Environmental literacy in Turkey primary schools social studies textbooks

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Abstract

The purpose of study is to determine the level of a allocation of environmental literacy issues in social studies textbooks in elementary school 4th, 5th, 6th, and 7th grade Social Studies (SS) textbooks that are published and distributed to schools by the Ministry of National Education in the 2010-2011 educational year in Turkey. For this aim, four social studies textbooks were examined. These textbooks are analyzed in terms of their level of “the environmental literacy issues,” in accordance with Roth’s subcategories. In the research the analysis unit is determined as “the environmental literacy”. This analysis unit is divided into four sub-categories as “Environmental Knowledge”, “Cognitive Skills”, “Behavior”, and “Affect”. Content analysis method was used to analyses the textbooks. In other words, qualitative research method was preferred and all the themes of textbooks were studied by use of the content analysis method. Frequencies and percentages were used in the analysis of data. In this study, it is found out that social studies textbooks do not equally contain the components of environmental literacy and that the component of environmental knowledge is included much more than the other environmental literacy components.

Keywords: Social studies, environmental literacy, textbook; knowledge; cognitive skills; behavior; affect.

1. Introduction

The emergence of environment as a problem started with the struggles of human to dominate over the environment (Öktem, 2003). In the last quarter of XX. Century, rapid population growth, irregular urbanization and industrialization disregarding natural environment have caused a set of problems called as ‘environmental issues’ to gain importance (Ertürk, 1994). Appreciation of human that in case of any deterioration in natural and artificial environment will make them encounter big difficulties has made the necessity of giving environmental consciousness to people by making use of every means of education a crucial issue (Yıldız, Sipahiğlu and Yılmaz, 2009). Thus, we see that the movements of environmental knowledge has gained speed since early 70s when environmental issues started to make themselves evident in global extent (Eroğlu and Keleş, 2009). Particularly with the Declaration of Tbilisi, it has been acknowledged that the way to improve the consciousness of environmental protection goes through environmental education (Kızıroğlu, 2000). The proclamation and the suggestions of Tbilisi Conference has been an important milestone for that human education should contain environmental education (Ünal and Dmışki, 1999). According to this proclamation; the purposes of environmental education are rebound of consciousness, knowledge, behavior and skill oriented towards environment to people and enable their active participations to the works of bringing solution to the environmental issues (Ünal and Dmışki, 1999). Environmental education is a life long learning process aiming to raise environmentally literate citizens (US EPA, 1996). Roth, who used the notion of environmental literacy for the first time, has defined it as a basic consciousness, awareness and understanding of the individuals towards environmental issues (Roth, 1968). Afterwards Roth has redefined it by taking different sides of this notion. According to this definition environmental literacy requires; the ability to understand and interpret environmental systems as well as the appropriate behaviours necessary for the continuity, reconstruction or the reformation of environmental systems (Roth, 1992). He stated that environmental literacy consisted of four sections...
as knowledge, skill, affective domain and behaviour Roth (1992). Particularly in the last quarter of this century; the relationship between education and environmental issues has been started to research as well as it has been started to re-question the suitability of the teachers, schools and curriculums to raise individuals having high level of environmental sensitivity and ecological consciousness (Atasoy and Ertürk, 2008). Looking from this point of view, the determination of the inclusion level of environmental literacy components in the social studies textbooks which help the students to become environmentally literate will take a crucial part in determining the efficiency of the social studies textbooks in terms of environmental literacy. The purpose of this study is to determine the inclusion level of environmental literacy components (knowledge-affect, behaviour, cognitive skill) in the social studies textbooks of 4th, 5th, 6th and 7th grades in primary school.

2. Method

2.1. Research Model
This research, realised to determine the inclusion level of environmental literacy components in the social studies textbooks of 4th, 5th, 6th and 7th grades in primary school, has been made with document review, one of the methods of qualitative research. Document review includes the analysis of written materials containing information about the fact or facts that are targeted to be researched. (Yıldırım and Şimşek, 2000).

