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The Turkish adaptation study of global warming questionnaire*

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Abstract

Nowadays, environmental problems have become the most important problems that threaten the lives of human beings. Global warming comes at the beginning of the most important global problems that threaten the lives of human beings increasing day by day. It is very important to determine whether the Pre-service Elementary Teachers who will educate conscious and sensitive individuals to global warming as with every subject have enough equipment about global warming or not. The purpose of this study is to find out the sub-dimensions of the questionnaire including items on global warming used by Boyes, Stainsstreet and Yongling (2008) by adapting into Turkish. This questionnaire was applied to 225 Pre-service Elementary Teachers studying in Elementary Maths, Elementary Science, Primary Teaching, Pre-school and Social Sciences Education in Primary Education Department, Faculty of Education, Ondokuz Mayıs University. The obtained data were examined with factor analysis using SPSS package programme. 17 items for the prevention of global warming have been identified as a single dimension. With this research, 17-items questionnaire adapted into Turkish is important to determine the Pre-service Elementary Teachers' perceptions and thoughts for preventing global warming.

Keywords: Global warming; pre-service teacher.

1. Introduction

Nowadays, environmental problems have become the most important problems that threaten the lives of human beings. Global warming comes at the beginning of the most important global problems that threaten the lives of human beings increasingly. From the industrial revolution to the present, global warming defined as the temperature increase detected on earth and in the lower layers of the atmosphere (the lower and middle troposphere) becomes a problem that may be frightening results in the future, especially depending on burning of fossil fuels, deforestation, agricultural activities and a rapid growth of atmospheric concentrations of greenhouse gases emitted into the atmosphere by variety of human activities such as industrial processes as a result of the strengthening of the natural greenhouse effect due to urbanization (Türkeş, 2006). That's while, the measures that will be taken against global warming are very important for the future of the world.

In order to prevent the disasters which are possible to meet in the future, environmentally conscious individuals should be trained. Environmentally conscious, environmentally sensitive individuals can be trained by expert educators who will be able to give effective environmental education.

 The teachers who have the most important role at the stage of training environmentally conscious generations must have adequate equipments to give a qualified environmental education by planning the educational process and identifying the students' perceptions against this kind of environmental problems. In this sense, it is very important to determine the perceptions and thoughts of pre-service teachers who will educate future generations on global warming which is one of the most important environmental problems.

The purpose of this research is to find out the sub-dimensions of the questionnaire which contains items for preventing global warming used by Boyes, Stanisstreet and Yongling (2008) adapting into Turkish.

2. Method

Screening method, which is one of the quantitative research approach, was used in this research. Screening method is a research approach that aims to describe a situation in the past or today as it is (Karasar, 2000).

Participants

This research was applied to 225 pre-service teachers studying in Elementary Maths, Elementary Science, Primary Teaching, Pre-school and Elementary Social Sciences in Primary Teaching Department at Ondokuz Mayıs University.

Data Collection Instrument

To determine the perceptions and thoughts of pre-service elementary teachers for the prevention of global warming, only 25 items in the five-point Likert type questionnaire which contains 38 items were used. The items are graded such as: 'Strongly agree', 'Agree', 'Undecided', 'Disagree', 'Strongly disagree'.

The questionnaire that is originally in English to prevent global warming was translated into Turkish by the researcher and necessary arrangements were made by two people who are experts in the field of English Language. A person who is an expert in the field of Turkish Language was consulted about whether the Turkish translation of arranged questionnaire is suitable for the language of science' rules or not. Then, the pilot implementation of the questionnaire translated into Turkish was applied to 225 pre-service teachers. With the data obtained from this research by using SPSS package program with exploratory factor analysis method, the dimensions of the questionnaire were found. According to the results, it was determined that the items are operational and the questionnaire is one-dimensional. The final version of the questionnaire items are given in Table 1.

