity. On the other hand, creativity can be developed through special education programs and techniques. Importance of discovering and supporting creativity is emphasized in various disciplines. Covington et al. (1967) stated that developing creative thinking skill should be the primary goal of educational programs. Taylor and Barron (1963) mentioned that teachers should know that students aren’t simply learners; they are thinkers, producers and creators at the same time.

Creative working requires implementation and balancing of three abilities: Synthetic, analytic and practical (Sternberg, 1985; Sternberg and Lubart, 1995; Sternberg and O’Hara, 1999; Sternberg and Williams, 1996). All these abilities can be supported and developed (Gelman and Gottfried, 2006; Moran et al., 2003; Runco, 2004).

Synthetic ability is considered as the feature of ‘creativity’. Man, described as ‘creative’ by others, is a qualified synthetic thinker who is able to make connections between issues that aren’t immediately perceived by others. Analytic ability on the other hand is generally considered as the ability of critical thinking. Man who has this ability analyzes different ideas and assesses them; even the most skillful person has thoughts that can be defined as ‘better’ and ‘worse’. A creative thinker can have good and bad ideas without a well-supported analytic ability. Creative individual uses this ability to analyze the content of a creative idea and to test it. Practical ability is used to turn theory into practice, to turn abstract ideas into practical success. Content of investment theory in creativity is based on the argument that ‘great ideas don’t sell themselves’. A creative man uses his practical ability to pursue others that he has a great idea. For instance, each organization determines some rules to conduct its affairs. When an individual presents a new procedure, he has to pursue others that this new idea is better than the previous one. Practical ability is at the same time used to promote ideas that have potential listeners (Sternberg et al., 2008).

Guiford in his theory of the ‘Structure of the Intellect’, argues that intelligence consists of numerous intellectual abilities. His theory has been an inspiration to a variety of researches, studies of test developing, and educations for developing creativity. He states that, as a part of operation dimension in his theory, intellect is a composition of convergent and divergent thinking (Sak, 2016). Divergent production/thinking can be considered as creativity. Guilford (1967) defines divergent thinking as a structure made of the dimensions of fluency, flexibility, originality and elaboration.

Fluency: It can be defined as the skill to produce great number of ideas that are believed to increase creativity.

Flexibility: It can be defined as the state of getting rid of the monotony in thinking, to be able to simultaneously propose different approaches to problems, to think in the frame of a variety of categories and adapt to different situations.

Originality: It is extraordinariness and originality in producing an innovative product; it can be said that originality is the most developed feature of creativity. It is the state of being able to think what others cannot in the process of generating ideas.

Elaboration: It is the ability to explain ideas in a detailed, enriched and elaborated manner.

Creative Problem solving and Six Thinking Hats techniques/methods, which are believed to be efficient in developing fluency, flexibility, originality and elaboration dimensions of creative thinking, are used in this research. Information about their relations with creativity and their application methods are presented subsequently.

Creative problem solving

Modern Educational approaches give importance to support and develop student problem solving skills rather than uploading knowledge. Freire (2003) defines this as a transition from banking education concept to problem based education model. Similarly, according to Gagne (1980), the real, basic reason of education is to teach students how to think and enable them become better problem solvers. If the notion of ‘problem’ is short defi ned as the difference between a current state and the desired one, then ‘problem solving’ can be defined as the entire cognitive, emotional and dynamic processing/processes used for eliminating this difference.

There are different techniques and approaches for problem solving. One of this is the technique called creative problem solving technique. This method, which has been analyzed and developed in variety of conceptual, theoretical and practical studies, was first shaped created and introduced by Osborn (1953) and Parnes (1967). Osborn (1953) defines creative problem solving as the process of approaching a problem and finding a new solution to it by using imagination and judgment; according to Osborn, every individual can learn this process. Creative problem solving technique, which has evolved and changed in time, was finally shaped as a concept involving six different stages (Isaksen and Treffinger, 1985). The first stage involves an active divergent thinking (fluency, flexibility, originality and elaboration). Sak (2016) calls this process as “production”. Innovative, frantic and different thoughts are accepted and brainstorming is the basic process of this stage. It can be said that the so called synthetic ability by Sternberg (1985) is put into practice in this process.

The second stage involves a process of decreasing alternative ideas that are produced in the first stage, through elimination on the basis of personal judgment; in other words, the ability of convergent thinking it put into
practice. This stage can be called “focus” (Sak, 2016). Analytic thinking ability is active in this stage; besides, the goal is to reach especially elaborated and original thoughts through divergent thinking skills. Creative problem solving is made of a total of 6 stages; 3 main and 3 sub-stages. The definitions of creative problem solving stages is presented in Figure 1. Creative Problem Solving model was first developed by Osborn and Parnes in 1966; the model was developed and finalized by Treffinger and Isaksen after 1980s. It is based on 6 stages: objective finding, fact finding, problem finding, idea finding, solution finding, acceptance finding.

Firstly, all of the thoughts, questions and feelings are analyzed without making any judgments; this process requires a divergent thinking based study. Another study that requires convergent thinking is carried out as the next step; the ideas that are produced in the first stage are analyzed in this process. Students have the chance to use fluent, flexible, elaborated and original thinking skills in all of the stages of creative problem solving.

6 thinking hats method

One of the most reliable and proper teaching techniques that can be used in schools is six thinking hats model developed by De Bono Edward (1985); the technique supports synthetic, analytic and practical abilities in terms of creativity. Six thinking hats method gives students the chance to improve all these abilities. It is highly practical and easy to use in schools. It aims at putting six different thinking styles into practice under six different hats in order to develop parallel thinking skill. Each hat requires a different type of thinking and individuals generate thoughts required by that hat. This process enable students look at an incident or problem from different dimensions. The ways of thinking and questions to be asked at each hat are presented thus (Carl III, 1996).

White Hat (Neutral hat): Information and facts about a topic are collected, there is no judgment. Questions such as: “What do I know right now? What do I want to find out? How can I reach the information I need?” are asked. It is especially necessary to use fluent and elaborated thinking abilities.

Black hat (Negative hat): It is necessary to act like a prosecutor in an inquiry in this step. The topic is criticized, risks are calculated. Negative questions such as “What are the difficulties? What are the weaknesses? What kind of threats are there? Flexible and elaborated thinking skills are mainly used just like the process in white thinking hat.

Red hat (Subjective hat): This hat is about emotions. Intuitive reactions or expressions of feelings without the need of justification are significant. Individuals try to express their personal feelings and understand the feelings of others. Emotions and intuitions are important in this step and flexible and original thinking skills are more active.

Yellow hat (Positive hat): Students focus on positive points and advantages of the issue. Positive, happy
thoughts are generated. Questions such as: “What are the good points in this issue or incident? What are the benefits in this incident? Why do you think this idea or thought will lead a positive result?” should be asked.

**Blue hat (Decision maker):** It is the supervisor hat which regulates, organizes thinking. Students focus on thinking about thinking; cognitive skills are practiced in this step. Questions are about the generated thoughts. It is the hat that has the highest relations with other hats. Fluent, flexible, elaborated and original thinking skills are used in this thinking hat. Thinking is organized and action plan is prepared.

**Green hat (Creative hat):** Students focus on thoughts, alternatives and possibilities. This stage requires generating new ideas; precautions are calculated to prevent or remove negativities and drawbacks, which are determined in black hat stage. Original thinking skill is intensely used. It is important to note that hats are especially designed to ensure students generate a variety of thoughts in different categories; students are required to elaborate what they think. They are supported for finding solutions and answers to problems. On the basis of all these, it can be said that all of the sub-dimensions of divergent thinking are separately used in each hat. On the other hand, using six thinking hat technique in creative problem solving stages and applying it in each sub stage will contribute to reaching productive, clear and original results.

**MATERIALS AND METHODS**

Case Study method is used in this research. A researcher carefully observes a child, a classroom, a school or unit in this study method. Various incidents are observed and analyzed in details to be able to make generalizations about the environment of a subject unit (Cohen and Manion, 1989). Case study analyses are especially proper for studies that are carried out personally as it gives opportunity to make detailed analysis about a dimension of the subject problem; it also enables researchers conduct a study in a short period of time. Case study method is preferred in this research in order to better understand subject students; the approaches preferred by them in finding alternative solutions to environment problems, generating ideas and making detailed analysis about these problems by using creative problem solving method are analyzed by researchers.

A specific case is researched, analyzed and tested in a case study process. Case is defined as a whole system with specific borders (Stake, 1995). Anything that has borders or is a unified whole is either a case or a subject of a case. Either a case whose borders are predetermined is chosen and researched or researcher personally determines the border of his/her research in case study method (Stake, 1995). This study is limited to a creative problem solving activity about environment problems (establishing of Hydroelectric Power Plants). Two different data are collected from students with this method. Data are collected on the basis of the student answers to the questions in the study guide specifically prepared for them and records of semi-structured interviews held with subject students.

**Study group**

It is determined that there is not sufficient number of studies about the education of students with gifted and talented in the related literature. As these students are especially sensitive to environmental problems and they are skillful in finding creative solutions, they are chosen as research subjects. Counseling centers determined that the target study group involves students with gifted and talented. They are chosen on the basis of voluntariness; the group consists of a total of 20 students at 2nd, 3rd, 4th and 5th grades. Wisc-R scores of students vary between 130 and 160. 70% of students have education in public schools while 30% of students receive training in private schools. Written consents of student parents are received before the application process and they are required to fill in health information forms (Figure 2). Urban Creative Thinking Test A and B forms average score values and percentages of participant students are presented in Table 1. Students with 11-17 creativity scores are in the sub-group while the ones with 18-37 scores are in the super-group.

**Data collection tools and analysis of data**

**Urban creative thinking test- drawing production**

The Test for Creative Thinking–Drawing Production (TCT-DP), originally developed by Urban and Jellen (1996) was adapted to Turkish by Yontar Toğrul (1998) and necessary reliability, validity analyses were carried out. The original test that was conducted in Hungary with a total of 1100 individuals could discriminate subjects with highest (25%) and lowest (25%) creative potential; so, the reliability of the test was quite high. The stability of scores in Turkish sample indicates that the result of this research is in parallel with the original one, in other words, it is reliable.

The Test for Creative Thinking–Drawing Production is an
Table 1. Urban creative thinking test scores.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Creativity scores</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Lower-Group</td>
<td>14</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>2</td>
<td>10</td>
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<tr>
<td></td>
<td>18</td>
<td>3</td>
<td>15</td>
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<tr>
<td></td>
<td>19</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Super-group</td>
<td>22</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

analysis tool that gives the opportunity to economically and simply assess creative potentials of individuals. The test can be conducted to any individual over five years old (5-95) and it possible to conduct it to individuals or groups. The assessment tool involves of two forms: A and B forms are successively presented to the participants. Administration duration is 15 minutes. There are six different fragments: A semi-circle, a dot, a big right angle, a curved line, a dashed line, a small open square outside a big square frame. “Big Square Frame” isn’t considered as a fragment piece. Each form is assessed right after the test application by taking the assessment standards into consideration (Urban and Jellen, 1996).

Assessment using the TCT-DP includes 14 criteria Creative Thinking Test (1) continuations (Cn), (2) completion (Cm), (3) new elements (Ne), (4) connections made with a line (Cl), (5) connections that contribute to a theme (Cth), (6) boundary breaking that is fragment-dependent (Bfd), (7) boundary breaking that is fragment-independent (Bfi), (8) perspective (Pe), (9) humor and affectivity (Hu), (10) unconventionality A (Uca); (11) unconventionality B (Ucb), (12) unconventionality C (Ucc), (13) unconventionality D(Ucd) (14) Speed (Sp) (Urban and Jellen, 1996; Urban, 2004; Urban, 2005).

These interactive criteria reflect the wholistic perspective about creative thinking. A score in one criterion doesn’t give information about creativity in statistical assessments; total score obtained from all of the criteria gives researcher data about the value of creative product. It is possible to reach a total estimated value about creativity skills of an individual through these criteria which are used for assessing a complete picture. This result is not considered as a conclusion about technical or artistic qualifications; it reflects a clear and flexible duty, a creative attitude and willingness for reaching extraordinary, original interpretations and solutions (Urban and Jellen, 1996).

The Test for Creative Thinking—Drawing Production A and B forms of students with gifted and talented are scored according to assessment criteria by two independent researchers. After that, grades given by the researchers are compared. The number of consensus and dissensus are determined and reliability of the research is determined by Miles and Huberman formula (Reliability = consensus/consensus+ dissensus). Reliability study, specifically designed for this study, indicated that there is 80% reconciliation (reliability).

Qualitative assessment tools

Qualitative data about the research are collected with study guide, observation forms and semi-structured interviews. A study guide is prepared for each participant student; activities are explained in details in study guides. All of the stages of creative problem solving are included in these creative problem solving forms which are adapted to environmental problems. The goal and topic of the activity are explained and necessary items are listed. On the other hand, there are specific spaces in which activity preliminary questions, student findings and interpretations are noted; there are post-application assessment questions in the form. Student views, data about the process and experiences about activities are collected with this guide and they are assessed as a part of data analysis. Semi-structured interviews are used to collect student views about the activity.

Application field of the study: Nezahat Gökyiğit Botanical Garden (NGBG)

Botanical garden is a natural living and learning environment organized to protect and reflect the relationship between plant families. Nezahat Gökyiğit Botanical Garden (NGBG) is a place for social activity aimed at protecting, understanding, promotion of biological variety; the garden is supported and protected by Ali Nihat Gökyiğit Foundation (ANG Foundation) (NGBG, 2013). NGBG is one of the most important out-of-school learning environments in Turkey; it is located in the middle of Istanbul, which is a significant metropolis, and it involves a variety of plant collections (Nuhoğlu, 2012).

Gifted and talented students carried out activities in Nezahat Gökyiğit Botanical Garden, which is a natural living and learning environment with the richest endemic species in Turkey. The activities are especially designed for improving creative problem solving skills in scope of the research.

FINDINGS

Findings about Intelligence test and urban creative thinking test-drawing production

Nanoparametric spearman correlation analysis is conducted to analyze the relationship between Scores of creative thinking test and Wisc-R intelligence test which is carried out by Student Counseling Center. Results of
the analysis are presented in Table 2. When Table 2 is analyzed, it can be seen that there is not a meaningful relationship between student intelligence scores and creative thinking scores \((p < 0.05)\).

### Creative problem solving application

Activities in scope of the study continued for 6 h. Students tried to solve a problem through experience by using 6 thinking hats method. They carried out discussions about hydroelectric power plants and environmental problems that they can cause. They suggested alternative solutions to the possible problems. Steps of creative problem solving method and content of 6 thinking hats method in scope of the application are presented in Table 3. Firstly, preliminary questions are asked to the participants to learn what they know about hydroelectric power plants and understand their thoughts about them.

#### Preliminary knowledge of students about hydroelectric power plants

Almost half of the students stated that they have no information about hydroelectric power plants. Some of the students defined hydroelectric power plants as machines, some defined as facilities that produce electricity and some others said that they are facilities that produce electricity by using solar, water or wind energy. One student stated that Hydroelectric Power Plants uses recycled materials, animal and plant wastes to produce energy. The number of students who believe that it is necessary to establish hydroelectric power plants is equal to the number of students who believe that they shouldn’t be established.

#### Discussion: Should hydroelectric power plants be established or not?

Data obtained from students throughout the process of creative problem solving stages about hydroelectric power plants are presented subsequently.