2.2. Collection of Data
Data sources of this study are 4th, 5th, 6th and 7th grade social studies textbooks; studied in 2011-2012 education year, prepared by General Directorate of Primary Education, accepted as a textbook in accordance with the implement numbered 95 on 19.04.2007 and numbered 239 on 17.12.2010 and numbered 290 on 18.12.2009 by Board of Education and Discipline, lastly published in accordance with the implement numbered 886 on 08.03.2011 by Department of Publications Office.

2.3. Analysis of Data
In this study, content analysis was used in the interpretation of the data acquired with document review. The main operation made in content analysis is to collect similar datas within the frame of specific notions and themes and to interpret it by organizing in a way that the reader can understand. (Yıldırım and Şimşek, 2000). In this research, “environmental literacy” is taken as the main category. Sub-categories includes the components of knowledge, affect, behaviour and cognitive skill which form the environmental literacy and are supported with literature. In this study, “sentence” is chosen as the analysis unit. Later, a questionnaire is created to determine the inclusion level of environmental literacy components in the social studies textbooks. For the reliability of the study, all texts in the textbooks (excluding introduction, questions and references) are read by two different researchers and related sentences in terms of their meanings are coded in relevant cartridges. Two separate analysis results made by the researchers are compared and their accordance with each other is checked. In the codes that do not accord, it is re-coded to the relevant cartridge by receiving the opinion of an expert. In the presentation of the findings, direct quotations from the texts are made.

3. Findings and Interpretation

<table>
<thead>
<tr>
<th>Components of Environmental Literacy</th>
<th>Social Studies Textbooks</th>
<th>4th Grade</th>
<th>5th Grade</th>
<th>6th Grade</th>
<th>7th Grade</th>
<th>TOTAL</th>
</tr>
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<tbody>
<tr>
<td>Knowledge</td>
<td>f</td>
<td>85</td>
<td>297</td>
<td>441</td>
<td>87</td>
<td>910</td>
</tr>
<tr>
<td></td>
<td>%</td>
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<td>91.38</td>
<td>94.43</td>
<td>74.36</td>
<td>88.09</td>
</tr>
<tr>
<td>Affective Tendency</td>
<td>f</td>
<td>12</td>
<td>17</td>
<td>10</td>
<td>6</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.68</td>
<td>5.23</td>
<td>2.14</td>
<td>5.13</td>
<td>4.36</td>
</tr>
<tr>
<td>Behaviour</td>
<td>f</td>
<td>23</td>
<td>5</td>
<td>4</td>
<td>24</td>
<td>56</td>
</tr>
<tr>
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<td>1.54</td>
<td>0.86</td>
<td>20.51</td>
<td>5.42</td>
</tr>
<tr>
<td>Cognitive Skill</td>
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<td>4</td>
<td>6</td>
<td>12</td>
<td>-</td>
<td>22</td>
</tr>
<tr>
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<td>1.85</td>
<td>2.57</td>
<td>-</td>
<td>2.13</td>
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<tr>
<td>TOTAL</td>
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<td>325</td>
<td>467</td>
<td>117</td>
<td>1033</td>
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<td>100</td>
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</tr>
</tbody>
</table>

3.1. Findings about 4th Grade Social Studies Textbook and Interpretation
In 4th grade social studies textbook, environmental knowledge has the highest inclusion level with 68.55 (85) percent among the components of environmental literacy. This is followed by environmental behaviour with 18.55 (23) percent, affective tendency towards environment with 9.68 (4) percent and cognitive skill with 3.22 (4) percent. According to this, environmental knowledge component has the highest inclusion level while cognitive skill component has the lowest level among environmental knowledge components in 4th grade social studies textbook. Examples On Environmental Knowledge Components in 4th Grade Social Studies Textbook

- Some materials in the batteries give harm to human health and to environment. (SS4, p. 121-Knowledge)
- I get upset when I see a forest fire. (SS4, p.18-Affect)
- Do not leave the tap open while brushing your teeth (SS4, p. 87-Behaviour).
- Özge and Murat was paying attention that there was a TSI stamp while buying the products. (SS4, p.91-Cognitive Skill).

