

*Full Length Research Paper*

# **Views of pre-service primary school teachers regarding computer assisted environmental education**

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**The main aim of this study is to highlight the importance of computer assisted instruction in environmental education. Recently, the importance of environmental education in many countries has begun to increase in parallel with environmental problems. This has led to increased interest in environmental education. The fact that computers were the most important invention of the 20<sup>th</sup> century is reflected in the fact that computer assisted instruction has been put into practice in all fields of education sciences. The research was done in the Department of Primary Teacher Training, Education Faculty, Recep Tayyip Erdoğan University in the 2012-2013 academic year. According to the results of the analyses, the attitudes of prospective teachers' towards computer assisted instruction in environmental education are positive. However, the female prospective teachers attached more importance to computer assisted environmental education than the males.**

**Key words:** Computer assisted instruction, environmental education, prospective teacher, environmental citizenship.

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## **INTRODUCTION**

Human beings are involved in an intense struggle to solve environmental problems that have become highly dangerous for them recently. Having an individual conscience about solving such major problems is of great importance. This, in fact, may be possible with an effective environmental education (Alım, 2006). Environmental concerns have been on the agenda of industry and science for more than 30 years (Haytko, Matulich, 2008). The concept of environment education emerged only in the seventies which were called the decade of environmental education. During that period the world realized that environmental concerns and awareness could be spread only through a mass environmental education program. The concept of environment education emerged from the World Conference on the Environment in Rio de Janeiro organized by the United Nations in 1972 (Panth, 2010; Erol and Gezer 2006). The recommendations of the conference emphasized organization of 'formal' and 'mass' environmental education pro-

grams (Panth, 2010). Education concerning environmental problems recognized that the initial entrance of Environmental Education (EE) into the formal education systems was through natural and life science studies (Gottlieb et al., 2013). In addition to this, in December 2002, the United Nations passed Resolution 57/254, which declared a Decade of Education for Sustainable Development beginning in 2005 (Jickling and Wals 2008).

Computers in education is a general term meant to encompass all elements of educational computing. It has three major components: awareness, computer literacy, and computer-assisted education (Türkmen, 2000). Today, general-purpose, easy-to-use software such as Microsoft PowerPoint has become available. For the first time, instructors can easily modify and even create their own CAI material based on the demands of their own students. With the evolution of technology and the passing of time, the traditional techniques, in which the instructor acts as the most active role in the students'

education, are being transformed into new techniques, which are technology-assisted and encourage learning and reasoning techniques. In pedagogical knowledge, the conception of new ideas is as important as the applications themselves. Most importantly, teaching techniques that are developed involving technological tools and applications offer great opportunities for educators and students (Morgil et al., 2004; Solem et al., 2003). At the global level, developed countries are more advanced than developing countries in terms of computer assisted learning (Munyavi, 2011). Computer assisted education is an educational method which uses computers as an environment in which learning takes place, strengthens the education period improves student's motivation, and increases learning speeds. This educational method is formed by combining computer technology and learning principles by oneself (Hançer and Tüzemen 2008). In parallel with the technological advances, technological devices, particularly computers, began to be used in educational environments to develop audio-visual materials such as animation and simulation, which resulted in the development of computer-based instruction techniques. The best example of the integration of science and technology is the Computer-Based Instruction technique. The use of computers in teaching and learning activities is defined as Computer-Based Instruction (CBI) Serin, 2011).

Preparing students for their future life requires active classrooms and successful learning (Kostova and Atasoy, 2008). It is crucially important to enhance the students' willingness to make some sacrifices for the protection of the environment by providing them with the necessary knowledge base (Alp et al., 2008). However, though the educational environment supported by computer aided presentations has positive contributions to learning activity, it does not have effects on the permanence of what has been learnt (Kose, 2009; Cotton, 2007). Different approaches embraced in applications, and the duration of applications can be effective in student's achievements in computer aided teaching (Bayrak and Bayram 2010). Clearly, since environmental education is in its infancy in Turkey (Alp et al., 2008; Tuncer et al., 2005), computer use in environmental education may not provide the necessary easiness for both teachers and students. Successful learning in environmental education (EE) is closely related to the methods used by the teachers and the learners (Kostova and Atasoy, 2008).