#### Step 1: Objective finding: Discussion about the available energy resources.

Students stated the energy resources they know in the first step of creative thinking; they carried out discussions about the benefits and damages of hydroelectric power plants. Students stated that they know power resources such as wind, solar, carbon, water and petroleum. It is observed that preliminary knowledge of students before starting problem solving process changed and increased. Studies of students in the first step are presented in Table 4. When Table 4 is analyzed, it can be seen that students are divided into two groups on the basis of their

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### Table 2. Results of the analysis of correlation between Intelligence, Creativity and Gender (Nonparametric Spearman).

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>r</th>
<th>p</th>
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<tbody>
<tr>
<td>Intelligence Scores (WISC-R)</td>
<td>20</td>
<td>135.35</td>
<td>10.091</td>
<td>0.022</td>
<td>0.927</td>
</tr>
<tr>
<td>Creativity Scores (TCT-DP)</td>
<td>20</td>
<td>35.70</td>
<td>11.365</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05.

### Table 3. Creative problem solving stages and 6 thinking hats.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Creative problem solving</th>
<th>6 Thinking hats method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determining preliminary information with preliminary questions</td>
<td>White Hat, Yellow Hat, Black Hat, Red Hat, Green Hat, Blue Hat</td>
</tr>
<tr>
<td>2</td>
<td>Introduction of 6 thinking hats method</td>
<td>White Hat</td>
</tr>
<tr>
<td>3</td>
<td>First step: Objective finding</td>
<td>White Hat, Yellow Hat, Black Hat, Red Hat</td>
</tr>
<tr>
<td>4</td>
<td>Second step: Fact finding</td>
<td>White Hat</td>
</tr>
<tr>
<td>5</td>
<td>Third step: Problem finding</td>
<td>White Hat, Yellow Hat, Black Hat, Red Hat, Green Hat, Blue Hat</td>
</tr>
<tr>
<td>6</td>
<td>Fourth step: Idea finding</td>
<td>Green Hat</td>
</tr>
<tr>
<td>7</td>
<td>Fifth step: Solution finding</td>
<td>Green Hat</td>
</tr>
<tr>
<td>8</td>
<td>Sixth step: Acceptance finding</td>
<td>White Hat, Yellow Hat, Black Hat, Red Hat, Green Hat, Blue Hat</td>
</tr>
</tbody>
</table>

---
Table 4. Objective finding data (energy resources).

<table>
<thead>
<tr>
<th>Creativity Score Ranges</th>
<th>Creative problem solving stage 1</th>
<th>Objective Finding – Energy resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fluency</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Lower-group between 11-17</td>
<td>Wind (9)</td>
<td>Non-Renewable Energy Resources</td>
</tr>
<tr>
<td></td>
<td>Solar (8)</td>
<td>(i) Carbon</td>
</tr>
<tr>
<td></td>
<td>Carbon (8)</td>
<td>(ii) Petroleum</td>
</tr>
<tr>
<td></td>
<td>Water (5)</td>
<td>(iii) Natural Gas</td>
</tr>
<tr>
<td></td>
<td>Petroleum (4)</td>
<td>(iv) Nuclear</td>
</tr>
<tr>
<td></td>
<td>Hydroelectric Power Plants (2)</td>
<td>Renewable Energy resources</td>
</tr>
<tr>
<td></td>
<td>Natural Gas (3)</td>
<td>(i) Solar power</td>
</tr>
<tr>
<td></td>
<td>Wave (6)</td>
<td>(ii) Wind power</td>
</tr>
<tr>
<td></td>
<td>Waste (6)</td>
<td>(iii) Hydraulic Power</td>
</tr>
<tr>
<td></td>
<td>Nuclear (5)</td>
<td>(iv) Biomass power</td>
</tr>
<tr>
<td></td>
<td>10 ideas</td>
<td>2 different categories 8 different categories</td>
</tr>
<tr>
<td>Super-group Between 18-37</td>
<td>Wind (10)</td>
<td>Non-Renewable Energy Resources</td>
</tr>
<tr>
<td></td>
<td>Solar (9)</td>
<td>(i) Coal</td>
</tr>
<tr>
<td></td>
<td>Carbon (10)</td>
<td>(ii) Petroleum</td>
</tr>
<tr>
<td></td>
<td>Water (10)</td>
<td>(iii) Natural Gas</td>
</tr>
<tr>
<td></td>
<td>Petroleum (9)</td>
<td>(iv) Nuclear</td>
</tr>
<tr>
<td></td>
<td>Hydroelectric power plants (8)</td>
<td>Renewable Energy resources</td>
</tr>
<tr>
<td></td>
<td>Natural Gas (7)</td>
<td>(i) Solar power</td>
</tr>
<tr>
<td></td>
<td>Wave (6)</td>
<td>(ii) Wind power</td>
</tr>
<tr>
<td></td>
<td>Waste (6)</td>
<td>(iii) Hydraulic power</td>
</tr>
<tr>
<td></td>
<td>Nuclear (5)</td>
<td>(iv) Geothermal power</td>
</tr>
<tr>
<td></td>
<td>Animal waste (4)</td>
<td>(v) Wind power</td>
</tr>
<tr>
<td></td>
<td>Plant waste (3)</td>
<td>(vi) Biomass power</td>
</tr>
<tr>
<td></td>
<td>Geothermal (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biomass (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Renewable energy (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural resources (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 ideas</td>
<td>2 different categories 10 different sub-categories</td>
</tr>
</tbody>
</table>

creative thinking scores; students in the super group generated more ideas, they had more sub-groups, they generated a higher variety of ideas, and they elaborated the ideas they produced. Data about the benefits and damages of hydroelectric power plants, obtained from students are presented in Table 5; the data are collected as a part of objective finding process. When Table 5 is analyzed, it can be seen that students are divided into two groups on the basis of their creative thinking scores; students in the super group generated more ideas, they had more sub-groups, they generated a higher variety of ideas, and they elaborated the ideas they produced.

Step 2: Fact finding

Fact about the specific, complicated case are collected and information about the state is increased in this step. Information, unknown points, problems, obstacles and necessary information are determined to explore and explain the case. All of the information to be collected in this step serves the purpose of solving complication and starting innovation. What, Which, Who, How, Where, When are some of the questions asked in this step; collecting data to better understand the problem, researching the accuracy of intuition, observation and emotion is important in this step. Students are asked to prepare some questions to collect data about Hydroelectric Power Plants. Questions are presented in Table 6.

When the Table 6 is analyzed, it can be seen that fluency scores of supergroup students in terms of questions generated in fact finding section are higher than that of lower group. Moreover, supergroup students created two different categories when compared to lower group students.
### Table 5. Objective finding data (Benefits/damages of hydroelectric power plants).

<table>
<thead>
<tr>
<th>Creativity Score Ranges</th>
<th>Creative problem solving stage I</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Elaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Energy production (5)</td>
<td>Destruction of natural beauties (8)</td>
<td>Electrical power</td>
<td>Destruction</td>
</tr>
<tr>
<td></td>
<td>Electric production (4)</td>
<td>Extinction of living creatures(5)</td>
<td>Economic values</td>
<td>(ii) Living creatures</td>
</tr>
<tr>
<td></td>
<td>Irrigation of lands (5)</td>
<td>Destruction of historical artifacts(3)</td>
<td>(i) Agriculture</td>
<td>(iii) Historical Artifacts</td>
</tr>
<tr>
<td></td>
<td>Economic value (5)</td>
<td>Cutting down trees (3)</td>
<td>(ii) Tourism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tourism (2)</td>
<td>Extinction of animals (2)</td>
<td>(iii) Transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transportation (1)</td>
<td>Destruction of fertile lands (1)</td>
<td>(iv) Preventing flood</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preventing flood (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 ideas</td>
<td>6 ideas</td>
<td>2 categories 4 sub-categories</td>
<td>2 categories 3 sub-categories</td>
</tr>
<tr>
<td>Super-group between 18-37</td>
<td>Energy production (10)</td>
<td>Destruction of natural beauties (10)</td>
<td>Electrical power</td>
<td>Destruction</td>
</tr>
<tr>
<td></td>
<td>Electric production (8)</td>
<td>Extinction of living creatures(8)</td>
<td>Economic value</td>
<td>(ii) Living creatures</td>
</tr>
<tr>
<td></td>
<td>Fishing (6)</td>
<td>Destruction of historical artifacts(7)</td>
<td>(i) Agriculture</td>
<td>(iii) Historical Artifacts</td>
</tr>
<tr>
<td></td>
<td>Irrigation of Lands (7)</td>
<td>Cutting down trees(6)</td>
<td>(ii) Tourism</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic value (5)</td>
<td>Extinction of animals (5)</td>
<td>(iii) Transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tourism (4)</td>
<td>Destruction of fertile lands (2)</td>
<td>(iv) Preventing flood</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transportation (3)</td>
<td></td>
<td>(v) Savings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preventing flood (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Saving(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-lasting(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 ideas</td>
<td>6 ideas</td>
<td>2 categories 6 subcategories</td>
<td>1 categories 3 sub-categories</td>
</tr>
</tbody>
</table>

### Step 3: Problem finding

Different ways about a complicated case are taken into consideration and the real problem that will reveal the problematic situation and reflect possibilities is determined in this stage. Students generate as many problems as possible. Problematic cases that are proper for the solution are defined and the most important problem is separated. There is the attempt to find the basic, real reason that causes the problem. The question “Why would establishing Hydroelectric Power Plants cause problems?” is asked. The problem is expressed with sub-problems. Each sub-problem is expressed with an open ended question starting with “In what ways …” Sub-problems:

- In what ways…?

Data obtained from students are presented in Table 7. The problem sentences generated by students are presented as follows:
Table 6. Fact finding.

<table>
<thead>
<tr>
<th>Creativity score ranges</th>
<th>Creative problem solving stage 2</th>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Elaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-group Between 11-17</td>
<td>Where should they be established? (5)</td>
<td>(i) The place they are established</td>
<td>Medium level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do they give any damage to natural resources and living creatures? (5)</td>
<td>(ii) Their damages to living creatures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How do they produce energy? (4)</td>
<td>(iii) The way they produce energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How does the electricity produced with Hydroelectric Power Plants? (3)</td>
<td>(iv) The way they function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How should we use natural resources? (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of a procedure should be followed to enable them function better? (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How can we prevent energy resources from being wasted? (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 ideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super-group between 18-37</td>
<td>What is the purpose of establishing Hydroelectric Power Plants? (2)</td>
<td>Hydroelectric Power Plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where should they be established? (5)</td>
<td>(i) The place they are established</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do they give damage to natural resources and living beings? (7)</td>
<td>(ii) Their impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How do they produce energy? (4)</td>
<td>(iii) Their damages to living creatures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How does the electricity produced with Hydroelectric Power Plants? (3)</td>
<td>(iv) The way they produce energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How should we use natural resources? (3)</td>
<td>(v) The way they function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of difficulties will we face if we don’t have technological progress? (2)</td>
<td>(vi) The impact of technological progress on environmental problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of a procedure should be followed to enable them function better? (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How can we prevent energy resources from being wasted? What will happen if Hydroelectric Power Plants aren’t prevented? (10 ideas)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 sub-categories</td>
<td></td>
<td>2 different ideas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(i) Does establishing Hydroelectric Power Plants destroy nature?
(ii) How can we prevent damages caused by Hydroelectric Power Plants?
(iii) How can we protect historical artifacts?
(iv) In what ways can energy necessity be decreased?
(v) In what ways can we eliminate the disadvantages of Hydroelectric Power Plants?
(vi) How can we prevent the destruction of natural resources?

(viii) Trees should be transferred to other places in cooperation with TEMA (the Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats)
(ix) Municipality can give financial support to people farming/agriculture
(xi) They can be established in a way that they don’t destroy natural lands
(xii) They can be built on places with no historical artifacts
(xiii) Historical artifacts can be moved
(xiv) Dams can be smaller
(xv) People can be directed towards conserving electricity instead of establishing Hydroelectric Power Plants
(xvi) Filters can be implemented to in Hydroelectric Power Plants to prevent damage to the nature.

Step 4: Idea finding

A variety of possible solutions that will answer problem question sentence are generated and promising solutions are chosen. Creativity scores are assessed in two different categories; solutions generated by students are presented as follows:

(i) Not cutting down trees
(ii) Creating new forests
(iii) Protecting natural resources
(iv) Finding natural energy resources
(v) Planting trees instead of building apartments
(vi) Establishing smaller Hydroelectric Power Plants
(vii) Protecting historical artifacts

(viii) Trees should be transferred to other places in cooperation with TEMA (the Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats)
(ix) Municipality can give financial support to people farming/agriculture
(xi) They can be established in a way that they don’t destroy natural lands
(xii) They can be built on places with no historical artifacts
(xiii) Historical artifacts can be moved
(xiv) Dams can be smaller
(xv) People can be directed towards conserving electricity instead of establishing Hydroelectric Power Plants
(xvi) Filters can be implemented to in Hydroelectric Power Plants to prevent damage to the nature.

Step 5: Solution finding

A list of criteria chosen for taking a step towards solving a problem, for preferring the best solution/solutions is used in this step. Ideas that are generated for finding solution, their impacts and validity are analyzed and carefully evaluated through new and different ways. The most proper and valid way for the solution of a specific problematic situation is chosen.
Table 7. Problem finding data.

<table>
<thead>
<tr>
<th>Creativity scores ranges</th>
<th>Creative problem solving stage 3</th>
<th>Finding problem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fluency</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Lower-group between i-17</td>
<td>(i) In what ways...</td>
<td>(i) Minimizing the use of electricity</td>
</tr>
<tr>
<td></td>
<td>(ii) Can artifacts be protected? (4)</td>
<td>(ii) Making Hydroelectric Power Plants safer</td>
</tr>
<tr>
<td></td>
<td>Can the use of electricity be decreased? (4)</td>
<td>(iii) Preventing damage to living beings and nature</td>
</tr>
<tr>
<td></td>
<td>(iii) Can Hydroelectric Power Plants be safer? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iv) Can the damage of Hydroelectric Power Plants on nature be prevented? (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(v) Can the necessity of energy be decreased? (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(vi) Can electricity production be increased? (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(vii) Can living beings in nature survive? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(viii) Can we prevent Cutting down trees? (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ix) Can we use Hydroelectric Power Plants more efficient? (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 ideas</td>
<td>3 sub-categories</td>
</tr>
<tr>
<td>Super group between 18-37</td>
<td>(i) In what ways...</td>
<td>(i) Minimizing the use of electricity</td>
</tr>
<tr>
<td></td>
<td>(ii) Can historical artifacts be protected? (5)</td>
<td>(ii) Making Hydroelectric Power Plants safer</td>
</tr>
<tr>
<td></td>
<td>(iii) Can the use of electricity be minimized? (6)</td>
<td>(iii) Organizing the location of dams</td>
</tr>
<tr>
<td></td>
<td>(iv) Can Hydroelectric Power Plants become safer? (4)</td>
<td>(iv) Preventing damage to living beings and nature</td>
</tr>
<tr>
<td></td>
<td>(v) Can we safely locate dams on valleys? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(vi) Can the damage of Hydroelectric Power Plants on nature be prevented? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(vii) Can the necessity of energy be decreased? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(viii) Can electricity production be increased? (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ix) Can living beings in nature survive? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(x) Can we prevent Cutting down trees? (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(x) Can we use Hydroelectric Power Plants more efficiently? (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(xi) How can we use natural resources?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 ideas</td>
<td>4 sub-categories</td>
</tr>
</tbody>
</table>

Criteria are determined to analyze ideas about solutions, to define advantages, limits and specific features of each idea. Criteria determined by students for solution suggestions: Cost (8), Duration (8), Security (7), Ethics (5), Probability of Success (7), Risk (5), Aesthetics (4), Persistence (3), Legitimacy (2).

