

Reviewing the position of environmental elements in content of high school first grade's curriculum

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ABSTRACT: This study has been conducted to evaluate the content of first grade books in high school based on the environmental education elements in view of students and teachers. The current research methodology is of survey descriptive type and the statistical analysis is descriptive statistic and deductive statistic (independent t, mono-sample t). The statistical community in this study includes two groups: first group contains whole girl students (1500 people) and teachers (700 people) of first grade in high schools in Najafabad town, and the second group contains authors of first grade high school books and biology specialists.

Statistical sample for this study has been 350 students and 250 teachers (165 male and 85 female) that have been selected by a cluster type sampling; and 5 authors and 5 biology specialists which have been selected on target.

Results of this study are as follows:

According to the results obtained, weather and population had the most frequency and relation of human and environment and human's role in protecting the environment have had the least frequency among elements of environmental education mentioned by interviewees.

Considering teaching about environment in the content and principles of courses and in values and approaches of courses in first grade high school has been in a high level in students' views and in a low level in teachers' views. The amount of considering environmental education in activities and skills of courses in first grade high school has been in an average level in students' views and in low level in teachers' views. Generally, place of environmental elements in textbooks of first grade high school is not proper; in this respect the curriculum content requires a review.

Keywords: environment, curriculum, curriculum content.

INTRODUCTION

Following the emergence of industrial revolution in the world, human and his environment have been watching wonderful evolutions. Especially in the second half of twentieth century, technology development has empowered human in making considerable changes and transformations to the environment (Changizi Ashtiani, 2008).

One of valuable institutions in society that has a significant role in promoting and developing the culture of environment protection is the education organization. During recent years, this organization has been tried to encourage schools to pay special attention to environmental education and include instructing environment protection in the curriculums. Those who are trained this way would certainly have a proper reasonable reaction against environment contamination. Hence, investing in this fundamental part is considered as an important issue (Steven, 2000). Since the content of curriculum or textbook is a written codified curriculum basis in such intensive education systems as Islamic Republic education system, identifying environmental elements and evaluating the content of curriculum based on the obtained elements is the aim of this article.

Statement of the Problem

Environment is a process that protects living and interacts with it, and the issue of environment and its protection is an issue of public attention, since the public benefit from environment and natural resources directly or indirectly (Sepehrnia, 2002).

In order to protect and benefit suitably from the environment we need education more than any other thing. According to the famous motto of environment's fans "know, like, protect", the solution is to understand the environment, check facilities, know destructive barriers and confront with them. This would be possible to a large extent through environmental education (Babamoradi, 1998).

In Iran in which a large percent of population is young generation, environmental education would have a significant impact on promoting environmental culture and attaining the goals of sustainable development (Heidari, 2003: 241). Environmental education can be started as formal education and make some changes in students' attitude, knowledge and skills related to the environment and also improve their environmental awareness and information (Arcori, 1990).

Regarding this fact that textbook is one of the main sources of students' learning in the current educational system, in order to determine the suitability of approved course contents for students, the content should be analyzed. Assessing the textbook content regarding other elements effective in teaching efficiency, allows judging and decision making about content suitability. Therefore, necessity for assessing textbook content in the current education system in our country is inevitable; and increasing the quality of contents and materials and improving the learning level of learners is directly related to these assessments. Hence, it has been tried in the present study to identify environmental elements, and review consideration of mentioned elements in textbooks of first grade high school in three areas of attitude, knowledge, and skill in view of students, which are the audience of this content, as well as teachers.

Literature and Theoretical Background

The term environment means living through the surrounding area. Based on this, in a basic view, anything surrounding life and living can be known as its environment (Banan, Gholamali, 1972, p14). Environment is a multidimensional issue, for this reason it requires a multidimensional attitude and insight (Fathi Vajargah, 2003:9). Environmental education of students and including it in their curriculum is significant in two aspects. Firstly, students will be included among main consumers in the society; and secondly, some students will be among the decision making layers of the society in future (scientific seasonal journal of environmental protection organization, no. 4, 2002).