One of the most important concepts regarding environmental issues is environmental citizenship (EC). According to Meerah (2010), this concept recognizes the active participation of citizens in moving towards sustainability. If the goals of sustainable development are to be reached, and individuals are to engage in lifestyles that will not ultimately detract from future generations, they need to be aware of the influence of their lifestyles, consumption patterns, and so on (Sheehy, et al., 2000). Computer Assisted Environmental Instruction (CAEI) can also be used to reach this target. One of the materials on

environmental courses is computer assisted instruction material. CAIM can improve students' achievement, and to some extent change misconceptions and improve cognitive levels (Cepni et al., 2004).

One section of this study was presented at the Computer and Instructional Technologies Symposium, 2010, in Konya, Turkey and it was rearranged according to the proposal of symposium participants and applied to prospective teachers in the autumn 2012-2013 semester.

The aim of this study was to bring to light the effects of computer assisted environmental education on pre-service teacher training.

In this context, the study was generated under three categories:

1. What are the general thoughts of pre service teachers regarding environmental education?
2. What are the general views of pre service teachers regarding the use of computers on courses of environmental education?
3. What are reflections on the use of Computer Assisted Environmental Instruction (CAEI) in the course?

## METHODS

This study was conducted on pre-service teachers in the autumn period of the 2012-2013 academic year in the Department of Primary Teacher Teaching, Education Faculty, Recep Tayyip Erdoğan University, in Rize. The courses of computer assisted environmental education were realized over about 14 weeks (two hours per week) in this faculty by the researcher. At the time of this period, the educational presentations assisted by computers and laptops were performed in an environmental course at four different classrooms. The content of the course consisted of "basic ecological concepts and principles, ecosystems, nutriment chains, environmental pollution, environmental health, decision making about the environment, environmental sensitivity and literacy, environmental organizations in the world". Moreover, each student participating in the course prepared at least one CD on environmental education for homework or intermediate examination as multimedia or PowerPoint materials. Some of the CDs were presented during the course by students in the classroom. In the last week, a Computer Assisted Environmental Education Attitudes Questionnaire (CAIAQ) was applied to 200 prospective teachers.

## Sample

The sample was selected from two hundred students registered in courses during the fall of 2012-2013 school year. 190 of these students gave responses to a questionnaire.

## Instruments

The questionnaire questions were generated depending on the study literature and content of the environmental courses at the faculty by the researcher. In the beginning, it consisted of 40 questions and was tested on 50 pre-service teachers as a pilot application. Afterwards, the views of five academic experts regarding CAEAQ were taken in order to finalize the final format. Finally, CAEAQ consisted of 32 (Section A 8, Section B 6, Section C 18) items in total. Five-point Likert-scale type questions with responses

**Table 1.** Distribution of the pre-service teachers according to gender.

Gender		N	X
Gender	Male	112	60.1
	Female	78	39.9

ranging from 'strongly disagree' (1) to 'strongly agree' (5) according to the respondent's views were included in the questionnaire.

### Data analysis

To analyze and interpret the data, per cent and t tests were used to understand the differences between groups at  $P < 0.05$  significance. The results were evaluated and calculated values by means of SPSS (Statistical package for social sciences). The scale reliability coefficient (Cronbach Alpha) was 0.85.

### Participants

The demographic characteristics of geography students are shown in Table 1. Participants were 190 volunteers. They consisted of 61.8% (112) male and 39.9 % (78) female.