**Step 6: Acceptance finding**

This step aim is to giving effort to accept the idea to find a solution, making decision about an action plan. Ideas for the action plan are developed and applied. The ways to make ideas or solutions more efficient, more acceptable, powerful, beneficial are sought in this step. Resources that can be beneficial in putting ideas into practice are researched, issues that may cause problems are determined. The ways that supportive resources or people can be beneficial in case of a problem are planned.

Cooperation with State+

Cooperation with public

Gaining the support of people who do farming/agriculture

Non-governmental organizations

Cooperation with Ministry of Environment and Urbanization

Cooperation with environment protection associations

I would explain that I do not want it as it is costly and takes a long time to be established

24 h: Brainstorming, researching and generating solutions, I discuss it with important figures

1 week: making agreement, interviewing with officers, I get approval and hold meetings

Long-term: Putting the project into practice, I gather signature, I would try anything to get rid of Hydroelectric Power Plants.

**Student views about activity**

After the observations during application process in scope of the research and the semi-structured interviews with students, it is determined that students actively
participated in all of the activities. It is also determined that students felt comfortable in the nature, they ask more questions, they work in cooperation with their friends, which are significant results. It is observed that they try to give examples from the nature during activities, they continue to make discussions about trees and they talked about protecting endemic species. Students mentioned that they are excited about exploring the nature and it is a new experience for them; they also stated that they have fun in doing so.

Student views are formulated with $n(G/B)_x$. “n” stands for the grade of students, “G/B” stands for the gender and “x” stands for the line of the students. Views of some students about activities are presented subsequently:

5G19: “I used to hear about Hydroelectric Power Plants but I have learnt what they are used for today, in the activity. We wore hats with different colors and told what we were thinking. I don’t want Hydroelectric Power Plants. I had discussions about this with my friends in my group. It was very good to be in nature.”

5B17: “I am very interested in the issue of Hydroelectric Power Plants. I really like this topic. The questions were just made for me. I thought a lot about it, me and my friends generated a variety of ideas. Each one of my friends had the chance to express his/her ideas although we sometimes argued about the topic. That is my kind of a place. I wish we had such classes in our school.”

4G19: “We talked about Hydroelectric Power Plants in this activity. We learnt about the advantages and disadvantages of them. We created problems and tried to find solutions. I had the chance to think, make assessments. I liked finding new ideas.”

5G18: “We learnt new information about electrical energy. I liked being in nature and generating new ideas. Questions were interesting and we gave a great deal of effort for finding solutions to problems.”

5G16: “I would never get bored of such classes. I had new knowledge and talked about my ideas by wearing different hats. I spoke freely and didn’t get any warning for telling my opinions; this is why, I never got bored of this activity.”

3B01: “I was abstaining from telling what I think at the beginning as I didn’t have any knowledge about Hydroelectric Power Plants; but I saw that my friends told whatever they wanted, so I started talking about my ideas, asking what I want and answering questions. I told my feelings with red hat, I was very nice, I liked that.”

4B06: “I didn’t know that solving a problem is this easy; but then I learnt how to find different solutions when I could think things through. I got a little bored, I had a little difficulty, but I felt that I understood the subject when the activity was completed.”

**DISCUSSION**

It is determined that there is not a meaningful relationship between intelligence scores and creativity levels of gifted students who participated in the study. This result is consistent with the results of a previous similar research whose goal was to determine the relationship between intellect and creativity on the basis of gifted students sampling (Barron, 1963, 1969; Tannenbaum, 1983; Runco and Albert, 1986; Yong, 1994; Ogurlu, 2014). Fox (1981) analyzed 14 different researches which are about the relationship between intellect and creativity and stated that there is a low relationship between these two variables.

It is possible to explain the result of this study with Spearman’s (1927) “Law of Diminishing Returns (SLODR)”. In terms of the law of diminishing returns, it is possible to say that the relationship between creativity and intellect in higher intellect levels is lower than the relationship of the same two variables in lower intellect levels. There are also some other research findings that don’t conform with the results of this study. For instance Preckel et al. (2006) reported that according to their study, there is a meaningful relationship between creativity level and intelligence scores. Difference in age, education and talent groups used in different studies may lead to different results in terms of the relationship between creativity and intellect; size of the sampling, using different methods for assessing intellect and creativity can be some other reasons of differences in study results. On the basis of this data, it can be said that it is necessary to make more researches that involve bigger population and more studies that involve data collected from wide and different levels of skills with more than one intelligence and creativity scale.

It is seen that creative problem solving technique is used in education programs for enabling students create new and original solutions (Treffinger, 1995); moreover, the technique aims at creating enrichment activities designed for gifted students (Renzulli, 2016). Cramond et al. (1990), carried out a study about the generalizability of creative problem solving for daily life problems; they worked with a total of 75 gifted children in 6th, 7th and 8th grades. At the end of the study process, they found that there are meaningful differences in problem solving scores of the group who practiced creative problem solving skills along with the skill of transferring. It is emphasized that education on analogy and reasoning given besides problem solving education is efficient in solving real-life problems.

Karabey (2010) conducted a study for determining the access level of gifted and talented students to creative problem solving in mathematics and their critical thinking skills. According to the study, there is a meaningful difference between 6th and 7th grade students’ creative problem solving and critical thinking skills. In this respect, it is seen that critical thinking skills of students is higher than their creative problem solving skills. Studies of students carried out in the scope of creative problem solving activities are assessed on the basis of 4 dimensions of creativity (fluency, flexibility, originality,
elaboration). Creativity scores of Urban Creativity Test are analyzed in two categories; lower-group and supergroup. 10 students with scores ranging from 11 to 17 are included in the lower-group while 10 students with scores ranging from 11 to 17 are included in the supergroup. Data are obtained from gifted and talented students in all the stages of creative problem solving and they are assessed in terms of the dimensions of creativity. At the end of the research process, it is determined that students in the supergroup are more creative than the ones in the lower-group in terms of generating more ideas, generating ideas in different categories and having more original ideas. Fluency has become a sub-dimension of creativity because of the close relationship between creativity and divergent thinking (Guilford, 1967). It can be said that creativity increases in line with the increase in the number of thoughts. On the other hand, it should be noted that although emerging a variety of ideas is important for creativity, it is not sufficient. At this point, emerging thoughts in different categories becomes another important dimension of creativity. If we assume that there are two students with the same number of ideas, but one student’s ideas involve more concepts, fit into more fields, disciplines and categories, then we can say that this student has bigger creativity potential as he has the ability to think in a more flexible manner. Besides fluency and flexibility, elaboration of the emerged ideas is a significant dimension in terms of creative thinking. While fluency, flexibility and elaboration are important dimensions of divergent thinking, it is possible to say that this type of thinking is in close connection with thinking about being thought by others and being able to emerge ideas that cannot be emerged by others. Both the general creativity scales (Torrance, 1966; Urban and Jellen, 1996) and domain-specific creativity scales (Balka, 1974; Akgül; 2014) in the literature use a scoring system on the basis of fluency, flexibility, elaboration and originality dimensions. A similar method is used in this study and ideas created by students are scored on the basis of these dimensions. At the end of this process, it is determined that 1) students with higher creativity level generated more ideas, they thought in a more flexible manner, they could elaborate their ideas and generated more extraordinary ideas; 2) studying with a creative problem solving technique stimulated all of the students for thinking in a more fluent, flexible, elaborated and extraordinary manner.

Use of six thinking hats technique along with creative problem solving technique has been beneficial in preventing any possible conflict during idea-creation and determining valid thoughts. Efficient use of 6 thinking hats technique requires respect during activities; students have to be respectful to the viewpoints and thoughts of others; thus students are able to see that every different perspective is valuable (De Bono, 1995). This technique gives the opportunity to transform a process of sensibility and skepticism of students during thinking, into a normal and rational process; it also enables students use creativity during decision-making. There is the effort to make others accept the generated ideas, namely others should be convinced. In this respect, it can be said that practical ability is used in every hat. On the other hand, using six thinking hats technique in creative problem solving stages and in all of the sub-stages contributes to reaching more productive, clear and original results.

It is believed that divergent thinking and problem solving skills which are related with the issue of creativity, can be supported and developed just like creativity. Besides, it should be noted that increasing the creativity skills of students with only one lesson per week is not possible; education programs should be reorganized for this purpose and creativity activities should be involved in every field of education. Teaching techniques supporting creative thinking process should become a part of education. It is believed that supporting and developing this skill in traditional classroom environments is not possible; moreover, current education system decreases the creativity of students. Students should be the subjects of education programs instead of objects; they should be independent individuals who actively contribute to learning process. They should feel free to express their thoughts, ideas and knowledge. Learning environments should be organized in this respect, each one of students should be respected for their viewpoint and they should be taught that there is not always a single, correct solution for a problem. Although creating such classrooms/learning environments is not easy for teachers and school managers, results will be motivating; it’s thus worth the effort.

Suggestions

Students made some solution suggestions to the problems caused by hydroelectric power plants by using creative problem solving and six thinking hats techniques. Although students practiced these techniques for the first time in solving problems, they were able to bring some solution suggestions that were original and that could really be efficient in practice. Suggestions in the light of the findings obtained from this research are separated into two groups as “suggestions for primary school practices” and “suggestions for new researches”. Suggestions on the basis of the research results are presented further.

Suggestions about the Result of this Study

(1) Techniques and activities designed for the purpose of increasing creativity of students should be a part of teaching designs.
(2) Enriched and differentiated classes in which creative problem solving techniques are used to increase the
creativity levels of gifted and talented students should be designed.
(3) In-service trainings can be organized to increase the knowledge of teachers on how to support student creativity.
(4) Associating creative problem solving and six thinking hats technique and using them together in lessons will increase the creativity of students; it is thus important to follow this process in classes.
(5) Current education system mostly involves closed-ended questions that direct students towards a single right answer. Presenting students open-ended questions/problems that lead them towards multiple-thinking will give them the chance to make more fluent, flexible and original analyses; thus, they will be able to build interdisciplinary relations and work on the basis of a multidisciplinary process. On the other hand, their creativity will increase.
(6) Student motivation for focusing and generating creative ideas can be increased in learning environments out of school.

Suggestions for future researches on the subject

There is not sufficient number of researches in the literature about understanding the nature of creativity in gifted children; it is necessary to conduct researches and studies on the basis of the relationship between the nature of creativity and different variables. The use of creativity in education programs of gifted and talented students increases the need for researches carried out in different teaching-learning environments.

(1) This research is conducted with primary school students between the ages of 7 and 10. New researches can involve students from different grades of education.
(2) Effects of creative problem solving and six thinking hats technique besides lesson activities can be analyzed on the basis of different disciplines.
(3) The same study can be conducted on students with normal intelligence level and data obtained from two groups of students with different intelligence levels can be compared.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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In this study, the education system of the Republic of South Africa was explored. The study focused on the successes as well as problems faced by the educational system. The research questions focused on the quality of education in the country. It also explored the problems faced by students as they try to gain access to schooling at all levels of the education system. Qualitative methods were used to collect data for the study. More than 120 local newspapers were sampled for the study. The main findings from the study are that although some of the universities are highly ranked among universities in the world, the education system contains inherent problems which include poor teacher quality and outmoded curriculums.

Key words: Education system, content analysis, South African Republic, media messages, colonialism.

INTRODUCTION

Education is shaped by the knowledge, experience and values that exist in the culture of a society” (Ozdemir et al., 2012: IV). Such knowledge, experience and values may vary from country to country, and from society to society. The presentation of these differences with samples from different countries and disciplines could contribute to the academic studies in many dimensions. As it is known, comparative education is the study to find out the similarities and differences in the two or more educational studies and how they are (Thomas, 1990: 1). Basically, it is a process during which education policies and practices are borrowed (Aynal, 2012, 207). Reflected in the education system of society or countries by comparative education, issues in economic cultural, political relations, if any, can be revealed. It also provides the opportunity to obtain in-depth information about different educational systems and to discern differences. In short, it provides data, findings, results and evaluations specific to studies in educational sciences. It guides the decision makers and researchers in the field and contributes to their efforts to understand the problems and to provide solutions.

This study was conducted on the South African Republic (SAR) education system during the period when the researcher was in the country and had the opportunity to gather the relevant data directly from its original source, along with his experiences in the country. In order to reach the aim of the research, answers to the following questions were sought: What are the highlights of the SAR education system? What are the issues
related to the education system that have been the subject of newspapers in the SAR and what are the problems of SAR’s educational system?

MATERIALS AND METHODS

It is a descriptive research which employs qualitative research methodology. Document and content analysis were employed. For the descriptions, exploratory, descriptive and explanatory strategies (Büyüköztürk et al., 2008: 248-249) and content analysis were used.

The population of the study is the SAR education system. The sample is the issues related to SAR education system discussed in newspapers which is one of the channels of media.

Data collection tools and data analysis

Research data was obtained from document analysis and newspaper contents. Document analysis consists of data compiled from various sources about SAR and SAR education system. Concurrently, data related to the education system were also compiled from newspapers. The newspapers from which the data were collected were chosen from the ones published between January 2016 and March 2016 in English at the national level. It consists of 10 newspapers per week and 120 newspapers in total. The names of these newspapers are: The Star, The Times, The Citizen, The Pretoria News, City Press, The New Age Newspaper and The Independent. The contents of the newspapers were first classified in order to contribute to the collection of purpose-oriented data and then they were subjected to content analysis. These data were divided into “meaningful and holistic categories to be homogeneous, distinctive and objective” (Bilgin, 2006: 19). They were categorized first by taking into consideration discourses (headings), subject matter subject to title, judiciary term, content, being positive and negative and their connection term and findings were obtained by supporting the analysis of the content (Büyüköztürk et al., 2008: 245-246). Additional document analyses were made during the process of interpretation. Results and suggestions along with the findings were obtained by document and content analysis. During this process, contents related to the issues and topics in SAR education system were prioritized.

FINDINGS

The findings were obtained by classifying the data according to the questions consistent with the purpose of the research.

What are the general topics and highlights of SAR’s education system?

“The Republic of South Africa (SAR) has a physical size of 1,219,090 km² (South Africa Government, 2016b). Geographically, SAR, which hosts the famous Cape of Good Hope, is located along the long coastline of The South Atlantic and The Indian Oceans. Namibia, Botswana, the Kingdom of Mozambique, Swaziland, and the State of Lesotho which are located in the SAR, are neighbouring countries. SAR, an African continent country, is located at the far end of sub-Saharan Africa. It is governed by a three-tier constitutional system of democracy at national, state and local level. There are three capitals at national level and seven capitals at state level. National level capitals are the cities where there are the executive, legislative and judicial powers. Accordingly, Pretoria is the capital of the executive. Cape Town is the capital of legislation while the capital of the judiciary is Bloemfontein. The country has eleven official languages. English is used across the country and Afrikaans is the language of communication or the mother tongue in the regions where the communities of Afrikaans (Dutch) live. The rate of use of eleven official languages as compiled by South Africa Government (SAG, 2016a) is as follows: Zulu (isiZulu) 22.7%, Kozen (isiXhosa) 16%, Afrikaans 13.5%, English 9.6%, in Sipidan (cart) 9.1%, Tsswana (Setswana) 8%, Sisetho (Sesotho) 7.6%, Songa (Xitsonga) 4.5%, Seswati (Siswati) 2.5%, Venda (Tshivenda) 2.4%, and Ndebele (isiNdebele) 2.1%.