The concept of environment includes three areas in the content of curriculum:

Fundamental concepts: addressing basic issues about understanding environment and those factors affecting on it.

Destructive forces: that emphasize on studying destructive factors leading to change in environmental evolution.

Developing a positive attitude: in fact it emphasize on environmental issues and social aspects.

The content of environmental courses can include three categories of "knowledge, attitude and skill". For instance, in the knowledge category, students understand the following:

- Natural processes happening in the environment
- Consequences of human activities on the environment
- Various settings including past and present
- Environmental issues, such as greenhouse effect, acid rains, and air pollution
- Environmental relations among people, groups, communities, and nations.

And in skills category, students can achieve the following skills:

Communication skills, study skills, problem solving skills, individual and social skills, and information technology-related skills (Palmer, Joy, 1382).

Therefore, learning and thinking about environment has a nature based on question, solution, and action. This type of learning dealt with developing attitudes and values, including elements and ideas about human perception and also required behavior to create patterns of sustainable life and exploitation of resources in this planet while protecting it (Jo. A. Palmer, 2002).

Importance of environmental education has also been reflected in research system and many researches have been conducted in this field, among them is Changizi(2008), which has assessed the amount of primary school students' and teachers' awareness and knowledge about environment protection. In this study, students' knowledge was assessed at a low level, and the teachers' knowledge was assessed at a desired level.

Ashtiani (2008) reviews the place of environment and its protection in the content of Science and Literature textbooks in primary level through content analysis. The result indicated that 1.48% of the total content of science and literature textbooks is related to environment concepts, and 98.52% is related to other issues.

Sharifian (2008) has addressed the need analysis and determination of students and teachers' educational preferences in environment at junior high school level. Results showed that both students and teachers require being educated in three fields of knowledge, attitude and skills; and teachers' level of knowledge, attitude and skill is higher in comparison to students.

A study conducted in 1975 by UNESCO (UNEP) to identify preferences and requirements of environmental education around the world, revealed so many needs in a global scale. The most urgent needs were identified as staff training (81% of countries), developing course items (73% of countries), and developing educational programs (68% of countries).

Party Class (2005) conducted a study evaluating teachers' cooperation in environmental education. Researches indicate that teachers' cooperation in environmental education is as a necessary strategy for improving environmental education.

Nego (2007) conducted a research about environmental education in primary schools. In this research, it has noted that the significance of teaching environment as a formal education has developed from kindergarten to 12 years old.

A study was conducted by Kakir (2009) on teaching environment by teachers and education programmers. Results shown in order to teach different scientific subjects, the more informed people are used, the better and more effective the learning would be.

The obvious thing is that although environmental education is a serious issue and some research has been conducted in this field, environmental issues have not been emphasized much in textbooks.

MATERIALS AND METHODS

The research method was a descriptive survey. The research sample in this study include all girl students in first grade high schools of Najafabad city in 1389-90 school year containing 1500 people' and all girls high schools' teachers in school year of 1389-90 containing 700 people; based on Morgan Table, 350 students and 250 teachers were selected through cluster sampling. Another population participated in this study were all authors of first grade high school textbooks as well as all curriculum experts and environment specialists. In order to do a targeted interview with those experts, 5 people were selected for each group.

RESULTS AND DISCUSSION

Results

Question 1:

What are the environmental education's elements in curriculum of first grade high school based on the environmental topics?

In order to evaluate elements of environmental education in curriculums, first we referred to related experimental and theoretical basics. Then based on the findings obtained in this stage, a sketch was prepared and was evaluated through interview with 5 authors of textbooks in first grade high school, 5 environmental experts, and 5 high school teachers. Table 1 illustrates the results of interviews in research subjects.

Table 1. frequency and percentage of elements of environmental education

Measures	Frequency	Percentage
Weather	13	86%
Population	13	86%
Water	12	80%
Pollution	11	73%
Waste	10	66%
Rivers, seas, and ponds	9	60%
Trees and Forests	8	53%
Soil	7	46%
Global Warming	6	40%
Animals	5	33%
Ozone layer erosion	4	26%
Energy	4	26%
Environmental ethics	2	13%
Human-environment relationship	2	13%
Role of human in the environment's protection	2	13%

As it can be seen in table 1, the most frequency in elements being referred by interviewees were weather and population and the least frequency among them were human-environment relationship and human's role in the protection of environment.