3.2. Findings about 5th Grade Social Studies Textbook and Interpretation

In 5th Grade social studies textbook, environmental knowledge has the highest inclusion level among the components of environmental literacy with 91.38 (297) percent. This is followed by affective tendency towards environment with 5.23 (17) percent, cognitive skills with 1.85 (6) percent and environmental behaviour with 1.54 (5) percent. According to this, environmental knowledge component has the highest inclusion level while environmental behaviour component has the lowest level among environmental knowledge components in 5th Grade social studies textbook. Examples On Environmental Knowledge Components in 5th Grade Social Studies Textbook

- Our country has unique natural beauties with its seas surrounding on three sides, its mountains, its forests, healing waters and caves (SS5, p.37-Knowledge).
- For me, the protection of environment and nature is very important (SS5, p.131-Affect).
- We can give support to glass production by leaving glass bottles on recycling bins (SS5, p.98- Behaviour).
- Farmer can be informed about the convenient irrigation methods by taking global warming into account (SS5, p.98- Cognitive Skill).

3.3. Findings about 6th Grade Social Studies Textbook and Interpretation

In 6th Grade social studies textbook, environmental knowledge has the highest inclusion level among the components of environmental literacy with 94.43 (441) percent. This is followed by cognitive skill with 2.57 (12) percent, affective tendency towards environment with 2.14 (10) percent and environmental behaviour with 0.86 (4) percent. According to this, environmental knowledge component has the highest inclusion level while environmental behaviour component has the lowest level among environmental knowledge components in 6th Grade social studies textbook. Examples On Environmental Knowledge Components in 6th Grade Social Studies Textbook

- However, abuse of water has decreased the level of water in Aral, the fourth biggest lake of the world (SS6, p.117-Knowledge).
- In this course, I realised that our cultural heritage should be protected and improved (SS6, p.23-Affect).
- Coordinator of the Project of Hands-on Environment Training realised the sewing of linen sack with the cooperation of parents (SS4, p.15-Behaviour).
- Earthquake, the dangers of earthquake and precautions that can decrease these dangers are researched from the determinated sources (SS6, p.29-Cognitive Skill).

3.4. Findings about 7th Grade Social Studies Textbook and Interpretation

In 7th grade social studies textbook, environmental knowledge has the highest inclusion level among the components of environmental literacy with 74.36 (87) percent. This is followed by environmental behaviour with 20.51 (24) percent, affective tendency towards environment with 5.13 (10) percent. In 7. Grade social studies textbook, there has not been found a statement about cognitive skill component. According to this, environmental knowledge component has the highest inclusion level while affective tendency component has the lowest level among environmental knowledge components in 7th grade social studies textbook. About the cognitive skill component, there has not been found a statement.
Examples On Environmental Knowledge Components in 7th Grade Social Studies Textbook

- Kyoto Protocol was signed in international platform for the solution of the problems appeared as the result of global warming and climate change (SS7, p.173-Knowledge).
- A scott loves and protects plants and animals (SS7, p.155-Affect).
- Do not use cosmetics products that has the gases harming ozone layer. (SS7, p.173-Behaviour).

There has not been found a statement about cognitive skill component.

3.5. Findings about the comparison of 4th, 5th, 6th and 7th grades of social studies textbooks in terms of their inclusion of Environmental Literacy Components and interpretation

When frequency and percentage value of environmental literacy components are assessed on grade basis, it is seen that 6th grade textbook has the highest level of environmental knowledge component with 94,43 (441) percent and 4th grade has the lowest level with 68,55 (85) percent. In all grades, the inclusion level of knowledge component of environmental literacy is 88,09 (910) percent.

Among social studies textbooks, it is seen that 4th grade textbook has the highest level of affective tendency towards environment with 9,68 (12) percent while 6th grade textbook has the lowest level with 2,14 (10) percent. In all grades, the inclusion level of affective tendency towards environment component of environmental literacy is 4,36 (45) percent.

Among social studies textbooks, it is seen that 7th grade textbook has the highest level of environmental behaviour with 20,51 (24) percent while 6th grade textbook has the lowest level with 0,86 (4) percent. In all grades, the inclusion level of affective tendency towards environment component of environmental literacy is 5,42 (56) percent.

Among social studies textbooks, it is seen that 4th grade textbook has the highest level of cognitive skill with 3,22 (4) percent while it is not included in 7th grade textbook. In all grades, the inclusion level of cognitive skill component of environmental literacy is 2,13 (22) percent.