"The gross national product is three hundred and fifty billion dollars and the per capita income is six thousand and eight hundred dollars” (The World Bank, 2015). According to data from the World Economic Forum (WEF, 2014), “it is the fifty-fifth competitive country of the world”. In terms of human development index, it ranks one hundred and eighteenth in one hundred and eighty-seven countries. In terms of the quality of the education system, "it ranks one hundred and thirty-nine among the one hundred forty-three countries" (WEF, 2015).

According to the Ministry of Basic Education, in 25,741 private and public schools, there are 12,655,436 students and 425,090 teachers (Department of Basic Education, 2014). There are twenty-four universities in the SAR. The success ranking of these universities among the world universities, which is compiled in Ranking Web of Universities (RWOU, 2016), has surpassed all the universities in thirty-six countries in sub-Saharan Africa. The name and order of these universities are as follows: University of Cape Town is ranked 332, University of Stellenbosch is ranked 435th, University of Pretoria is 513th, University of Witwatersrand is 521 and University of KwaZulu-Natal is 717. In addition, the University of South Africa (UniSA) is a university that offers open education and has students in SAR and in all sub-Saharan Africa.

As reported by Wolhuter (2006), the educational history of the SAR is divided into three basic periods. It begins with the colonist period between the years 1652 and 1910 which was first managed by Dutch (Afrikaans), then the British. It is followed by the second period between the years 1910 and 1994 which is also referred to as the period of re-formation of the union. During this period, the practices that exemplify the elimination of equal opportunities in education by the government came to life. Practices based on apartheid in the education system have been an important milestone which lasted until
1948, the first phase of this period. Later, some unpredictable efforts to create a different education system have emerged in the regions where African people live, by churches. It is reported that this practice, which was initiated in 1953 and represented oppression and intimidation based on race in education, was called the Bantu education system. One of the results of apartheid and Bantu training practices is the grassroots in Morero (2016): that rose from Soweto and quashed gory in June 16, 1976, and continued in 1980s and the Bantu education system was abolished in 1994.

As reported by Wolhuter (2006), the third period started in 1994 and it is considered as the current period. It is reported that the beginning of this period is based on an agreement on changing the form of management. This agreement is explained as, instead of colonialist and apartheid regime practices, it is the practice of a new form of government based on the constitutional and liberal economic model in Western Europe. Later, this agreement and the following practices in a sense, has started the differentiation of about 350 years of history, in favour of black peoples. As a reflection of this process in 1994, the first democratic election was held in which all the peoples of the country participated equally. It is highlighted as one of the important results of this election that the political formation supported by the black people took over and the leader of African people Nelson Mandela became the first black-origin president in the SAR.

In the new period that started in 1994, the education system was structured on four basic principles with the curriculum on two basic principles. Principles of the education system as stated by the Department of Basic Education (2011: 2) are “democratization, equality, multicultural education and ending race discrimination”. The principle of the curriculum is output-based curriculum model and national quality framework.

What are the issues related to the education system discussed in newspapers in the SAR?

The findings obtained through the analysis of newspaper contents and the research sample were divided into four categories: (1) university student actions, (2) matric exam results, (3) information technology based projects, and (4) other topics.

University student actions usually consisted of a theme after “#” and followed by slogan expressions “MustFall”. Two of these titles are “#AfrikaansMustFall” and “#OutsourcingMustFall” which meant Afrikaans must be compulsory medium of instruction and the contracted employees must be tenured (Goba, 2016). There are such explanations, referring to the party called Economic Freedom Fighters (EFF), as “according to the EFF student commander, about 2000 students from the EFF participated in the protests”. The protests have been lasting for 4 days. They are student protests. The same content also included the statements of the government officials: “Such requests will be assessed. However, there was a statement that the decision-makers in this matter are not the student movements but university senates” (Makhetha, 2016). The representative of the Ministry of Higher Education: “We do not approve of closure of schools and classrooms by protests in universities. The Higher Education Law in the SAR was updated and revised in 2007. Here the applications of higher education are carried out in accordance with the government's priorities and programs on the basis of White Paper 3 adopted by the Ministry of Education adopted in 1997 and development plans” (The Star-leter, 2016). In the content, the basic principles of Higher Education are also explained. These are: “to provide opportunities for young people to receive quality and equitable education, academic freedom, independence of institutions, accountability and pre-dialogue”. The theme of tuition fees should be abolished by using "#feeMustFall" (Makhetha, 2016) and Monama (2016a). In addition, although it was not directly related to education, it was seen that the newspapers in the sample had some other themes in the same period. These are the themes "#RhodesMustFall" which means philosophy of Rhodes must end and “#ZumaMustFall” which means President Zuma must go (Goba, 2016).

The results of the matric exam were mainly focused on the low level of student achievement, the measures to be taken, and the ways in which alternative learning opportunities were brought to life. "The success indicator of the 12 schools in KuwaZulu Natal is zero" (Antuli, 2016) has formed the content. Regional authorities of the ministry of education denied this. “An assessment meeting was held because of the fact that the matric test results of 12 class students who were studying in the KZN region decreased by 9% compared to the previous year” (Antuli, 2016). In this content, "the state and regional politicians, municipal and school representatives, and parents also gathered in schools to evaluate what could be done to make the results better” was also included.

“That National Financial Assistance Policies (NFAP) also include the students who cannot succeed in the matric exam and cannot go to university and the students benefit from these resources are discussed in the annexes” (Nzimande, 2016). Here, NFAD, “in 21 main sectors, it is explained that there is a program that provides financial support for vocational training and establishment of business, especially for university and vocational education institutions”. Similar content is analysed in the Mlambo (2016) with the help of visuals in about 6 full pages.

One of the contents related to the decrease in the success rate of the matric exam is attributed to "unavailability of quality and equalitarian education" by Prince (2016). In the continuation of this content, the
Table 1. Information technology based education projects in SAR conducted by national and regional state organisations.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Reference</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart schools project</td>
<td>Phaladi (2016, Feb. 10)</td>
<td>64000 tablet computers were distributed in 2015. 81% of them have been returned and most of the 12000 computers have been stolen, as also reported by the police. Tracking chips that were installed on the computers to prevent robbery have been removed from computers which have made tracking impossible.</td>
</tr>
<tr>
<td>Paperless classes project</td>
<td>Prince (2016, Jan. 27)</td>
<td>Smart schools started to be built. Students can access instructional materials anywhere. To this end, internet connection, laptop computers to teachers, tablet computers (88000 pcs) to students and smart board, eBooks and multimedia contents to learning environments have been delivered.</td>
</tr>
<tr>
<td>Paperless classes project</td>
<td>Ndlazi (2016, March 10)</td>
<td>Piloting started with 12. Grades in 7 schools in 2015. It will be followed by 11 and 10 grades. 8 and 9 grades will also be included in the project after 5 years. Total number of students will reach 62000 in 2018. The budget of the project is 17 Billion Rand (around $ 1.2 billion).</td>
</tr>
<tr>
<td>Projects conducted by regional education ministries</td>
<td>Isaacs (2015, s. 61-63)</td>
<td>The Internet Broadcast Project (IBP) in the Free State, Gauteng Paperless Classrooms Project, Western Cape Education Department’s Smart Classrooms and e-Learning Project.</td>
</tr>
<tr>
<td>Projects conducted by other institutions</td>
<td>Isaacs (2015, s. 61-63)</td>
<td>-OER Project, “OER@UNISA -University of Cape Town (UCT) projects</td>
</tr>
</tbody>
</table>

opinions of the ministry officials are also included. According to them, “one of the reasons why the success rate in the matric exam seems to have fallen is due to the fact that the results are declared community based, which is different from the previous ones. It is not partly correct to compare the results with previous years. Nevertheless, it is explained that the results will be analysed in depth, the ideal solutions will be produced and also the students who fail in the matric exams will alternatively be directed to vocational education by taking into consideration the existing sources”.

Studies on creating an education and training environment based on information technology are another category topic that has been the theme of newspaper content. A content about the Smart Schools Project which is shown in Table 1 included in Phaladi (2016), based on a spokesperson for the Ministry of Education. According to the news “of the 64000 tablet computers that were distributed in 2015, 81% of them have returned and 12000 of them have been stolen as reported in police records”. Further in the content, it is stated that, as a precaution, before the tablet computers were distributed, the tracking chips were installed against such potential problems, but still it was not possible to follow up because these chips were removed from a significant number of the lost tablets”. In Monama (2016b), a similar content related to non-returned tablets and the chips that were removed were reported.

"Paperless classes project" which was launched in Gauteng province, Prince was made news in Ndlazi (2016) referring to the spokesman of the education ministry and in Prince (2016) referring to the explanations made by the Project manager. In the news, it is reported that the project was started in the 12th class of 7 schools in 2015 as pilot implementation in its general scope. It is highlighted that “in the coming years, firstly the 12th grade of all schools in the state, then the 11 and 10th grades in the order, and the 8-9th grade at the end of the 5 years, will be included in the project and the project will be completed by reaching 62000 students in 2018”. It was also covered in the contents that the project budget was 17 billion Rand (about $ 1.2 billion) and that the project is expected to increase student achievement and their learning performance.

With the contents in Prince (2016a)'s news, the following findings were reached. Gauteng province, state plan and e-learning activities in national development plans are included. "Smart schools have begun to be built for students to give them access to teaching tools inside and outside the school. In the smart schools project,
88000 tablet computers have been used so far. It was reported that with the project, internet connection to the schools, laptop computers to the teachers, tablet computers to the students would be provided and the teaching environments would be supported by smartboard, e-book and multimedia content.

In this study, the last headline, which was the theme of the newspaper content categorized as "other subjects" was discussed. This topic, compared to the other three elements associated with the education system, included very limited themes in terms of the number of subjects discussed in the content. These are: "Crowded classrooms, teachers' staying away from education-environment for a long period of time, access to education, not being able to benefit from the opportunities of education because of racial and social inequality.

Ange Motshekga, the Minister of Basic Education, evaluated the crowded classes in The Star (2016). The Minister stated that, "the crowded classes were a problem in poor, backward places and urban centres, and they were working on alternative ways to solve the problem, such as placing five students in each class in other schools or setting up mobile classes".

Prolonged detachment of teachers from the education and teaching environment, which caused the disruption of the education, was also discussed in Prince (2016b). According to the teachers' views, the most important reason why they stay away from education environment is their health problems.

A campaign was included in The New Age (2016: 2a). This campaign focuses on the provision of financial resources to increase access to education of the successful students who are hindered due to economic reasons. It was reported in Petersen (2016) that the lack of adequate educational opportunities due to racist and social inequality was one of the reasons for failure in the SAR education system, which was also revealed by a research conducted by the Institute of Race Relation (IRR). The author in the field of mathematics, 35% of the participant's success score is above 40% in the matric exam. However, according to the races of the students who achieved this success, it was 83% White, 69.7% Indian, 46.3% Mixed Race and 28.5% Black.

A wide range of content for the SAR education system titled "Analysis" section and "Education: A lot of things had to be done" was discussed in Morero (2016). It has been reported that the content was prepared by an opinion leader. Here, issues and recommendations related to the SAR education system are included. These are compiled as follows: "Although 22 years have elapsed since the abolishment of the Bantu education system, the problems in the education system still persist". According to that, curriculum should be redesigned. Access to teaching and learning materials, including village and town schools, should be supported".

Considering that in Guateng region, "8.5% of the school is built on a prefabricated foundation" reconditioning the physical infrastructure is recommended. "The cooperation between schools and the society should be ensured more effectively with different partnerships". "Schools should open their doors to all learners and cultures as an example of their libertarian character. Quality training should be provided in such a way as to help them become critical thinkers and producers. The state should not be the sole source of school budgets. School mappings must be supported". The explanation that "School family cooperation is necessary" was also included.

RESULTS

SAR is geographically located at the far end of the African continent. In a rare way, one of the neighbouring countries is entirely within the SAR boundaries. It has three separate capitals in three different cities where the executive, legislative and judicial powers are represented. There are also seven separate state capitals in seven different states. There are eleven official languages.

According to WEF (2014) data, SAR has more qualified education than thirty-five countries in sub-Saharan Africa. Despite all this, according to 2014 data, the education system is one hundred and thirty-ninth among the hundred and forty-three countries. According to 2016 data, it is the world's fifty-fifth most competitive country. There are twenty-four universities in the SAR. Among them, five are more successful than all universities in thirty-five countries in sub-Saharan Africa.

Although SAR has used similar information technologies and practices in education and training, with other countries in the world, they are effective, large, rich, comprehensive and unique project activities. From these project activities, it is evaluated that smart schools and paperless class projects are among the sample projects that could be analysed in the educational studies.

In the SAR education system, quality problems are observed in student outcomes, programs and textbooks. There are crowded classes. Teachers stay away from the teaching environment for a long time due to different reasons. There are problems of physical infrastructure, access to teaching and learning materials, and school mapping problems.

The colonialist, apartheid and Bantu education experienced in the past create weaknesses in the level of readiness for education. This triggers problems on the basis of student achievement, economic, racist and social inequality, and/or leads to problems of education and opportunity inequality.

DISCUSSION

The quality of the education system of the SAR is one hundred and ninety-nine among the hundred and forty-three countries compared to the data of the WEF in 2014.
Moreover, the fact that the other thirty-five sub-Saharan countries are not included in this comparison is an important indicator that they are worse than this ranking. It is possible to explain this by supporting the success ranking data of the world universities, which are presented in RWOU (2016). Here, 5 of the 24 universities in SAR are ranked as the most successful while three hundred thirty-second and fifth are ranked as the seven hundred and seventieth in the ranking of success.

When some quantitative indicators of education are compared with Turkey, SAR has one and half times bigger physical size; two by three student population and almost half the number of teachers. This also gives the opportunity to compare the number of students per teacher. As it is known, the number of students per teacher is one of the most important indicators in terms of revealing the qualities of the education system. SAR has about 25% less number of teachers when compared with Turkey. However, this data is not necessarily the final indication of the quality of education. In addition to these general indicators of the education system, some data obtained from the analysis of newspaper contents also provide indicators for the past, present and future expectations of the SAR education system. In addition, some data reveal problems related to the SAR education system. The content in Petersen (2016) refers to social inequalities and racism and in one sense, implies one of the problems of the education system. According to the results of the matric exam of 2014, the results of mathematics discipline, 35% of those who participated in the exam, had more than 40% exam success. However, when the 35% of those who participated in the examinations and achieved this success were investigated according to their races, it was stated that the ratios of white were 83%, Indians 69.7%, Mixed Race 46.3% and Black 28.5%.

All systems are renewed, they change and are found in the differentiation adventure through transformation in the process. Özdemir et al. (2012: 62-63) have explained this adventure under the title of some basic problems that need to be resolved in Turkish education system. According to them, the main problems of the Turkish education system are as follows: interests and abilities are not considered. There are crowded classes and schools. There is a qualification problem in the program and textbooks. It is managed with a solid centralized management approach. A modern in-service training system has not been established. Education management is not professional. There is no equal opportunity in education. There is no guidance. Vocational education students experience problems when they go on to higher education.

Identifying the similarities and differences between the Turkish education system's problems in this sample and the SAR sample reflected in the newspaper contents is believed to provide concrete and authentic content to the studies of comparative educational sciences. The problems of Nigeria education system are reported by Osarenren-Osagahae and Irabor (2018: 91) as follows: “Nigeria education system brings worry to the hearts of all stakeholders because education goals such as producing skilled and professionally competent graduates, basic education for all, education for technological advancement, all to fulfil the dream of national development and prosperity, are yet far fetched from being a reality”.