Question 2:

How much attention has been paid to the environmental education in concept and content of textbooks of first grade high school in view of students and teachers?

In order to answer this question, based on the results of interview, designing a questionnaire and assessing students and teachers' opinions about the amount of environmental education consideration in the concepts and content of first grade high school textbooks was being addressed. For this purpose, descriptive data and one-sample t-test were used.

Table 2. Results of one sample t-test for reviewing students and teachers' opinion about the amount of considering environmental education in contents of course books of first grade high school

Group	T	Freedom Degree DF	Meaningful Surface P	Average Difference M	Confidence Interval 95%	
					Low	High
Students	3.96	349	0.001	0.176	0.088	0.2635
Teachers	-3.28	249	0.001	-0.195	0.312	0.078

As it is demonstrated in table 2, the statistics from one sample t-test to review the amount of considering environmental education in content of courses in students' point of view, equals to 30968 which is meaningful at the level of 0.01 α . Therefore, it can be concluded that in students' view, the amount of considering environmental education in content of courses in first grade high school is at a high level. Also, the statistics for one sample t-test for reviewing teachers' opinions is -30289; the obtained t is meaningful at level of 0.01. Since the obtained statistics is minus and average of teachers' scores is less than medium, so it can be concluded that in teachers' view environmental education has been addressed less (less than average) in content of textbooks.

Question 3:

In students and teachers' view, to what extent environmental education has been considered in activities and skills of first grade high school courses?

Table 3. results of one sample t-test to review students and teachers' opinions about the extent of considering environmental education in course activities of first grade high school

Group	T	Freedom Degree DF	Meaningful Surface P	Average Difference M	Confidence Interval 95%	
					Low	High
Students	0.13	349	0.895	0.007	0.108	-0.124
Teachers	-3.505	249	0.001	-0.2288	-0.357	-0.100

As it can be seen from table 3, the t-test statistics for reviewing students' scores about the extent of considering environmental education in course activities of first grade high school equals to 0.133 which has the meaningful coefficient of 0.895, and this is not significant at the level of 0.05 α . Hence, it is concluded that according to students the extent of consideration is at average level. The statistics for one sample t-test in reviewing teachers' opinion about considering environmental education in activities of first grade high school is 3.505, and since this is a negative

amount and the average score for teachers is less than average, it is concluded that according to teachers this amount of consideration in activities and skills is low.

Question 4:

To what extent environmental education has been considered in attitudes and values of courses in first grade high school?

Table 4. results of one sample t-test for reviewing students and teachers' opinion about the extent of considering environmental education in values of courses in first grade high school

Group	T	Freedom Degree DF	Meaningful Surface P	Average Difference M	Confidence Interval 95%	
					Low	High
Students	4.112	349	0.001	0.232	0.120	0.343
Teachers	-3.948	249	0.001	0.238	-0.357	-0.119

Based on the data shown in table 4, the amount of one sample t obtained for students' scores about the extent of considering environmental education in courses' values of first grade high school equals 4.112, which is meaningful at level of 0.01. According to average scores of students that is higher than medium, it is concluded that according to students the extent of considering environmental education in course values is at a high level. The amount of one sample t for reviewing teachers' opinion about the extent of considering environmental education in course values of first grade high school is 3.948. Since the average score of teachers is less than average and the resulted t is negative, it is concluded that according to the teachers the extent of considering environmental education in course values of first grade high school is at a low level.

Question 5:

To what extent environmental education has been considered in the context of first grade high school courses? In this section, the extent of considering environmental education in the context of first grade courses in students and teachers' views has been reviewed, the results of which are shown in table 5.