According to the findings, social studies textbooks has the highest inclusion level of environmental knowledge component in all grades with 88,09 (910) percent. It is followed by environmental behaviour component with 5,42 (56) percent, affective tendency towards environment component with 4,36 (45) percent and cognitive skill component with 2,13 (22) percent.

4. Result and Suggestions

4.1. Result

In this study, it is found out that the components of environmental literacy are not equally included in social studies textbooks, and that the component of environmental knowledge is included much more than the other environmental literacy components. Environmental knowledge is the basis of environmental literacy. Inasmuch as, knowledge is accepted as a precondition for regardful behaviour and action (Disinger, 2001). However, knowledge is not enough for the protection and the improvement of the environment. In environmental education, not only just cognitive processes but also affective and psychomotor processes should be employed (Öznacar, Gülcaş and Gülay, 2010).

The most crucial point that should be taken into account in environmental education to be given within the scope of a program is that the aims of the program should be explained in different degrees of difficulty for different age groups (Haktanır, 2007). As a matter of course, the inclusion level of components forming environmental literacy in textbooks should also be in different degrees of difficulty for age groups. Nevertheless, it is seen that it is not taken much into account in primary school social studies textbooks. For example; there is only knowledge-dominated content in 4th and 5th grade social studies textbooks while there has to be knowledge and affect-dominated content. Also, while there has to be knowledge-affect-skill and behaviour dominated content, there is only knowledge dominated content; there is barely any affect and particularly cognitive skill oriented content in 6th and 7th grade social studies textbooks. Moreover, there is not any content about cognitive skill in 7th grade social studies textbook.

Considering the statements about environmental knowledge component, it is seen that environment is generally discussed in geography discipline rather than ecological knowledge, socio-political knowledge and environmental issues. As you see in these examples: “Mountains are landforms that are higher than its surroundings and have dip slopes from the bottom to the top” (SS5, p.59). “The vegetation cover of Mediterranean region is calabrian pine forests and maquis that consists of short trees and scrubs being able to stay green in all seasons” (SS6, p.44). Likewise, in 5th grade social studies textbook, there are contents about efficient agricultural areas in our country,
many agricultural products that is grown thanks to water sources, forest existence and natural and cultural beauties that provides tourism revenue within the scope of production- distribution and consumption learning domain; however, there has not been added any content about the fact that in order to maintain their continuity to national economy, these values should be protected (Karatekin, 2011). To Roth, environmental literacy feeds from the subjects that go beyond any traditional discipline. (Disinger and Roth, 1992). According to this opinion, it does not seem possible that students having education from a book that just contains ecological or geographical knowledge can understand the interactive relationship of human and environment correctly.

In all social studies textbooks, it is seen that the inclusion level of knowledge component of environmental literacy is 88,09 percent while the inclusion level of cognitive skill component is 2,13, the inclusion level of affective tendency component is 4,36 and the inclusion level of behaviour is 5,42 percent. It cannot be expected to see a high level of environmental literacy from the students having education from these textbooks. Likewise, in his research that he made on 5th grade students, Erdoğan (2009) concluded that the students have medium level of environmental literacy.

4.2. Suggestions

1. In social studies textbooks, it is seen that the texts about environmental knowledge are information-dominated. Nevertheless, social studies textbooks should address to affective tendency of the students towards environment and cognitive skills that they will use on encountering an environmental problem. For this reason, it is thought that it will be useful to create an environmental knowledge content that have all the components of environmental literacy (knowledge-affect-behaviour-skill).

2. The components generating the environmental literacy should be given in different degrees of difficulty to different grades. However, it is seen that there is a knowledge dominated content in social studies textbooks of all grades. For social studies textbooks that will be prepared from now on, it is suggested that for 4th and 5th grades the content about affective tendency and for 6th and 7th grades the contents about cognitive skills and environmentally responsible behaviour should be increased.

3. In the study, it is seen that the component of environmental knowledge is generally taken in geography discipline. Nevertheless, environmental knowledge should be given with a inter-disciplines approach. For this reason, it is thought beneficial to relate the geographical information about the environment with other disciplines.

References

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