## RESULTS AND FINDINGS

### Findings concerning the first sub-question

The first sub-question of the study was "What are the general thoughts of pre-service teachers regarding environmental education?" To present the answers to this question, firstly the general thoughts of students regarding environmental education were investigated (Table 2). Most of the respondents (pre-service teachers) (agree, 25.3%; strongly agree, 64.2%) stated that they were concerned for the future of the world because of environmental problems. On the other hand, respondents generally agreed that people must take compulsory education on environmental issues in high school (mean=3.73). More than half of prospective teachers (strongly disagree, 29.5%, disagree, 23.7%) did not respond to Item 4 "The Environment problems cannot be solved by means of education". According to the results of Item 5 and Item 6, Pre-service teachers emphasized that they implemented their responsibilities to the environment as a citizen (Mean= 3.16) and that they were concerned about the negative effects of environmental pollution around them (Mean= 3.21). Meanwhile, Pre-service teachers' mean scores were 3.44 about the view "I believe that I have environmental knowledge at enough level." However, as seen in Table 2, their mean score was 2.61 about the view "I am more interested in environmental education course than other courses at the faculty."

### Findings concerning the second sub-question

The second sub-question of this study was concerning the general view of pre-service teachers regarding the using of computers in the environmental education course. In this context, the respondents were firstly asked if the use of visual materials with on-site computers in environmental courses had made teaching easy. Most of the respondents (agree, 35.8%; strongly agree, 35.3%) believed that the visual materials assets computer had made teaching easy (Table 3). An important part (agree, 33.2; strongly agree, 21.6 %) of the students said that the knowledge learnt on computer assisted environmental education was enough to teach to their students in the future. The great majority of them (agree, 22.1%; strongly agree, 21.6 %) mentioned that project and homework assisted computers in environmental education course were effective in enhancing environmental sensitivity. On the other hand, respondents generally agreed that they enjoyed researching environmental subjects by means of computer and internet (mean=2.78) and that the contribution of CAEI was remarkable in increasing awareness of individual responsibilities in environmental conservation (mean=2.98). In addition to these, most respondents (mean=2.79) agreed that computer assisted environmental education (CAEI) was very effective in learning environmental concepts.

### Findings concerning the third sub-question

Thirdly, the effectiveness of Computer Assisted Environmental Education (CAEI) to develop ecological behaviors was researched according to students' views in the context of "reflections on the use of Computer Assisted Environmental Instruction (CAEI) in the course" (Table 4). As seen in Table 4, the students stressed that computer assisted instruction for environmental issues and problems were extremely effective. Item 2 "CAEI in understanding ecological relationships and events" (mean= 3.79, Item 3 "CAEI in learning of the nutriment chain and grid" (mean=3.77)), Item 4 "CAEI in terms of avoidance of the haphazard use of energy resources (mean=3.98), Item 6 "CAEI in understanding climate changes" (mean=3.73), Item 7 "CAEI for the protection of the nearly extinct species of animals" (mean=3.99), Item 8 "CAEI for the fight against environmental pollution (mean=3.84) Item 9 "CAEI for environmental literacy and awareness" (mean=3.52), Item 10 "CAEI for information on environmental health" (mean=4.00), Item 12 CAEI to understand the importance of creating protected areas" (mean= 3.60), Item 17 "CAEI in leaving a good legacy for future generations (mean=3.82) Item 18 "CAEI in learning of international actions on global environmental" concerns (mean=3.72) clearly showed this specialty.

Lastly, in this study, we investigated differences of gender attitudes towards computer assisted environmental

**Table 2.** The general thoughts of pre-service teachers regarding environmental education.

	I strongly disagree	I less disagree	Neutral	I agree	I strongly agree	M	Sd
1. I believe that people must take compulsory education on environmental issues in high school	3.2	8.9	17.4	52.6	17.9	3.73	.963
2. I believe that although environmental education is extremely important recently, environmental education of people is not enough.	4.7	5.8	23.7	58.9	6.8	3.57	.88
3. I am concerned for the future of the world in term of environmental problems.	3.7	6.8	25.3	28.4	35.8	3.85	1.09
4. The environmental problems cannot be solved by means of education only	29.5	23.7	23.7	15.8	7.4	2.47	1.26
5. I think that I implement my responsibilities to the environment as a citizen	6.8	30.0	18.9	27.9	16.3	3.16	1.21
6. I am concerned about the negative effects of environmental pollution around me.	7.4	27.4	20.5	25.8	18.9	3.21	1.24
7. I believe that I have environmental knowledge at enough level	5.8	17.4	26.3	27.9	22.6	3.44	1.18
8. I am more interested in the environmental education course than other courses at the faculty.	17.9	37.9	21.1	11.1	12.1	2.61	1.24

**Table 3.** The necessities of environmental education with assisted computer were researched in preventing environmental problems according to students' views.

