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Does mother tongue education support development of environmental literacy in Turkey? An analysis of Turkish course books

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Development of environmental literacy needs an interdisciplinary effort. Especially language classes, with environment related texts, have potential to support environmental literacy. In this research it is aimed to analyze the Turkish language course books in terms of components of environmental literacy. To this end, four Turkish course books being taught between 5th and 8th grades were selected. As a qualitative inquiry technique content analysis was used. Three types of main components of environmental literacy (knowledge, affect, and behavior) and their sub-components determined. It was found that the most cited environmental literacy component was knowledge. Others were relatively less emphasized. Results showed that Turkish course books with environment related texts have potential to support development of environmental literacy.

Keywords: Environmental literacy, Turkish language education, course books.

INTRODUCTION

The driving goal of mother tongue teaching is to improve students' basic language skills. To this end, these classes cover a curriculum and materials that will support the students' reading, listening, speaking, writing and grammar skills. In addition to their overt goal, these classes have some covert goals, and the materials to be used are selected to serve these goals as well as to serve the overt one. To enumerate them, we can count conveying and producing cultural values, socializing the students, raising democratic people, technology-literate and environmentally-conscious individuals (Uyar, 2007; Özbay, 2002; Sallabaş, 2013; Uyar, 2007).

Since early 2000s, due to increase in environmental problems and concerns about the future of the world, there has been an urgent need to raise environmentally-

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conscious individuals. This need affected the mother tongue curriculums as well as other educational policies in many countries. Besides, some researches attempted to determine the effects of using scientific and environmental texts in language classes (Cervetti, Pearson, Bravo, &Barber, 2006; Gates, Duke &Martineau, 2007; Guthrie, McRae, &Klauda, 2007; Wigfield, Guthrie, Tonks, &Perencevich, 2004). In addition to these studies, which directly integrate science classes into mother tongue teaching, some researchers focus on fostering environmental consciousness and environmental literacy (EL) via literary texts (Napoli, 2011; Ramos, & Ramos, 2011). Furthermore, the journal Environmental Education Research published a special issue titled *Experiencing environment and place through children 's literature*. This issue was the result of some researchers' efforts who specialize in children's literature and environmental education. All of these achievements indicate that mother tongue teaching classes can help improve EL in addition to their main function.

Environmental literacy and its content

Defined as awareness, consciousness, knowledge, attitude, skills and active participation by Hsu (1997), EL and its content include all the stages of a process which start with awareness and turns people's knowledge, emotions and skills into behavior. Benzer (2010) defines EL as "the capacity that enables people to show in daily life their general understanding of how people and societies interact with each other and how the environment can be made more sustainable". She goes on to argue that EL is employed differently as a concept. Benzer (2010) accounts for the frequent reference to EL in the field with the fact that pragmatically environment and education are associated with different functions. According to Benzer (2010), when combined these concepts form the various types of environmental education, as also pointed out by Schlottmann (2009) and Chatzifotiou (2005):

> These are classified as education about environment, education for environment, and education in environment. Education about environment means informing the students about environmental issues while education in environment is referencing the environment as a source that the students can use to conduct in-depth research. Finally, education for environment is the type of education that serves to foster positive attitude towards environment.
>
> (Benzer, 2010: 2)

In a nutshell, Roth (1992), Hsu (1997), O'Brien, (2007) and Benzer (2010) associate the improvement of EL with successful completion of the components of a complex process and its different realizations.

Environment and Environmental literacy in mother tongue teaching (Turkish) in Turkey

We see willingness in Turkey to raise environmentally conscious individuals since the renovation movement in 2005. This initiative is also found in the curriculum renewed in 2015. Furthermore, the curriculum includes recommendations for course books to cover some topics related to EL (Erdoğan, Kostowa, & Marcinkovski, 2009; Erdoğan, Coşkun, & Uşak, 2011). The curriculum reveals the foregoing:

In the Aims of Turkish Education section of The Turkish Education Curriculum - Grade 6-8 (Ministry of National Education [MoNE], 2006) it was specified in item 5 that teaching Turkish between 6th and 8th grades aims to "give the students the habit of choosing, watching and listening scientific and cultural events" (MoNE, 2006: 2). Although not stated clearly in this sentence, this requires the students to do some

science-related reading, listening and watching activities that include environment literacy. Also, the item 10 requires the students to "be conscious of national and global problems and find solutions for them" (MoNE 2006: 4). It is reasonable to include environmental contamination, climate change and natural disasters in national and global problems. These ambiguous goal statements become clearer in the principles of the course book writing process. One of the themes recommended for the secondary school is "the nature and the universe". This theme covers "seasons, climate, natural phenomena, living creatures, physical changes in the nature, protecting ourselves from natural disasters, protecting the environment, sceneries, snow, rain, stars, colors, planets, earth, earth and space" (MoNE 2009: 60). The curriculum for primary schools suggests a compulsory theme "Health and Environment" which includes "environmental consciousness, soil, water, weather, plants and animals etc." (MoNE, 2009: 143). Also, the optional theme "Earth and Space" covers "sky, star, the moon, planets, the sun, clouds, volcanoes, oceans, climate, continents and astronauts" (MoNE, 2009: 143) while the theme "Natural Disasters" covers "earthquakes, flooding, avalanche, hurricanes, search and rescue and precautions against natural disasters (MoNE, 2009: 143).

The Turkish Education Curriculum published in 2015 for the grades between 1st and 8th suggests covering "environment, nature, natural disasters, plants, animals, the universe, time awareness, seasons, day time and night" (MoNE 2006: 9).

Apparently, the recommendations of the curriculum for the topics to be covered in the course books overlap with the components of EL. They will also help students develop EL. For one thing, every text – especially the ones written for children – has a message that affects children's knowledge, affect, and/or behavior (Hunt 1994). Children who read these texts imagine themselves as the protagonist and associate the gist with real life thereby performing an effective learning activity and gain indirect experience (Dorn & Soffos, 2005; Popp, 2005). They are then assumed to use these experiences in real life. Therefore, we can argue that literary texts as the main ingredient of mother tongue teaching classes considerably affect the students' development in various fields from young ages.

This paper attempts to determine the extent to which the texts in the course books taught in Turkish secondary schools cover the components of EL. It is an attempt to find out how well the texts in the Turkish course books serve the abovementioned purposes and therefore EL. We will, as a result, have an understanding of the contribution these texts make to the development of EL.

METHOD

Content analysis method was used to analyze the course books chosen for this study. The content analysis method – a type of qualitative analysis method – enables us to sort communication products by similarity, conceptual categories or their relations with each other (Julien 2008). "It is just what its name implies: The analysis of the usually, but not necessarily, written contents of a communication. Textbooks, essays, newspapers, novels, magazine articles, cookbooks, songs, political speeches, advertisements, pictures – in fact, the contents of virtually any type of communication – can be analyzed." (Fraenkel, Wallen, & Hyun, 2012: p. 478)

Selected Turkish Course Books

This study focuses on the course books taught between 5th and 8th grades. One book from each grade that is being taught in 2015-2016 educational year was selected, totaling 4 course books. The books published by the Ministry of National

Education were selected because they have been used for many years by the most of secondary school students.

Analysis of the Selected Books

Content analysis of the selected Turkish course books was undertaken in the following three steps: (1) determining a framework for the content analysis, (2) extracting the relevant information from the selected Turkish course books, and (3) constructing a table comprising emerged codes.

Determining a framework for the content analysis

We used the framework developed by Erdoğan et al. (2011) to analyze literary texts. They initially reorganize the seven components of EL and grouped them into four categories: Knowledge, Affect, Cognitive Skills and Environmentally Responsible Behavior. They then figure, based on earlier studies (Erdoğan, Kostova, & Marcinkowski, 2009), 41 sub-items, which they use to name the codes and the themes in the analysis of literary texts. The analysis of the literary texts yields three main categories: Environmental Knowledge, Affective Dispositions (Affect) and Environmentally Responsible Behavior (Erdoğan et al., 2011). Since similar text were analyzed in this study, those codes and three categories used in a same way.

Extracting the relevant Information from the selected Turkish Course Books

Each book was read with great care, noting the parts that could be related to environmental literacy. These notes were compared to the codes found in the framework developed by Erdoğan et al. (2011). Comparison did not yield any different codes.

Constructing a table comprised of the emerged codes

A table was written for each main category to organize the results. The tables show the themes, codes and the frequencies in the books.