Table 1. The final version of the questionnaire items

1. If we stopped using CFCs in spray cans, this would…
2. If we had fewer factories, this would…
3. If we used unleaded petrol more, this would…
4. If we planted lots of trees, this would…
5. If we protected the Ozone Layer, this would…
6. If we used the sun, wind and waves to make energy more, this would…
7. If we saved electricity, this would…
8. If we had fewer nuklear power stations, this would…
9. If there weren't so many people in the world, this would…
10. If we made companies and factories more aware of their environmental responsibilities…
11. If my friends and I participated in more environmental protection activities…
12. If we increased the tax on environmental protection for companies and factories…
13. If we made more efforts to educate companies and factories recognition of environmental protection…
14. If we issued more environmental protection laws on companies and factories…
15. If we had fewer factories, this would…
16. If we made more efforts to educate students' recognition of environmental protection…
17. If my friends and I could get more education about environmental protection…

3. Findings

KMO's and Bartlett's test results were examined in order to test the questionnaire's applicability to the factor analysis used in the research in terms of normal distribution. To apply factor analysis to the data, it is recommended that KMO value should be above minimum of 0.60 and Bartlett test should be meaningful (Pallant, 2001; Tabachnick & Fidel, 2007). According to the results obtained from the research, KMO's and Bartlett's values are given in Table 2.

Table 2. KMO's and Bartlett's values

Kaiser-Mayer-Olkin (KMO)		**0.844**
Bartlett Test	Chi-square value	1171.499
	Sd	153
	p	0.000

It has been seen that KMO value was 0.844 when the Table 2 was examined.
This result shows that data is suitable for factor analysis. It was taken into consideration that item load values must be at least 0.30 and items must be included in a single factor while determining the items which will be taken part in the questionnaire in exploratory factor analysis; if the items take part in two factors, the difference among factors must be at least 0.10 (Büyüköztürk, 2009). Analysis was repeated removing the items which aren't included in a factor or have too close loads to be distinguished from each other in more than one factor. As a result of factor analysis, 8 items which are loaded with more than one factor or showing a low correlation from 0.30 with factors were removed from the questionnaire. The remaining 17 items were collected in one dimension. Factor loadings obtained from factor analysis of the questionnaire items are given in Table 3.

Table 3. Factor loadings obtained from factor analysis of the questionnaire items

Items	Factor 1
12	.648
16	.629
15	.624
17	.623
4	.623
3	.608
10	.581
5	.542
13	.541
11	.534
7	.492
14	.483
6	.475
1	.462
9	.433
2	.398
8	.379

To determine the internal consistency coefficient of the research, as a result of factor analysis the questionnaire's sub-dimension's Cronbach Alpha values were evaluated. It is considered adequate that the reliability coefficient calculated for a psychological test must be .70 and higher (Büyüköztürk, 2009). The Cronbach Alpha reliability coefficient of 17-item questionnaire derived from the research was found to be .795. The Cronbach Alpha values of the questionnaire's items are given in Table 4.

Table 4. The Cronbach Alpha values of the questionnaire's items

Items	Cronbach Alpha Volues
1	.797
2	.796
3	.782
4	.781
5	.776
6	.787
7	.788
8	.833
9	.793
10	.774
11	.777
12	.773
13	.770
14	.787
15	.776
16	.771
17	.774

4. Result

The adaptation study of the questionnaire for prevention of global warming used by Boyes, Stainsstreet and Yongling (2008) with pre-service teachers has revealed that 17-item version of the questionnaire is suitable, valid and reliable to use in the conditions of Turkey. This questionnaire can be used reliably to determine the perceptions and thoughts of pre-service teachers to prevent global warming. We think this study is very important on shed light to higher education institutions that will provide teachers who will educate individuals that are well-informed and conscious to environmental issues, have attitudes and behaviours to protect the environment, have the ability to solve environmental problems and aware of their roles in the solution of environmental problems with adequate equipment.

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