The bad examples in the past experiences penetrate the educational level of society, and as summarized by Şimşek, 2014: 103-119, leads to weakness in institutional capacity, and in a spiral manner, in the target group; social characteristics, socio-economic position, education-related attitude, future goal and the individual differences that affect it, intelligence, talent, interest, learning style, pre-knowledge, personality structure, locus of control, motivation, self-efficacy perception. On the other hand, in the current education system, there is no legal limitation on racial basis in access to education. However, we can talk about the opposite stance or internal resistances formed by the aforementioned spiral. This could be the second reason, the researcher's comment which he based on his observations in the country that it is one of the biggest obstacles on the way to reach qualified educational environments which will integrate all the people from different races. Despite all this, it is obvious that these are an evaluation that directs the discussions and researches, and the actual result can be revealed through in-depth studies. In this context, applications based on Apartheid and Bantu Education System, including the colonial period and 1948-1994, which were presented in Wolhuter (2006), should be examined in depth and can be researched to answer how it caused unqualified educational outcomes on racial basis, if any.

The matric exam is a very important milestone in the lives of young people (Nzimande, 2016). Matric is based on the word matriculation. It is the general name of the national exams at the end of the high school. In short, "matric" is used with the expression. It is carried out in schools under the coordination and supervision of public administration. Measurement-evaluation principle is a test application based on the principle of answering open-ended questions in written form for a limited number of courses included in the curriculum. The result of the examination is based on the advanced certification exams at national level and the document to be given as the success indicator to be used for admission to the university.

In the matric exam results, when we look at the low level of student achievement and the contents of the newspaper and compare them with the problems of the Turkish education system that are described by Özdemir et al. (2012: 62-63), it is possible to state that there is no equal opportunity and there are problems such as the qualification of the programs and textbooks, which do not consider the abilities and interests.
It is widely accepted in the literature that use of technologies in education effectively has many positive implications. In our time, the learners can access knowledge and improve their skills anywhere and anytime (Shamim and Raihan, 2016). Hence, the schools in SAR also started to integrate information technology tools in education in 1980s concurrently with the whole world (Howie et al., 2005). Digital divide (Ndlovu and Lawrence, 2012), namely unequal digital access topics, took place during the period of 2008 to 2012. In SAR schools, information technology (IT) courses are elective up to ninth grade, and are optional or compulsory according to the type of curriculum in grades 9 to 12. Elective IT courses have four main outcomes. These are software - hardware, e-communication, social-ethnic issues and programming-software development as compiled in Department of Basic Education (DBE, 2011). IT courses are compulsory in grades 9 to 12. The information and outcomes expected to be taught in these courses are social and economic applications, system analysis, problem solving, logical thinking, knowledge management and communication (DBE, 2011: 8). All these support the following approaches.

In the SAR, it has been observed that many projects have been done for the inclusion of IT in the education system. They are more of a hardware-based work, such as tablet distribution, smart-board and server system setup and provision of internet connections (Isaacs, 2015: 23). Projects such as SchoolNet SA and Teach to the future (Mdlongwa, 2012: 3) can be evaluated in this context. Isaacs (2015: 61-63) contains the projects carried out with the ministry of national education. These are: Operation Phakisa ICT in Education Lab E, “ICT Resources for Teacher Centers”, “SA Connect: Broadband Access to Schools”, “Ukufunda Virtual School for, DBE Television Channel and South African National Research and Education Network (SANREN)”, “The Project Gauteng Paperless Classrooms”, “The Internet Broadcast Project (IBP) in the Free State and the Free Western Cape Education Department’s Smart Classrooms and e-Learning Project” are conducted by regional education authorities. There are also projects carried out by independent parties. These are OER Africa Project, OER at UNISA “and” University of Cape Town (UCT) projects.

According to the SAR education system, Smart School Project and the Gauteng Paperless Classrooms Project of the Gauteng state are among the projects highlighted in terms of cost and scope and technological content over the past three years. The Gauteng State Paperless Classes project was announced in 2015 by the Ministry of Education of Gauteng, one of the nine states in the country. Instead of paper based material used in the classrooms, comprehensive digital technologies have been used to provide education opportunities at international level. It is estimated that the budget will be $1.7 billion. There are contents that support education by tablet computer, server broadcasts, network and 4G connections (Mashaba, 2016). It was started in pilot schools and is planned to be expanded to all schools in the state in the year 2017/2018.

It is considered that there are significant initiatives for the use of information technologies in education in SAR, and these initiatives are effective, large, comprehensive and unique. It is considered that among these projects, the smart schools and paperless classes projects may be among the case studies that will be analysed in terms of scope and content in education studies.

Other issues related to the SAR education system have been reported in media messages and are discussed as the title of category in the findings. It is seen that the findings in this category are included in the newspaper contents in the form of problem and suggestion based contents. According to this, the problem-based news content includes the crowded classes, teachers away from teaching environment for a long time, being unable to access to education due to economic problems, racist and/or social inequality based issues and apartheid and Bantu education system. Suggestion-based news content is structured around topics such as redesign of teaching programs, access to teaching and learning materials, updating of physical infrastructure, school mapping and school family collaboration.

Findings from the analysis of the contents of newspaper news related to SAR education system and Özdemir et al. (2012: 62-63) show that some of the main problems of the Turkish education system are also present in SAR. In Turkey, there are crowded classrooms and schools”. There are no equal opportunities in education. In the SAR education system, there are also crowded classes. Teachers stay away from the teaching environment for a long time, because of different reasons. Due to economic, racist and social inequality, there is a problem of not being able to access education. There are problems based on apartheid and Bantu education system of the past and the problems such as physical infrastructure update, access to teaching and learning materials and school mappings which are the topics in the suggestions.

Suggestions

The SAR education system has unique examples in many respects that will contribute to better understanding of education system and more effective planning with positive and negative examples and allow for comparison. These examples are not only success stories. On the one hand, it has the most successful educational institutions on the continent. On the other hand, compared to the rest of the world, it also has contradictions that are important indicators of failure. The matric exam is an examination system that includes open-ended question technique, measurement and evaluations based on output-based
curriculum design, diploma and university placement. There are effective, large, comprehensive and unique project activities for the use of information technology, some of which have similar applications in the world. It has concrete examples with its diverse groups that make up the society for multicultural and multilingual educational science studies. The researcher anticipates that the original topics, primarily this theme and the content, related to SAR education system will provide data for other studies. Therefore, it was suggested that in-depth studies into these will be appropriate for educational sciences.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Full Length Research Paper

The relationship between self-sabotage and organizational climate of schools

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Received 20 July, 2019; Accepted 5 September, 2019

This study aimed to determine the relationship between self-sabotage behaviours of school administrators and teachers and their perceptions of organizational climate in schools. In the present study, 'correlational screening model' which is a quantitative research method was used. A sample consisting of 1204 teachers and 166 administrators working in 74 Turkish schools was selected through stratified cluster sampling method to carry out this study. In order to measure self-sabotage levels of teachers and administrators, “The Self-Handicapping Scale” and “School Climate Scale” were conducted as data collection tools. “Pearson Product Moment Correlation” (PPMC) was used to investigate the relationship between self-sabotage and organizational climate in schools and “Multiple Linear Regression Analysis” was used to find out to what extent organizational climate predicts the self-sabotage. It was found out that self-sabotage and organizational climate in schools and all of its sub-dimensions were negatively correlated at a low level. As a result of the regression analysis, it was revealed that the collaboration sub-dimension of the school climate was an important predictor of self-sabotage. According to results of this study, it is recommended that there should be an increase in positive perception in the organizational climate of educational institutions and effective communication between employees as this will create respect, trust, sincerity, friendship and reduce self-sabotage among administrators and teachers.

Key words: Self-sabotage, school climate, organizational climate, leadership and participation, collaboration, educational environment.

INTRODUCTION

Organizational behaviour experts state that the way people perceive themselves is important in explaining their attitude, motivation, decisions and behaviours in the working environment (McShane and Von Glinow, 2016). Organizational climate, which is also the perception of the employees about the objective qualities related to the organization (Tanford et al., 2015), affect the attitudes and behaviours of the employees, as well. Considering the individual and organizational effect of human being, the most important element in the organization, is essential to examine not only the perception of himself but also his perceptions of and attitudes towards the working environment. Self-sabotage, which is a reflection of one's self-directed evaluation, causes negative organizational behaviours in physical, psychological and social aspects in the working environment. In this study, the relationship...
between organizational climate perception and self-sabotage behaviours of administrators and teachers working in educational institutions were investigated. However, it is believed that highlighting the importance of school climate perception will contribute to the field and researchers in the reduction of the self-sabotage which includes people’s attitudes and behaviours at schools such as postponing or avoiding the duties, constantly complaining and presenting excuses, and hindering performance deliberately.

Organizational climate is a set of measurable characteristics that are determined based on the common perceptions of people living and working in a specific place and affect the human behaviour of the working environment (Hoy and Miskel, 2012). Balcı (2013), on the other hand, defines organizational climate in two different ways. According to the first definition, it is the common reactions and perceptions of employees in any situation in the organizational environment (job satisfaction climate, resistance climate, participation climate, etc). The latter includes the situations that have a certain impact on the behaviour of employees and affects their attitudes and behaviours (interaction and coordination among all units in the organization, social distance created by differences in roles and status, administrative processes such as participation of employees in decision making and climate which is created by all circumstances like communication). When the definitions related to organizational climate are examined, it is seen that they all meet on a common ground that organizational climate is the features that affect the behaviours of individuals and their measurable characteristics.

The organizational climate emerges from the impressions and perceptions of the employees about the organization (Altman, 2000), and it is influenced by the reflections in the employees’ perceptions and also has an impact on the attitudes and behaviours of the employees. School as an organization has its own identity, personality and atmosphere that distinguishes it from others. School climate, according to Hoy (2008), is defined as “the atmosphere, character, attitude, ideology, common aspect, personality or environment of the school” (Dağlı, 2017). The organizational climate of a school is all the features of the environment in the school, which distinguishes one school from other schools and affects the attitude of each employee towards the school. School climate is the perceptions of all stakeholders that affect the attitudes and behaviours of the employees and the perceptions of the external stakeholders and the environment about the image of the school and the general attitudes and behaviours of the employees in the school.

The dimensions related to organizational school climate are classified in different ways and are generally created for administrators and teachers. Leadership and participation, educational environment, and collaboration are some of these dimensions. In the leadership and participation dimension, it is ensured that employees participate in the decision-making process in taking decisions regarding the organization (Deniz, 2005); in educational environment dimension, the most important elements of the educational environment in schools where the training takes place are referred to as manpower, tools and materials and resources like buildings, facilities, classrooms, etc. (Unal et al., 2000); while collaboration dimension is regarded as the employees’ sharing with each other in the organizational environment and as the internalization and perception of sense of “all togetherness” by the employees (Erol, 2014).

The literature review demonstrates that teachers’ self-sabotage behaviour was not studied with organizational climate in recent years. For instance one of the latest studies which have been held in Turkey about organizational climate has been associated with the managers’ communication skills, innovative schools, ethical behaviours and organizational health. Namely, Ergenekon (2019) investigates the efficacy of the managers’ communication skills on the organizational climate. Bodur (2019) searches the relation between innovative school and organizational climate. Durmaz (2019) as well examines the relation between organizational climate and ethical behaviors, Belviranlı (2019) investigates the relation among organizational health and organizational climate.

Human beings, both in the organizational environment and in private life, aim to be a successful individual and make an effort to achieve this goal. In some cases, they are not content with being successful and making efforts, they desire to appear as a successful individual, manage the impressions and perceptions towards themselves and manipulate the perceptions of others about themselves. Individuals who encounter situations where the probability of failure is higher than being successful, even if they are qualified enough, can often resort to various cognitive methods and defence mechanisms in order to get rid of the negative patterns that may emerge when they experience uncertainty about the outcomes of their performance and the possibility of their performance’s being evaluated (Üzar-Özçetin and Hiçdurmaz, 2016). These cognitive methods are named as self-sabotage and self-handicapping in the literature (Akın et al., 2011; Üzbe, 2013; Sarıçalı, 2014). The individual who sabotages himself attributes his failure to environmental factors other than himself, and his success to his internal traits such as intelligence and abilities (Üzar-Özçetin and Hiçdurmaz, 2016).

The purpose of self-sabotage is to protect and increase the self-esteem level of an individual and to eliminate threats to self (Akın, 2012; Büyükgöze and Güm, 2015). Self-sabotage is a tendency that the individual chooses of his own accord, without any external force and by fully mobilizing his own internal dynamics. The ultimate goal of the individual is to get concrete rewards that can increase
the level of self-esteem and efficacy and to get rid of the negativities that may threaten the self by receiving positive feedback from others (Abaci and Akin, 2011).

Among the reasons of self-sabotage are ambiguity about success, past experiences and negative self-perception, fear of making mistake, locus of control, anxiety, personality, maladaptive perfectionism, perception of new and difficult tasks, task's being important for the individual, self-esteem, self-efficacy, individual mood, defensive pessimism, and individual-physical characteristics. It is seen that individuals who resort to self-sabotage mechanisms are generally individuals with defensive expectations, who are mostly task-oriented and show reflective behaviours (Martin et al., 2003; Üzar-Özçetin and Hiçdurmaz, 2016).

There are different classifications of self-sabotage like verbal and behavioural in the literature (Akin et al., 2011). Individuals who use verbal self-sabotage mechanisms generally stated that before performing any performance, they consciously experienced exam anxiety, social anxiety, traumatic events and pain, and did not feel well, were embarrassed, depressed, and experienced psychological and physical symptoms; and the conditions they were in were negative, their team mates were insufficient (Akin, 2012). Individuals who use behavioural self-sabotage mechanisms, before performing any performance, generally choose actions such as consciously using drugs-alcohol or medication, not practicing enough, not making enough effort for the task, and choosing performance environments that reduce their ability, setting hard-to-reach goals, not getting enough sleep before the task, postponing task-related activities, dealing with activities other than the task, linking the result to chance or fate, trying to carry out more duties concurrently than s/he can (Akin, 2012, 2013). Verbal self-sabotage often involves hidden and more inactive expressions that cannot be observed directly. Behavioural self-sabotage, on the other hand, includes actions that directly affect the performance of the individual, are intentional, can be directly observed by others, are more active, open and purposeful (Hendrix and Hirt, 2009; Üzar-Özçetin and Hiçdurmaz, 2016).

According to Zuckerman and Tsai (2005), self-sabotage weakens the physical performance of individuals; it negatively affects motivation and job satisfaction such as psychological well-being, harmony, prosperity and happiness; causes social isolation by decreasing the social life of the individual (Üze, 2013; Üzar-Özçetin and Hiçdurmaz, 2016). Self-sabotage, which is associated with concepts such as emotional dissatisfaction, high level of anxiety, depression, low academic achievement and depersonalization (self-alienation), can cause the individual to suffer from burnout (Akin, 2012). Even if s/he performs poorly, self-sabotage protects the individual from being perceived as unsuccessful and provides extra gain to the individual if s/he succeeds despite his/her low level of insufficiency (Alter and Forgas, 2007; Üzar-Özçetin and Hiçdurmaz, 2016). The benefit of self-sabotage to the individual causes this behaviour to become continuous. When self-sabotage turns into a mechanism which is constantly resorted to in every situation, it becomes self-deception over time and turns into a personality trait in the individual. While maintaining self-esteem of the individual in the short term, long-term and chronic use of self-sabotage leads to negative consequences such as the person's mental health deterioration, anxiety and depression, personality disorder, decrease in self-esteem, alcohol-drug use, low life satisfaction, decrease in internal motivation and performance loss (Akin et al., 2011; Üzar-Özçetin and Hiçdurmaz, 2016; Üze, 2013).