Table 5. the results of one sample t-test for reviewing students and teachers' opinion on the extent of considering environmental education in course contents of first grade high school

Group	T	Freedom Degree DF	Meaningful Surface P	Average Difference M	Confidence Interval 95%	
					Low	High
Students	2.88	349	0.004	0.13	0.0413	0.219
Teachers	-4.190	249	0.001	-0.228	-0.336	-0.120

In table 5, the results of one sample t-test for reviewing students and teachers' opinion about the extent of considering environmental education in course contents are presented. According to the results presented in this table, the amount of t statistics in analyzing students' opinion is 2.88 which is meaningful at level of 0.01 and free FD of 349. Since the average score of students is more than average, it is concluded that according to students the extent of considering environmental education in the content of courses in first grade high school is at a high level. Also, analysis of teachers' opinion demonstrated that the statistics for one sample t at FD of 249 is 4.19, which is meaningful at level of 0.01. With regard to the average score of teachers being less than medium, it is deducted that in teachers' viewpoint, the extent of considering environmental education in content of courses of first grade high school is at low level.

Question 6:

What suggestions have been made by students and teachers for revising and improving course contents of first grade high school for an effective environment education?

In this section suggestions posed by students and teachers on effective environmental education in first grade high school curriculum are reviewed.

Table 6. Suggestions, Frequency and Percentage

Suggestions	Frequency	Percentage
Using educational soft wares	170	28%
Holding extracurricular classes with environmental topics	158	26%
Adding environment course separately	132	22%
Holding educational tours about environment	105	17.5%
Including environmental topics in content of Arabic and Language textbooks	87	14.5%
Conducting research activities about environment by students	65	10.8%
Utilizing documentary pictures about environment in textbooks	50	8.3%

As it can be seen in table 6, suggestions presented in this section include using educational softwares, holding extracurricular classes with environmental topics, adding environment course separately, holding educational tours about environment, including environmental topics in content of Arabic and Language textbooks, conducting research activities about environment by students, utilizing documentary pictures about environment in textbooks. As it can be seen, the most frequency in suggestions made by students and teachers relates to using educational softwares, and the least frequency relates to using documentary pictures about environment in textbooks.

Discussion and Conclusion

The purpose of this study was to evaluate content of textbooks of first grade high school based on the elements of environmental education according to students and teachers of Najafabad city, Esfahan, during school year 1389-90. Based on the data obtained from resources and researches and the reviews made on the research data, the results obtained for any of the research questions are as follows: with respect to the answer to the first question, in order to obtain elements of environmental education in courses of first grade high school based on environmental issues, at first, based on the background conducted researches, expert opinions, and interviews made, elements of environmental education obtained, including: water, soil, forest and trees, weather, ponds, population, pollution, wastes, technology role in the environment, human role in the protection of environment, Ozone layer erosion, role of global warming in environment, seas and rivers, and animals; based on these results, the most frequency in elements mentioned by interviewees were weather and population and the least frequency were for human-environment relationship and role of human in environment protection; other elements were somewhere in between.

Results illustrating analysis of second question showed that according to students, the extent of considering environmental education in course content of first grade high school is at a high level, and this was in contrast with teachers' response to the same question. Possible reason for this can be their different understandings of represented issues. Teachers seem to have given better opinions due to their better complete knowledge and competence over the content of course books and being aware of students needs.

Third research question was represented to review the place of environmental education in activities and skills of first grade high school. Analyzing the results of this question it can be concluded that according to students, environmental education has not been considered meaningfully in the desired activities. Reviewing teachers' responses to the same question shows negative meaningful statistics as well. Hence, it is concluded that according to teachers, the extent of environment consideration in course activities and skills is low. This finding is aligned with common educational defects in educational system of the country, such as lack of considering applied and operational aspects of educational theories.

For emergence of environmental elements in content value of first grade curriculum shows that students assess the place of environmental elements in content value of curriculums as high level and teachers assess it as low level.

Finally, as it was seen in the results of sixth research question, different suggestions were posed by students and teachers in order to improve courses for a more effective environmental education. These suggestions were categorized in 8 items. The most frequency was related to the item of using educational software and the least one was related to the item of using documentary pictures about environment in course books. This may be due to the fact that using technological up-to-date instruments are at first preference because of their efficiency.

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