	I strongly disagree	I less disagree	neutral	I agree	I strongly agree	M	sd
1. The use of visual materials in environmental courses has made teaching easy.	2.6	6.3	20.0	35.8	35.3	3.88	1.02
2. I enjoy researching environmental subjects by means of computer and internet.	13.7	31.6	25.8	13.7	15.3	2.78	1.26
3. The contribution of CAEI is considerable in raising awareness of individual responsibilities in environmental conservation	6.8	23.7	23.2	37.4	8.9	2.98	1.10
4. Projects and homework assisted by computers in environmental education courses are effective in enhancing environmental sensitivity.	5.3	17.9	33.2	22.1	21.6	3.30	1.15
5. I believe that the knowledge I learnt on computer assisted environmental education is enough to teach to my students in future.	--	6.8	38.4	33.2	21.6	3.64	.89
6. Computer assisted environmental education is remarkably effective in the learning of environmental concepts.	17.4	28.4	9.5	28.9	15.8	2.79	1.38

education depending on its issues. For this aim, Independent-Samples T test was conducted to examine the views of female and male pre-service teachers towards CAEI. Results are shown in Table 5. The table shows that there are statistically significant differences in some areas but not in others. The results show that female pre-service teachers participated more in the following items than men with a statistically meaningful difference. Item 2 "The effectiveness of the CAEI for the environmental literacy and awareness"  $t=-2.49$   $p<0.05$ , female ( $m = 3.96$ ,  $sd = .72$ ), male ( $m = 3.67$ ,  $sd = 0.79$ ). Item 4 "The

effectiveness of CAEI in terms of avoidance of the haphazard use of energy resources  $t=-2.33$ ,  $p<0.05$ , female ( $m = 4.16$ ,  $sd = 0.71$ ), male ( $m = 3.86$ ,  $sd = 0.97$ ). Item 9 "The effectiveness of the CAEI for the environmental literacy and awareness"  $t=-2.18$ ,  $p<0.05$ , female ( $m = 3.75$ ,  $sd = 1.13$ ), male ( $m = 3.36$ ,  $sd = 1.26$ ). Item 10 "The effectiveness of CAEI for information on environmental health"  $t=-2.13$ ,  $p<0.05$ , female ( $m = 4.17$ ,  $sd = .80$ ), male ( $m = 3.88$ ,  $sd = .82$ ). Item 11 "The effectiveness CAEI for the protection of natural scenery"  $t=-3.05$ ,  $p<0.05$ , female ( $m = 3.93$ ,  $sd = 1.06$ ), male ( $m =$

**Table 4.** The use of Computer Assisted Environmental Education (CAEI) to develop ecological behaviors in the context of environmental issues.