FINDINGS

Environmental Knowledge

The codes related to the defitions of environmental knowledge are grouped under seven main categories: Description of the environment, natural disaster, ecological condition, geographical patterns, environmental pollution, environmental protection, and concretisation. Besides, ecological conditions, geographical patterns, environmental pollution, and environmental protection themes have been reorganized as sub-themes. Table 1 presents the distribution of these themes in the four selected course books.

It has been found that 17 texts described the environment, most of which were descriptions of the natural environment. Almost all of the books had the themes ‘natura and universe and ‘environment and health’. These texts had more detailed descriptions. The descriptive part of the short story from Ömer Seyfettin in the sixth grade Turkish course book is given below:

> *“This tiny hill overseeing the endless horizons of the Mediterranean’s mythology cradle is was a miniature forest of flowers. The speckled shades of tall almond branches would fall on the goat paths leading to the coast. Seagulls would echo their frantic cries in the breeze. Next to the almond garden was a large vineyard. The olive grove behind a wall made of white stones would stretch as far as the valley.” (p.58)*

Table 1. Description of selected Turkish Course Books in terms of Environmental Knowledge

Themes	5th grade	6th grade	7th grade	8th grade	Total
1. Description of the Environment	2	5	4	6	17
2. Natural Disasters	-	-	1	1	2
3. Ecological Conditions					
3.1. Habitats of animals	5	6	2	2	15
3.1. Habitats of plants	2	1	2	-	5
4. Geographical patterns					
4.1. Day / night	4	4	4	4	16
4.2. Seasons/ climate	8	7	11	5	31
5. Environmental Pollution					
5.1. Soil pollution	1	-	1	1	3
5.2. Noise pollution	-	-	-	1	1
6. Concretisation	-	3	1	0	4
7. Environmental Protection					
7.1. Struggling with natural difficulties	-	-	1	4	5
7.2. Protection of animals / natural hazards	-	-	1	0	1
Total	22	26	28	24	100

The information on ecological conditions cited in 20 texts within the classics. While 15 texts covered animal nature, 5 texts covered plant nature. An excerpt is presented below from a text about animal nature. Burcu Meltem Arık's passage *From Caterpillar to Butterfly* from the fifth grade course books is given below:

"The life circle of butterflies with the egg phase. They leave their egg on the top of the plants before winter. The eggs cling to the leaves thanks to a secretion similar to a strong adhesive. Also, there is a protective layer on the eggs. Thus they can protect themselves from the hot or cold weather. The egg phase usually takes a few weeks."

…

Caterpillars hatch the eggs and eat the leaves with an almost insatiable appetite. They are also on the menu of many animals. But they have some interesting self-defense mechanisms." (p. 50)

Geographical patterns, day/night and seasons/climate were together cited in 47 texts within the course books. The number of the texts including information related to the seasons/climate (*f*=31) were greater the number of the texts including information related to day/night (*f*=16). Ahmet Arslan's reading passage 'Beauty in *Four Seasons: Abant'* in the fifth grade course book is given below:

"… The Abant Lake goes through a magnificent Autumn before it goes all white in the Winter.

…

Abant offers various options in each season. An easy-to-access countryside, Abant have snow-covered forests in the Winter, which blossom flowers in the Spring. It attracts people by its very fresh air and the plants' being a riot of color which they turn yellow and red in the Autumn. ." (p. 100)

Natural disasters (flood ve earthquake) and their effects are cited in 2 texts within the Turkish course books. No text informing of fire was found in the course books. In other words, there were only a few texts about natural disasters. Similarly information on environmental pollution was observed in 4 texts within the course books, in particular, soil pollution adressed in 3 texts and noise pollution adressed in

1 text. Even though air pollution and water pollution are commone phenomena, they are not mentioned in any text. Additionally concretisation, as the environmental problem of the modern cities, was cited in 4 texts within the course books.

Environmental protection was cited in 4 texts within the course books. How to struggle with the wild nature (i.e. having to walk on steep mountains and cliffs etc.) was cited in 3 texts and how to protect the natural environment (i.e. protecting oneself from a wild animal such as rhino) was cited in 1 text.

Affective Dispositions (Affect)

The codes related to children's affective tendencies were grouped under six themes, namely, attitude, appreciation, love, sensitivity, positive-negative feelings and intention. The distribution of these themes emerged from the selected course books as summarized in Table 2.