The main feature that distinguishes educational organizations from other organizations is that its raw material is the people who come from and go to society (Bursaloğlu, 2015). Human resources in organizations are those who work for the achievement of organizational goals and contribute to the organization with their knowledge, skills and abilities. Administrators and teachers are among the most important human resources of educational organizations (Özdemir, 2014). In the 43th article of “the Basic Law of National Education numbered 1739”, (MoNE, 1973), it is stated that teaching is “specialization profession” (Ministry of National Education, MoNE, Legislation). Within the scope of “General Competencies of Teaching Profession” (2017), teachers should have three competency areas: “professional knowledge”, “professional skills”, “attitudes and values” (MoNE, 2017). Teachers working in educational institutions are expected to be role model individuals who have these competencies, have high self-confidence and self-esteem, have self-control, know their responsibilities, and demonstrate their performances in the best way (Ozdemir, 2014). Sternberg (2013) mentions his observations about 15 ways of self-sabotage for academicians in his essay “Self-sabotage in the academic career”. A few of those 15 ways of self-sabotage for Sternberg (2013) are: employees who does not seek out multiple mentors, external evaluations; the one who is either perfectionist or perfunctory in putting his/her work into print; the employees who pay too much attention to personal relationships or too little; who fails to understand the cultural norms of one's institution; the one who lacks resilience in the face of failure and the academician who has not figured out who he/she is. While administrators and teachers' exhibition of self-sabotage behaviour, which is regarded as a performance-hindering attitude and behaviour, affects the climate of educational organizations negatively; organizational climate which is perceived as negative can also support teachers' self-sabotage. Therefore, the use of self-sabotage strategies by administrators and teachers can affect educational institutions negatively on the basis of individual and organization.

The literature review carried out to the greatest extent
demonstrates that teachers’ self-sabotage behaviour was not studied (Çelik, 2019; Söleyen, 2018; Balıca, 2017) on its own in the field of educational administration and educational organizations in Turkey. Namely Çelik (2019) investigates the relationship between narcissistic personality and the level of self-sabotage among university students. Also in another research, Söleyen (2018) searches the relation between self-sabotage and academic procrastination among university students. Balıca (2017) takes older than 18 years old citizens in his study which determines the relation between self-sabotage and belief in a just world.

It is thought that this study will encourage the theoretical and experimental studies on self-sabotage and contribute to the field of educational administration. The literature on self-sabotage has been examined and it has been observed that although it has been studied with different variables in the fields of psychology, sociology and educational psychology, it has not been studied with the perceived organizational climate variable. It is seen that there are few studies about self-sabotage in Turkish literature, and most of these studies are conducted in the field of educational psychology and with undergraduate students. Considering the lack of studies on self-sabotage as an organizational behaviour in the field of educational administration, it is thought that examining the self-sabotage behaviour in educational institutions will contribute to the literature.

### Research question

The research question is determined as “Is there a significant relationship between self-sabotage levels of administrators and teachers working in educational institutions and their organizational climate perceptions in schools?” In order to answer the research question, the two following sub-problems were raised:

1. Is there a significant relationship between the perceptions of administrators and teachers working at educational institutions about self-sabotage and their perceptions of organizational climate in schools?
2. Is the perception of organizational climate in schools a significant predictor of self-sabotage levels of administrators and teachers working at educational institutions?

### METHODOLOGY

The study adopted correlational screening model as a research design. “The correlational screening model is a research model aiming to determine the existence and/or degree of covariance between two or more variables” (Karasar, 2017: 114). The sample of the study was determined using “Stratified Cluster Sampling” method which is one of the probability based sampling techniques. The stratified sampling is a method which is more suitable to use in social sciences especially in research populations that do not show homogeneous distribution (Büyüköztürk et al., 2008) and in which the representation of subgroups in the population is higher (Balıca, 2018). The population of the present study contains 3496 teachers and 277 administrators in 92 public schools with different educational levels (primary, secondary and high school) in Merkezeferd district of Denizli province in 2018-2019 academic year. In order to determine the sample size of the study, as it was also pointed out by Balıca (2018), the minimum number of schools, administrators and teachers included in the sample was calculated based on the formula proposed by Cochran (1962) and Balıca (2018). The sample for the study consists of 1204 teachers and 166 administrators working in 74 schools selected through stratified cluster sampling method.

In this study, “The Self-Handicapping Scale” was used to measure the self-sabotage perceptions of administrators and teachers and “School Climate Scale” was benefited to measure organizational climate perceptions in schools. The Self-Handicapping Scale that was developed by Jones and Rhodewalt (1982) and adapted to Turkish by Akin et al., 2010. This was used in the present study in order to find out the self-sabotage levels of the administrators and teachers. The scale consists of 25 items and one dimension. High scores obtained from the self-sabotage scale indicate that the participants' verbal and behavioral self-sabotage tendencies are high (Akin et al., 2010).

In the literature, it is suggested that the reliability coefficient should be between 0 and 1 and the reliability coefficient should be at least 70% for a research study to be considered reliable in education research (Akbulut, 2010; Bayram, 2009; Bursal, 2017; Büyüköztürk, 2016; Morgan et al., 2004; Pallant, 2015; Seçer, 2017; Sipahi et al., 2008; Tavşançıl, 2014). In this research, Cronbach Alpha internal consistency reliability coefficient of the Self-Handicapping Scale was calculated as 0.74%. Therefore, since the internal consistency reliability coefficient is over, 0.70% in this study, it is seen that the data obtained from the data set is reliable. “School Climate Scale” that was developed by Çağlayan (2011) was used in the present study. The “School Climate Scale” consists of three sub-dimensions with a total of 47 items including "Leadership and Participation" with 17 items, "Educational Environment" with 18 items and "Collaboration" with 12 items. The high values obtained from the School Climate Scale indicate the high level of organizational climate perception. The reliability coefficients of the scale for the present study were calculated as 0.955 for “Educational Environment”, 0.895 for “Collaboration” and 0.969 for “School Climate Scale” in general.

The responses to the data collection tools by the administrators and teachers working in public primary, secondary and high schools in Merkezeferd district of Denizli province in 2018-2019 Academic Year were analyzed. The relationship between self-sabotage and organizational climate was analyzed using “Pearson Product-Moment Correlation (PPMC)” and the self-sabotage predictive power of organizational climate was analyzed through “Multiple Linear Regression Analysis”.

Whether the data in this study was normally distributed or not was determined by checking the Skewness and Kurtosis values. In this study, since the mean and median values were close to each other, and since the Skewness value was within the limits of ±1, it can be said that the scores obtained from the Self-Handicapping scale and the “Leadership and Participation” sub-dimension, “Educational Environment” dimension, the “Collaboration” dimension and the “Organizational Climate Scale” did not go too far from normal. Since the sample size of the present study (1370) was sufficient, the histograms were also examined, and it was confirmed that this study ensured the assumption of normality regarding the data of the study. It is seen that the scores obtained from this research data fulfill the normal distribution conditions.
Table 1. Pearson product moment correlation table for the relationship between the teachers’ and administrators’ self-sabotage levels and perceptions of school climate and its sub-dimensions.

<table>
<thead>
<tr>
<th>Predictive variable</th>
<th>Leadership participation</th>
<th>Educational environment</th>
<th>Collaboration</th>
<th>School climate</th>
<th>Self-sabotage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership and Participation</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Environment</td>
<td>0.700**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.746**</td>
<td>0.782**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Climate</td>
<td>0.919**</td>
<td>0.907**</td>
<td>0.898**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Self-Sabotage</td>
<td>-0.148**</td>
<td>-0.171**</td>
<td>-0.201**</td>
<td>-0.185**</td>
<td>1</td>
</tr>
</tbody>
</table>

*p<0.001.

RESULTS

In this study, the correlation between self-sabotage levels of administrators and teachers and organizational climate perception in schools together with the predictive power of the sub-dimensions of organizational climate regarding self-sabotage were analysed and discussed.

The relationship between self-sabotage and organizational climate and its sub-dimensions

The power and direction of the linear relationship between teachers and administrators self-sabotage levels and their perceptions of organizational climate and its sub-dimensions in schools was tested with the “Pearson Product-Moment Correlation” (PPMC) and the correlation table regarding the results of the analysis shown in Table 1.

Table 1 shows that there is a significant low level negative correlation between the teachers’ and administrators’ self-sabotage levels and the “Leadership and Participation” dimension of the school climate \((r=-0.148; n=1370; p=0.000)\) at the significance level of 0.001; there is a significant low level negative relationship at the significance level of 0.001 with the “Educational Environment” dimension \((r=-0.171; n=1370; p=0.000)\); there was a significant low level negative relationship at the significance level of 0.001 with the “Collaboration” dimension \((r=-0.201; n=1370; p=0.000)\) and there was a significant low level negative relationship at the significance level of 0.001 with the School Climate Scale in general \((r=-0.185; n=1370; p=0.000)\). As a result of the correlation analysis, it was found that there was a low level negative correlation between self-sabotage and school climate and all of its sub-dimensions. Accordingly, it can be said that as the level of perception about school climate and its sub-dimensions increases, the level of self-sabotage will decrease.

Considering the power of the relationship between self-sabotage and organizational climate, it is possible to reveal the order as “collaboration”, “school climate scale” in general, “educational environment” and “leadership and participation” respectively. In this study, it can be observed that collaboration is the most important variable in reducing self-sabotage. It is suggested that this situation stems from the fact that administrators and teachers give importance to communication and interaction with their colleagues, they want respect and acceptance, and they want to work in a peaceful environment. Additionally, the effect of the educational environment on the performance and efforts of the teachers and the ability of the administrators to use relevant managerial processes related to their leadership style, communication styles and decision-making are effective in this case.

Multiple linear regression analysis on the sub-dimensions of organizational climate as predictors of self-sabotage

Multiple linear regression analysis was conducted to determine whether the perceptions of the administrators and teachers about school climate and its sub-dimensions predicted self-sabotage, and the results of the analysis are shown in Table 2.

When the findings of multiple linear regression analysis in Table 2 were examined, it was revealed that the sub-dimensions of school climate namely “leadership and participation”, “educational environment” and “collaboration” predicted self-sabotage significantly at a low level \((R=0.023; R^2=0.041; F(3,1369)=19.508; p<0.05)\). Accordingly, the school climate sub-dimensions of “Leadership and Participation”, “Educational Environment” and “Collaboration” explain 4% of total variance related to self-sabotage. On the other hand, when the standardized \((\beta)\) regression coefficient and \(t\) values related to significance were examined, the dimension of “collaboration” was a significant predictor of self-sabotage \((\beta=-0.192; t=-3.134; p<0.05)\) while the sub-dimensions “Leadership and Participation” and “Educational Environment” did not have a significant effect \((\beta=0.039; t=0.875; p>0.05)\). According to the standardized regression coefficients \((\beta)\), the order of importance of predictive variables concerning self-
sabotage is Collaboration, Educational Environment and Leadership and Participation.

According to the results of the regression analysis, the regression equation (mathematical model) regarding the prediction of self-sabotage by the sub-dimensions of school climate is presented:

Self-sabotage = 85.079 – (0.316 × Collaboration) – (0.044 × Educational Environment) + (0.015 × Leadership and Participation)

In the model, it is seen that one unit increase in “Collaboration” variable caused 0.316 unit decrease on self-sabotage; one unit increase in the “Educational Environment” variable caused 0.044 unit decrease on self-sabotage; and one unit increase in the “Leadership and Participation” variable caused 0.015 unit increase. Accordingly, it can be said that self-sabotage behaviour will decrease as the perceptions of organizational climate regarding collaboration, educational environment, leadership and participation in educational institutions increase positively. This study reveals that the reason why collaboration is the most important predictor of sabotage stems from the fact that cooperation in schools has an effect on the motivation of the administrators and teachers and that they spend most of their time in educational environment. Also, organizational culture is effective in this situation.

**DISCUSSION**

Within the scope of the study, the relationship between self-sabotage levels of the school administrators and teachers and their organizational climate perceptions at schools were investigated. In addition, the predictive power of organizational climate and its sub-dimensions regarding self-sabotage was determined. When the literature is examined, there is no study encountered in which organizational climate and self-sabotage is investigated together in educational institutions, but being aware of the purpose of using self-sabotage is believed to be effective in reducing it. According to the recent studies, narcissistic personality scores could be a predictor of self-sabotage levels (Çelik, 2019). Also in another research, Söyleyen (2018) indicates that self-sabotage increases academic procrastination and Balıca (2017) adds that when hope increases, self-sabotage decreases in the organizations (Balıca, 2017).

As a result of the study, it was seen that there was a low level negative relationship between self-sabotage and Leadership and Participation, Educational Environment and Collaboration sub-dimensions of organizational climate and the organizational climate scale in general. According to this, strengthening leadership skills, increasing the level of involving employees into decision-making, enhancing educational environment, boosting collaboration between management and employees will establish more positive perceptions about organizational climate in schools; and this situation is believed to lead to a decrease in administrators’ and teachers’ showing tendency to self-sabotage which is a performance hindering strategy. In Ergenekon (2019) research, it was observed that the managers’ communication skills affect the organizational climate. This result shows that the managers’ communicational skills affect the organizational climate significantly.

Literature indicated that there are studies showing that there is a positive relationship between leadership and organizational climate (Hirase, 2000; Küçük, 2008; Onoye, 2004; Pomroy, 2005; Rivers 2003). Pomroy (2005) states that school administrators can create a more positive school climate when they establish a decision making mechanism with broader participation by sharing and developing their visions with teachers. According to Rivers (2003), the fact that administrators and teachers behave consistently is effective in creating a more positive climate in the educational environment. Hirase (2000) highlighted that if administrators enhance their vision and share it, a positive effect on the school climate is observed, a situation which contributes to teachers’ performances and efforts as well as education, and therefore the academic achievement of students also increases. Onoye (2004) stated that in successful schools where an effective leadership and a positive school climate are essential for a successful organization, the administrator is also a leader, teachers are involved

**Table 2.** The results of multiple linear regression analysis on the sub-dimensions of school climate as the predictor of self-sabotage.

<table>
<thead>
<tr>
<th>Predictive variable</th>
<th>Predicted variable (Self-sabotage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Constant</td>
<td>85.079</td>
</tr>
<tr>
<td>Leadership and Participation</td>
<td>0.015</td>
</tr>
<tr>
<td>Educational Environment</td>
<td>-0.044</td>
</tr>
<tr>
<td>Collaboration</td>
<td>-0.316</td>
</tr>
</tbody>
</table>

R=0.203, R²=0.041, F(3;196)=19.508, p=0.000. *p<0.05.
in the decision-making process, the expectations of the people in the school are high and there is a strong focus for academic success. Shankar et al. (1994), on the other hand, proposed that the leadership style applied in the organizational environment has the biggest role in the formation of that organization's climate. It was found that there was a statistically significant positive correlation between the opinions of teachers about innovative school and their opinions on organizational climate (Bodur, 2019).