Table 2. Description of selected Turkish Course Books in terms of Affect

Themes	5th grade	6th grade	7th grade	8th grade	Total
1. Attitude					
1.1. Toward animal	-	-	3	3	6
1.2. Toward plants	-	1	1	1	3
2. Appreciation					
2.1. Natural beauty	3	1	4	2	10
3. Love					
3.1. Love for animals	1	2	1	-	4
4. Sensitivity	-	2	2	-	4
5. Positive and Negative Feelings					
5.1.Happiness to live clean environment	1	-	-	-	1
5.2. Fear from darkness	-	-	-	1	1
6. Intention	1	-	1	-	2
Total	6	6	12	7	31

The frequency of environmental affect was lower than the frequency of environmental issues. The most cited theme was appreciation shown toward the natural beauty. It was observed in 10 texts within the course books. Attitude was the second most observed theme (*f*=9). Attitudes toward animals cited in 6 texts, and attitudes toward plants cited in 3 texts within the course books. Love of environment (particularly for animals such as fish, cat, dog etc.) addressed in 4 texts. Similarly environmental sensitivity associated with willingness to be in and experience the natural environment cited in 4 texts. Last two themes, positive and negative feelings and intention, received less attention than other themes. Happiness to live a clean environment as a positive feeling addressed in 1 text, and fear from darkness as a negative feeling addressed in 1 text. Intention to keep environment clean also cited only in 2 texts within the course books.

Like information related to environmental knowledge, issues related to affect relatively mostly cited in 7th grade course book (*f*=12).

Environmentally Responsible Behavior

The codes related to responsible environmental behavior were only grouped under the theme of physical action / eco-management as has been done early research (Erdoğan, et al., 2011). Distribution of the subthemes is presented in Table 3.

Table 3. Description of selected Turkish Course Books in terms of Environmental Behavior

Themes	5th grade	6th grade	7th grade	8th grade	Total
1. Physical action / Eco-management					
1.1. Planting and protecting plants	1	1	2	2	6
1.2. Raising and protecting animals	-	1	2	1	4
1.3. Saving resources	1	-	-	-	1
1.4. Preventing environmental pollution					
1.4.1. Soil pollution	1	-	1	-	2
Total	3	2	5	3	13

Responsible environmental behavior was relatively less addressed in the texts used Turkish classes in secondary schools in Turkey.

As a responsible environmental behavior, raising animals (i.e., dog, cat, sheep, partridge, turtle) and protecting them from threat and danger was observed in 4 texts. Planting and protecting plants (i.e., tomatoes, orange trees, different flowers) was observed in the 6 texts. The behavior associated with saving resources cited only in 1 text (i.e., texture a doormat with used socks). Behavior associated preventing soil pollution observed in only 2 texts. Although air, water, and noise pollutions are common problems of the modern world, behaviors associated with preventing water, air, and noise pollution were not observed in any text.

As indicated in Table 3, responsible environmental behaviors relatively more observed in the 7th grade course book.

DISCUSSION

This study analyzed the Turkish course books taught in secondary schools in Turkey. We tried to determine how many reference were made to knowledge, affect or behavior that foster environmental literacy. MoNE books were selected for the database since they are the most frequently used books in the secondary schools.

As a result, it was observed that each book has differing numbers of reference to themes and concepts that support environmental literacy. The highest frequency is in the seventh grade Turkish course books. (f=28 for environmental knowledge, *f*= 12 for affect, and *f*= 5 for responsible environmental behavior), followed by the sixth grade Turkish course book (*f=34* in total), grade Turkish course book (*f=34* in total), and the fifth grade Turkish course books in the order mentioned.

Environmental knowledge and its sub-themes are the most common themes in the books (*f*=100 in total). This is in compliance with the results obtained by Erdoğan et al. (2011) who examined the classics recommended for primary schools by the Ministry of National Education. The other compliant findings is the foregoing: the texts include information about environmental descriptions, natural disasters, earth's rotation (i.e. day/night and seasons/climates), environmental polution, but such knowledge is never activated with examples.

Environmental affect (*f*=31 in total) and responsible environmental behavior (*f*=13 in total) are relatively less frequent within the course books, which is parallel to the result of the previous study (Erdoğan et al., 2011).

As a result, we argue, in the light of these findings, that the course books taught in the secondary schools in Turkey have the potential to support environmental literacy. The next step will be scrutinizing the books published by private company. Also, book drafts should be studied before publication for these qualities so that better examination is possible in the long run.

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