It is maintained that leadership styles preferred by administrators at schools are effective in teachers' attitudes and performances. There are statistically significant relationships between organizational climate and ethical behaviors (Durmaz, 2019). In the study conducted by Diş (2015), which examined the relationship between the power sources used by teachers and school administrators and organizational climate, it was found that the legitimate power dimension positively and significantly predicted commanding, restrictive administrator behaviours and unconcerned teacher behaviours while it predicted the supportive administrator behaviour and collaborative teacher behaviour negatively and significantly. Also, it was seen in the study that personality power dimension predicted supportive and commanding administrator behaviours and collaborative teacher behaviours positively and significantly while it predicted restrictive administrator behaviour and unconcerned teacher behaviour negatively and significantly. Therefore, it was observed that as the use of legitimate power of the administrators increased, the teachers showed more unconcerned behaviours and less collaborative behaviours. As the personality power increases, the teachers exhibited more collaboration but less unconcerned behaviours.

Çevik (2010) stated that there is a significant, positive and moderate relationship between organizational climate and job satisfaction and that teachers mostly exhibit professional teacher behaviours considering organizational climate; on the other hand, Doğan (2011) suggested that there is a significant positive relationship between Power and Success dimensions of the value system and “Close Supervision” dimension of the school climate. It is thought that teachers’ attitudes towards their professions in terms of power and success affect the organizational climate positively and thus reduce self-sabotage. Süpçin (2000) examined the perceptions of primary school teachers about organizational climate and the effect of organizational climate on their performances, and found out that the teachers’ perceptions of supportiveness, leaderships, restrictiveness, professionalism, sincerity and intimacy dimensions of organizational climate were very low. Süpçin’s (2000) found out that the low level perception of organizational climate limits teachers' performance was in line with the findings of this study. It is thought that this similarity stems from the fact that teachers have internal locus of control, are self-sacrificed, have high self-esteem, and that organizational culture is also effective.

In this study, it is seen that the sub-dimensions of the school climate explain 4% of the variance in self-sabotage and that self-sabotage is an important and statistically significant predictor, although not strong. Self-sabotage is predicted by collaboration, educational environment, leadership and participation, according to the order of importance in predictive power. Accordingly, it can be said that as the perception of collaboration between administrators and teachers, educational environment, leadership and participation positively increases, self-sabotage behaviour in schools will decrease. Based on the order of predicting power in the relationship between sabotage and organizational climate, starting from the highest to the lowest, it is possible to rank the variables as collaboration, educational environment and leadership and participation. In this study, it is seen that collaboration is the most important variable in reducing self-sabotage. It can be said that this situation stems from the fact that administrators and teachers attach importance to communication and interaction with their colleagues, they want respect and acceptance, and they want to work in a peaceful environment. In addition, the reason why educational environment is effective in the performance and efforts of teachers is because of leadership style of administrators, communication styles and their ability to manage the process of participation in decision making.

In schools where there is a positive school climate, the school administrator has a high level of respect for teachers, and the teachers involved in the school's decision-making mechanism feel empowered (Angelo, 2005); this situation will contribute positively to organizational climate and teacher performance. As a result of the regression analysis, it was concluded that the organizational health significantly affected the organizational climate (Belviranlı, 2019).

In this study, it was determined that leadership and participation dimension of school climate were not predictors of self-sabotage. However, Diş (2015) demonstrated that organizational climate is effective in power resources and leadership practices used by managers. Küçük (2008) also investigated the effect of leadership behaviours of administrators in educational institutions on organizational climate and performance of teachers and determined that success-oriented leadership and participatory leadership contribute to teachers' performances and that an open and effective organizational climate is also effective in the teachers' performance in their profession and their performance towards students. Therefore, it is thought that the establishment of a collaborative environment in educational institutions based on the collaboration of administrators will contribute to the performance of teachers and thus the emergence of a positive school climate. The perception of a collaborative school climate
is thought to contribute to the reduction of self-sabotage behaviours.

According to Arkin and Baumgardner (1985), an individual uses performance-reducing self-sabotage strategies in order to maintain the level of self-esteem and get rid of the elements that threaten the self; while according to Snyder and Smith (1982), these strategies are used to obtain concrete rewards that will help individual increase the perception of his/her self-esteem and self-efficacy (Rhodewalt, 1990). In this study, it has been determined that the administrators and teachers in educational institutions somehow use self-sabotage strategies, and self-sabotage will decrease as school climate perception increases. It is believed that maintaining a positive organizational climate that protects the self-respect and self-esteem levels of the employees will be effective in reducing this behavior.

Elliot and Church (2003) found that as the fear of mistakes/failures increased, the tendency to sabotage oneself increased. Therefore, in schools, instead of a climate of fear, which is dominated by accusatory and critical communication, creating a climate which is based on tolerance, respectful to differences, attaching importance to human relations and providing constructive and open communication will also be effective in decreasing self-sabotage tendency. When the literature is examined, it is emphasized that self-sabotage is associated with internal locus of control (Akin, 2011) and academic locus of control (Akça, 2012). Therefore, it is thought the fact that administrators and teachers should have a focus on internal control and academic success, that there is an organizational climate that supports self-control in educational institutions and appreciates the performance of employees will lead to less use of self-sabotage strategies.

**Conclusion**

According to the results of this study, as the perception of positive organizational climate increases in educational institutions, self-sabotage behaviours of administrators and teachers will decrease. It was concluded that there is a low level negative correlation between organizational climate and its sub-dimensions and self-sabotage. It can be said that increasing the perception of positive organizational climate in schools will decrease self-sabotage behaviour.

It can also be suggested that as the dimension of leadership and participation increases, self-sabotage will decrease. In this context, supportive, guiding, participatory and collaborative leadership styles can be applied for administrators and teachers in schools. The fact that administrators provide a well-established system for the employees and support it with tolerance as well as more effective leadership practices can lead to the reduction of self-sabotage. Participation of relevant stakeholders in decision making on school-related issues and participation of all school members (administrators, teachers, students, servants, parents) on issues of general interest in the school may increase the positive organizational climate and reduce the use of self-sabotage mechanisms.

**Recommendations**

Motivational tools can be used to reveal the performances of administrators and teachers in the educational environment, to support their success and to provide career and development opportunities for them. Self-efficacy levels related to educational environment can be increased. Mentoring system for administrators and teachers can be supported professionally. Managers and teachers can be supported psychologically, cognitively and behaviourally; the perception levels of their self-efficacy, self-esteem and self-perceptions can be increased positively. Supporting administrators and teachers in schools can both contribute to positive organizational climate and decrease self-sabotage behaviour.

It can be said that self-sabotage will decrease as the perception of collaboration dimension increases positively. In this study, it was concluded that collaboration is an important predictor of self-sabotage. Effective communication between employees in educational institutions can create a climate of trust, respect, sincerity and friendship behaviours, while it can increase the perception of positive organizational climate and reduce self-sabotage.

When the national literature is examined, self-sabotage has been examined in the field of psychology, sociology, educational and instructional psychology in recent years and has started to take its place in the literature as a subject that has been studied with undergraduate students. When considered as an organizational behaviour, considering the negative reflections on the individual and the organization, the relationship of this behaviour with different organizational behaviours and outcomes can be examined in detail. Since organizational climate predicts a certain part of sabotage, research into the unexplained variance through different variables (leadership, motivation, self-efficacy, burnout, stress, etc.) can contribute to the field. Supporting the research with the data obtained from different population, sample or working group may increase the generalizability of the results.

The tendency of administrators and teachers to sabotage themselves in educational institutions can be examined in a more detailed way by using a mixed research method that uses both quantitative and qualitative data.
CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

REFERENCES


The opinions of participants’ about Grundtvig workshops on history and culture

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Received 4 June, 2019; Accepted 23 September, 2019

Grundtvig programme are activities aimed at providing adults with ways to improve their knowledge and skills. This study examined the opinions of adults who participated in four workshops on history and culture organized throughout Europe between 2009 and 2014 under the Grundtvig Adult Education Programme and Lifelong Learning Programme of the EU. The aim of the study was to analyze the opinions of adults from different age groups, professions, and ethnicities about these informal workshops. In order to determine the study group, an easily accessible sampling method was used. The study group there was 43 workshop participants from different countries. In order to learn their opinions, they were asked to fill a form with 4 open-ended questions. Data were collected and analyzed from workshops organized in different years and in various countries. The content analysis method was used. Most of the participants stated that they learned about new cultures, and histories and developed their communication skills. They also stated that they learned most from the active learning, audiovisual and IT methods. Participants confessed that they had trouble in communicating with foreigners, managing time, and overcoming prejudices. They also stated that personal experience, motivation, audiovisual elements, study program, and themes facilitated learning. It was concluded that informal history education is possible for adults as shown by the answers of the workshop participants on subjects such as history education, national identity, historical prejudices, and intercultural learning.

Key words: Adult education, Grundtvig workshops, culture, history education, intercultural learning.

INTRODUCTION

Grundtvig Adult Education Programme is a program developed with the aim of meeting the everchanging information needs, increasing the employment chance of adults by developing their skills and adapting to social changes. Grundtvig Programme organizes workshops on various topics in order to provide informal education to adults from EU member and candidate countries. Adult education has been a popular study topic for several years. It aims to educate adults and improve their life and employment chances. Thus, it aims not only to educate adults but also contribute to society (ua.gov.tr).

It is only possible for a society to develop when people can access and use information, and this is only possible with continuous education. This has become a necessity both for individuals and nations and is called lifelong education (Miser, 2002). This term is coined by Nikolai
Frederik Severin Grundtvig (1783-1872) (Maliszewski, 2002). The motto of “School for Life” emphasizes the fact that education never ends and is not only needed by youngsters but also by adults (European Commission, 2010). Lifelong learning is a concept based not only on the education and learning theories but also on the employment and career theories. It only focuses on the certification of the learned skills and abilities and disregards questions regarding who, where, why and how (Aksoy, 2013, p. 42). With the penetration of technology to our pockets, everyone, young and old alike is aware of the developments. In such a global context, individuals feel the pressure to learn even though they completed their formal education. Adult education meets this demand.

Grundtvig adult education program aims to bring adults from different countries together for information, experience and skill exchange in accordance with the priorities determined by the EU Education and Culture Programs (European Commission, 2019). Workshops organized in various fields create an important learning opportunity. Workshops used structured, non-formal and informal education approaches. They use different learning environments outside class and school, such as outdoors, museums, libraries, nature, and city centers. There are different and various learning tools. Cinema, music, theatre, literature, comics, technological tools, internet, artworks, books, and games are the ones that come to mind in an instant. Grundtvig Workshops mostly use drama, visualization, empathy, personal-internal, one-on-one, and group learning techniques. Workshop participants learn by practicing, living, and observing in place. Schools, informal education institutions, non-governmental organizations, local and national education and administration authorities, and other sociocultural institutions are pursuing joint enterprises with the other institutions such as libraries, museums, media centers, universities, and religious institutions (Turkish National Agency, 2019).

In this study, we focused on history and culture workshops. These are organized by institutions and educators from various fields and structured learning environments aim to teach regional history and culture. They have important goals, such as pursuing the dream of European peace, bridging the gap between East and West, and promoting the participation of minorities and disadvantaged groups. These goals are all based on the aim of creating an intercultural community (Martinalli and Taylor, 2000, p. 11). These values are being taught to the young generation in lectures such as history and social sciences. But these values should be taught to older generations as well. For example, a common misconception on the history education is that it is given by teachers, in schools, and through big books. But Grundtvig workshops teach history to adults using informal, unconventional methods. History education is relevant not only to students but also to the whole community and develops the ability to think from various perspectives, especially by using museums and historical places (Barton and Levstik, 2004). These ideas inspired many projects and researches aiming to move history education from school to outdoors both in Turkey and in the world. These studies, besides providing information on history, employed different methods and models such as visits to museums and historical places, historical drama, and cultural interaction workshops.

In this study, four Grundtvig Workshops conducted in 33 countries including Turkey were examined. These are:


b) “Local Cultures-European Identity”, Edremit, Balıkesir-Turkey; 2012.


Synopses of all these workshops are given in the following sections:

a) “Baroque in Bavaria” Freising, Munich-Germany (March 2010):

This workshop is organized in Freising, Germany; Freising is home to the Cathedral of Bavarian Catholicism and is only a short train trip away from Munich, the capital of Bavaria. Many experts participated in the workshop, such as experts on the Catholic culture from Vienna and Munich and experts on the Protestant culture. The workshop explored the historical roots and historical, architectural and social impacts of the Bavarian Catholicism. There were Catholic, Orthodox, and Protestant as well as Muslim participants. This created a multicultural learning environment both for students and teachers. Six educators and experts from Austria and Germany, and 15 participants from eight countries found the opportunity to observe, practice and experience the historical roots of Baroque style, and impacts on the life, architecture, art, music, and handicrafts.

b) Local cultures-European identity, Edremit, Balıkesir-Turkey (2012):

This workshop was organized in the second year of EU LLP Grundtvig Workshops Programme. It was organized in Edremit, Balıkesir, Turkey and 3 educator and 13 persons from 9 countries participated. Since its focus was on the local culture, participants were selected from the rural and lesser-known regions of Europe. Therefore, the participants not only learned about the local culture of Edremit but also became representatives of their cultures. So, the students became teachers during the workshop. They visited places selected from the Intangible Cultural Heritage list of UNESCO.
c) Man and woman in the 20th Century

The workshop was organized in Castel Del Piano, Toscana, Italy. In this workshop, participants coming from the EU member or candidate countries, working in various professions and aged between 20 and 58 came together in a historical place with an art director, two theater actors, a history teacher, and a music teacher. They performed various activities for five days on culture, theater, and history. They especially employed drama, role-playing, and teamwork techniques. They discussed gender roles in different nations throughout time, mythological elements, historical symbols, national heroes, prejudices, symbols, and stereotypes.

d) Viaggio in Europa: Cultural literacy through arts and philosophy

The last Grundtvig Workshop on history was organized in Milano, Italy in April 2014. Three Italian educators and 16 persons from nine countries participated. As the name suggests, participants are taken to a trip in the art ship and sailed from 19th to 21st century. Meanwhile, they discussed the birth of modern art trends, their impact on politics, economy, society, culture, and technology and the relation between history, art, and philosophy. Workshop put especially the historical development of the 20th-century modern art at the forefront with the aim of improving cultural literacy. Participants discussed the effects of various events such as political unifications during 19th and 21st centuries, the emergence of central national states, industrialization, alienation, and de-industrialization on the modern cities and people starting with the example of Italy.

All the selected workshops lasted 5 days. Workshops usually employed informal learning methods. Since unconventional methods are employed in order to teach about history and culture, we wanted to learn the opinions of participants. Thus, the following questions were asked:

1. What is your opinion on things you learned in the workshop?
2. What is your opinion about the efficiency of the methods employed in the workshop?
3. What were the disrupting factors for your learning experience?
4. What were the facilitating factors for your learning experience?

METHODOLOGY

This is a qualitative study aiming to observe and understand the event in its natural environment. The opinions of workshop participants from different countries, age groups, and professions were analyzed. Therefore, a qualitative research method, namely the phenomenological method was used. The phenomenological method focuses on exploring the actual experience. This method aims to measure the “experience” at various levels and contemplate on the meaning, content, and essence of the experience (Sart, 2015; Onat-Kocabıyık, 2016). Since this study was based on the participants’ workshop experiences, we preferred to use a phenomenology design.

A semi-structured interview form by reviewing the literature on the field was developed. Semi-structured interview forms are the most popular method for collecting data in the phenomenological approach (Sart, 2015. p. 75). The participants were asked to fill the form. Data were analyzed using the content analysis method. By asking open-ended questions we wanted to grasp the experiences of the participants in depth.

Study group

In order to determine the study group, convenience sample method was used. This method is where the sample is taken from a group of people easy to contact or to reach. We preferred this method for speed and practicality (Yıldırım and Şimşek, 2011). Direct access of the researchers to the workshop participants also played in favor of the selection of this method. The participants were from different countries and different professions. The participants of workshops were from the EU member or candidate countries, working in various professions. For example, the participants of “Man and Woman in the 20th Century: Love and Violence Workshop” were from Turkey, Italy, Latvia, Romania, Lithuania, Bulgaria, Portugal, Poland. In the group there were teachers, academicians, theatre actors, NGO workers, and a photographer.

The other workshops’ “Baroque in Bavaria” participants were from Romania, England, Bulgaria, Latvia, Estonia, Austria, Turkey and Germany. The workshop “Local Cultures-European Identity” was organized in Turkey and the participants were from Romania, England, Italy, Latvia, Lithuania, Turkey, Germany, Poland, Scotland. The participants of “Viaggio in Europa. Cultural Literacy through Arts and Philosophy” were from Italy, England, Turkey, France and Spain. The participants were not asked about their age, gender and occupation since it was not planned to be used in the research analysis. The summarized information is presented in Table 1.

Process

All workshops lasted 5 days. Participants were taught in English and using informal methods. In the last day of workshops, a form with open-ended questions was handed to the participants and they were free to answer. Some of the participants were reluctant to answer the interview forms; data were collected from 43 of them. First data was collected from the 2010 workshops and follow-up data was collected from 2012 and 2014 workshops.
Table 1. Basic information on the study groups.

<table>
<thead>
<tr>
<th>Name of Workshop</th>
<th>Place and Time</th>
<th>Number of participating countries</th>
<th>Number of participants who answers the questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baroque in Bavaria</td>
<td>Munich, Bavaria, Germany- March 2010</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Man and Woman in the 20th Century: Love and Violence</td>
<td>Castel del Piano, Toscana, Italy- June 2010</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Local Cultures-European Identity</td>
<td>Edremit, Balıkesir, Turkey-October 2012</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Viaggio in Europa. Cultural Literacy through Arts and Philosophy</td>
<td>Milan, Italy-February 2014</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2. Answers to the question What did you learn?

<table>
<thead>
<tr>
<th>Categories</th>
<th>( f )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different cultures</td>
<td>25</td>
</tr>
<tr>
<td>Histories of different countries</td>
<td>21</td>
</tr>
<tr>
<td>Communication skills (socialization-immersion)</td>
<td>20</td>
</tr>
<tr>
<td>Prejudices</td>
<td>9</td>
</tr>
<tr>
<td>New perspectives</td>
<td>8</td>
</tr>
<tr>
<td>Behavior improvement</td>
<td>7</td>
</tr>
<tr>
<td>Historical empathy</td>
<td>3</td>
</tr>
</tbody>
</table>

Tools of data collection

For data collection, an interview form with 4 open-ended questions was used. The questions were (1) “What did you learn?”; (2) “How did you learn?”; (3) “What were the disrupting factors for your learning experience?” and (4) “What were the facilitating factors for your learning experience?”. The opinions of three field experts on these open-ended questions was received. In this research, to ensure participants express themselves comfortably and to learn their workshop experience, more detail this kind of data collection method was preferred.

Data analysis

The content analysis method for this study was used. The analysis was performed in four phases: 1. Coding the data, 2. determining the themes in the coded data, 3. organizing the themes and codes, and 4. determining and interpreting the results (Yıldırım and Şimşek, 2011, p. 228). Frequencies are different since some participants gave answers that can be categorized under multiple themes \( n = 43 \). Furthermore, the investigator triangulation method was used. Since all data was recorded in English, we asked the help of an expert from the department of foreign languages and two field experts. Investigator triangulation is a method where two or more investigators analyze the same qualitative data and their results are compared. This decreases the bias problem when only one investigator is used and his/her prejudices affect the analysis and increase the consistency of results (Patton, 2014).

RESULTS

Opinions of the Participants regarding What they learned from the Workshops

The participants were asked what they learned from the workshop. The result is presented in Table 2.

We gave a code to all participants starting with the letter K and a number. Some of the responses are given below:

K13: “I learned many new things about different cultures, the culture night was especially interesting.”
K21: “Foods, lifestyle, business life, dance, music, clothes in different countries and much more that I can’t count here...”

Workshops included special activities like culture nights. Such activities included presentations on cultural elements, traditional clothes, and tasting of traditional
foods and beverages. As most of the participants emphasized, various learning methods are employed in these workshops such as music, presentation, and social interactions.

K19: “We must admit that cultural and historical learning can be gained in time and there may be some limitations arising either from the individuals or the process itself. You should be modest and open to multiculturality and learning. Workshops open new worlds before us; on the other hand, you realize how “small” the world is and how similar some traditions are. Therefore, you realize the richness of different cultural heritages.”

K3: “I learned to express myself in front of a community with confidence. Communicating with friends from different nations was fun, we established long term contacts.”

K43: “I believe that I obtained intercultural communication skills”.

As these examples show, the participants believe that they obtained many new skills. In this respect, one can think that the teaching methods employed in workshops were effective because the participants volunteered. Besides it can be seen in statement K3 that workshop inspired long term connections and similar projects. These statements may imply a continuation of such projects.

K4: “I tried to learn the parts of European history and global cultural heritage that previously I didn’t know, such as regional cultural differences, minorities, the geography of the country, our commonalities…”

K5: “I learned a lot about the regional and almost extinct cultures and historical places of Europe.”

K12: “…I realized that I have many prejudices I didn’t realize, for example on religions and identities… And I learned to overcome these prejudices via different perspectives”.

K11: “Starting with the first day of the workshop, active presentations are given. It was fun. Methods like drama, discussion, creative drama, cooperative learning-teamwork, and conceptual map were also useful”.

K27: “…my favorite activities were museum visits all along. I had observed many details regarding the history and architecture of the region during these visits.

K18: “It was fun for me to talk about our prejudices through drama method. When playing a role, I realized the surfacing prejudices that I have. This method affected me”.

K19: “… a short film we saw about the theme of the day was especially affective for me and its effect is lasting”.

K21: “Documentaries, short films, and relevant music were used frequently in lessons. I find this interesting”.

K33: “In a presentation given by one of the educators on the social media and forum sites, I learned about some free and educatory programs that I’ve heard before but never used. I believe they will be useful”.

K36: “…I learned new things on blog sites, forums, practical computer programs, virtual museums, and virtual tours, and I think I will improve myself”. K20: “…I can say that I learned a lot from short conversations we had with our educators during coffee

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Table 3. Opinions of participants on the teaching methods employed in workshops.

<table>
<thead>
<tr>
<th>Categories</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active learning methods</td>
<td>29</td>
</tr>
<tr>
<td>Audiovisual methods</td>
<td>19</td>
</tr>
<tr>
<td>Information technologies</td>
<td>13</td>
</tr>
<tr>
<td>Intercultural learning</td>
<td>12</td>
</tr>
<tr>
<td>Projection method</td>
<td>11</td>
</tr>
</tbody>
</table>

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Opinions of participants on the affectivity of teaching methods employed in workshops

Under this research question, we asked the participants how they learned in workshops. Results are presented in Table 3.

Selected opinions of participants are as follows:

K11: “Starting with the first day of the workshop, active presentations are given. It was fun. Methods like drama, discussion, creative drama, cooperative learning-teamwork, and conceptual map were also useful”.

K27: “…my favorite activities were museum visits all along. I had observed many details regarding the history and architecture of the region during these visits.

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K36: “…I learned new things on blog sites, forums, practical computer programs, virtual museums, and virtual tours, and I think I will improve myself”. K20: “…I can say that I learned a lot from short conversations we had with our educators during coffee
Table 4. Opinions of the participants on the factors disrupting learning.

<table>
<thead>
<tr>
<th>Categories</th>
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<tr>
<td>Foreign language</td>
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<td>Time management</td>
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breaks”.
K14: “...self-evaluations at the end of the day, and teamwork really helped us. I can say that my personal gains will be useful both in my future business life and social life”.
K17: “... during the education, we visited a village. That was a wonderful experience for me. I saw many things that I will tell to my close friends when I return to home.”.
K30: “I learned some established features of different cultures through close observation. For example, I asked many questions on the lifestyle of a Muslim to my participant friends without reserve”.
K28: “...sometimes our daily lives and trivial experiences may turn to be a great learning experience for others. It was for me. For example, I’ve decided to propose a change in the activity when I return from here…”

When we look at the examples from the comments of participants and from the table, we can see many can be evaluated in multiple categories. This means that participants commented on multiple methods used in the workshops. There are many comments regarding the affectivity of these methods. But participants mostly praised the affectivity of active learning and audiovisual methods and information technology. This finding is similar in some studies like Rogers (2001), Ursic and Caf (2009), Kalaitzidis et al. (2015). These studies also state that adults could improve their learning in many methods especially active and technologic methods.

Workshops analyzed in this study were prepared by people experienced in their relative fields and were selected among many candidate projects by international agencies. It is logical to expect the methods used in these carefully prepared and selected projects to be successful. Feedback from participants supports this expectation.

Opinions of the participants on the factors disrupting learning

Under this research question, we asked the participants about the factors that disrupted their learning during their education. The results are presented in Table 4.

K19: “Like many other participants, my greatest problem was also lack of proficiency in English, the formal language of the education. Many times, I failed to express myself exactly”.
K34: “Many times I was misunderstood, sometimes I got excited and used wrong words, educators supported us but I couldn’t help myself but feel bad”.
K40: “I strained myself because of my lack of practice in speaking. I felt the need to improve myself”.
K6: “In presentations, educators used complex terms and sentences. I would like simpler and more easily understandable presentations”.

Most of the participants stated they had difficulties in language. This problem is obvious in their answers. Some of the participants even failed to write complete sentences in their forms and tried to express themselves with one or two words. Some even left the questions unanswered. We believe this to be due to the lack of English proficiency.
K18: “…I believe time management is another problem. Planned time was insufficient for some activities and too much for others…”
K40: “…in the last days of the education, programs lasted more than they should. It was tiring”.
K21: “…there were problems of long and short presentations as well as a long program”.
K18: “Sometimes I could not receive detailed information regarding the presented subject or places we visited. My questions went unanswered”.

Some of the participants expressed that the problems regarding the program and time management disrupted their learning experience. Expressions like “long presentations”, “short presentations”, “density of the program”, “lack of time”, “misinformation”, and “personal study time” are classified under the time management and education program themes.
K11: “Small discussions with the other participants and their criticism sometimes disheartened me”.
K27: “Even though we are adults, some showed too much prejudice. I heard many unnecessary comments on my country and religion. I did not like that. You cannot easily overcome prejudices on national identity and history, no matter how much you discuss”.
K9: “Although trivial, I experienced personal problems and these made learning difficult for me”.

In these workshops, it was observed that the same problems that can be observed in any group consists of people from different nations and meet others for the first time. To prevent these problems, they organized meeting activities on the first day of workshops. Educators intervened to conflicts with restraint. Despite these
Opinions of the participants on the factors facilitating learning

Under this research question, we asked the participants about the factors that facilitated their learning during their education. Results are presented in Table 5.

K32: “Previously I attended a similar event. In the school that I am working, we are writing various projects. Being experienced made things easier for me”.
K40: “I have an interest in other cultures. Times that I spent here were very useful for me”.
K16: “…it is very exciting for me to spend a couple of days in a different country with people I don’t know”.
K18: “…especially the well-preparedness, fullness and denseness of the program”.
K40: “My answer to this question is an effective program, a good team, and professional educators.”
K21: “…I believe the well-planned activities used in presentations worked well. They convey tons of information sometimes through a picture sometimes with a game. Educators were successful”.
K12: “Education techniques and motivation of study groups”.
K15: “…and motivation and sincerity of group members”.

The most commonly repeated theme in the answers of the participants was the personal experience. Some participants had previous project experiences; some had prepared national and international projects in schools or associations. These participants expressed that their experiences facilitated their learning. Furthermore, teaching methods used in workshops, successful educators and programs, visuals, songs, and selected places were among the facilitating factors. Some of the participants also emphasized the sincerity of educators and participants and group dynamics. These were motivating factors.

RESULTS AND DISCUSSION

In this study, the opinions of the participants of Gruntvig workshops organized between 2010 and 2014 under the themes of history and culture was examined. At the fifth day of the workshops, all 43 participants were asked what they learned. Nobody left the question unanswered or told he/she learned anything. This shows that although superficial, all workshops gave something to their participants. The most common themes that can be found in answers were “meeting with different cultures and histories”, “improving communication skills” (socialization – communicating in a foreign language), “prejudices”, “gaining new perspectives”, “improving behaviors” and “historical empathy”. When the answers are analyzed, it was found that the outcomes targeted by the EU programs are mostly achieved, such as intercultural learning, personal development, tolerance, and productivity. These themes, intercultural learning proficiencies, and skills can be found in the book edited by Titley (2002). Besides comments of the participants than can be categorized under “openness to different perspectives” and “prejudices” themes made us think that people that participated to these programmes might be more sensitive, responsible and peace loving. Some of the participants were working in NGO’s and some were themselves educators. These results (Keugh, 2004) comply with the result that people participating in adult educations are effective in the policy choices and practices of their countries.

The second research question was "how did you learn?". Majority of the participants (n= 29) stated that they learned from the active learning methods and audiovisual elements. The other effective themes were projection, information technologies, and intercultural learning. These results comply with the studies that found that active learning methods are very successful in various lessons in primary and secondary education. Adults, like children, stated that they can learn more easily with different methods and technologies. Results show that many adults liked learning by drama, storytelling, and games.

The third research question was “What are the factors disrupted your learning?”. Answers included themes like a foreign language, time management, and education program. In the studied workshops, some problems arise because of the official language of the educations, English. Although all participants declared their proficiency, some really did not. One of the aims of such
programs is to develop the communication skills of participants in English (ua.gov.tr). But not much can be achieved in this respect only in five days, so workshops mainly focused on their main themes. This result shows that any person that will participate in the Erasmus+ program or any other international education program should previously take a language preparation course else they should be asked to certify their proficiency. Under the time management theme, the participants expressed problems such as the length of the program, shortness of some activities, and shortness of the times given to complete tasks. These problems can be deemed natural in an education where people from different nationalities and age groups attended. As a solution, Titely (2002) recommends planning an education program which is more flexible, appropriate for multicultural groups, and including contingency plans. Another recommendation that we can deduce from our results is to have the participants meet in an online platform before the workshop.

The most common answer to the fourth research question was personal experience. Besides, participants listed the other factors facilitating learning as methods used in the workshops, successful educators and program, visuals, songs, and visits to historical places. Some of the participants listed the sincerity of educators and participants and groups dynamics. They stated that these factors improved their motivation.

As a general result, we can say that the self-evaluations of the participants were satisfactory. Results show that adults participating in workshops attain many and various skills. This proves that informal history education is possible even though it is simple. Furthermore, workshops on history and culture can contribute to overcoming national prejudices and attain world peace. The results of this study are limited to the opinions of the participants in the study group. It is recommended that it is beneficial for future researchers to work with larger groups. In addition, data were collected through open-ended interview questions in this research; mixed method for conducting studies will also contribute to the field.


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CONFLICT OF INTERESTS
The author has not declared any conflict of interests.

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