	Most ineffective	Much ineffective	Effective	Much effective	Most effective	M	sd
1. CAEI in concept learning regarding environmental education	10.5	17.9	38.9	12.1	20.5	3.14	1.23
2. CAEI in understanding ecological relationships and events.	1.1	5.3	20.5	59.5	13.7	3.79	.78
3. CAEI in learning of the nutriment chain and grid	6.8	5.8	18.4	40.5	28.4	3.77	1.12
4. CAEI in terms of avoidance of the haphazard use of energy resources	.5	4.2	23.7	38.9	32.6	3.98	.88
5. CAEI for the results of acid rain and Ozone Depletion	9.5	17.4	41.6	11.1	20.5	3.15	1.21
6. CAEI in understanding climate changes	1.6	10.0	30.5	28.9	28.9	3.73	1.03
7. CAEI for the protection of the nearly extinct species of animals	.5	4.7	23.7	26.8	34.2	3.99	.90
8. CAEI for the fight against environmental pollution	1.1	8.9	30.0	24.2	35.8	3.84	1.04
9. CAEI for environmental literacy & awareness	6.8	12.6	30.5	21.1	28.9	3.52	1.22
10. CAEI for information on environmental health	1.1	5.8	20.5	36.8	35.8	4.00	.94
11. CAEI for the protection of natural scenery	2.1	23.2	30.5	25.8	28.4	3.65	1.09
12. CAEI to understand the importance of creating protected areas	4.7	8.4	40.0	15.3	31.6	3.60	1.15
13. CAEI in learning the activities of governmental and non-governmental organizations	4.2	9.5	42.1	14.7	29.5	3.55	1.13
14. CAEI in setting environmental policies	6.3	14.7	35.8	15.3	27.9	3.43	1.21
15. CAEI in learning the importance of the laws and regulations related to the Environment	4.2	14.7	33.7	18.4	28.9	3.53	1.17
16. CAEI for the evaluation of environmental waste	3.7	7.9	26.8	61.1	.5	3.46	.80
17. CAEI in leaving a good legacy for future generations	2.6	5.8	30.5	28.4	32.6	3.82	1.03
18. CAEI in learning of international actions on global environmental concerns	2.1	11.1	34.2	17.9	34.7	3.72	1.11

3.45, sd = 1.07). Item 12 "CAEI to understand the importance of creating protected areas"  $t=-2.25$ ,  $p<0.05$ , female (m = 3.76, sd = .96), male (m = 3.40, sd = 1.18). Item 14 "The effectiveness of CAEI in setting environmental policies"  $t=-2.31$ ,  $p<0.05$ , female (m = 3.67, sd = 1.09), male (m = 3.26, sd = 1.27). Item 15 "The effectiveness of CAEI in learning the importance of the laws and regulations related to the Environment"  $t=-3.12$ ,  $p<0.05$ , female (m = 3.85, sd = 1.17), male (m = 3.34, sd = 1.12). Item 16 "CAEI for the evaluation of environmental waste"  $t=-3.90$ ,  $p<0.05$ , female (m = 3.73, sd = .55), male (m = 3.60, sd = .89). Item 17 "The effectiveness of CAEI in leaving a good legacy for the future generations"  $t=-3.59$ ,  $p<0.05$  (m = 4.14, sd = .84), male (m = 3.60, sd = 1.10) Item 18 "CAEI in learning of international actions on global environmental concerns" female  $t=-2.40$ ,  $p<0.05$  (m = 3.69, sd = 1.12), male (m = 3.29, sd=1.12).

An independent-samples t test comparing the mean score of CAEI and gender found a significant difference

between the means of the two groups ( $t= -4.31$ ,  $p < .05$ ). The mean of CAEI for females (m = 3.82, sd =1.27) was slightly higher than the mean of those for males (m = 3.50, sd = 1.09).

## DISCUSSION OF FINDINGS AND CONCLUSION

Consequently, according to the results of this study, generally pre-service teachers had positive attitudes towards the computer aided education environment. This result also supports the findings of previous studies (Cepni et al., 2004, Morgil et al., 2004) which obtained the same or similar results in terms of achievement or attitude. On the other hand, there are many studies showing the positive effects of the computer aided instruction in geography, mathematics, biology, etc. (Kaygisiz et al., 2011). It can be deduced that the use of computer assisted instruction enhanced the performance of both male and female students (Yusuf and Afaolobi,

**Table 5.** Analysis of the effectiveness of Computer Assisted Environmental Instruction (CAEI) to develop ecological behaviors in the context of environmental issues in terms of gender.

		N		S	df	T	P																																																																																																																																																																																												
1. CAEI in concept learning regarding environmental education	Male	112	3.15	1.22	188	.36	.714																																																																																																																																																																																												
	Female	78	3.10	1.26				2. CAEI in understanding ecological relationships and events.	Male	112	3.67	.79	188	-2.49	.014	Female	78	3.96	.72	3. CAEI in learning of the nutriment chain and grid	Male	112	3.83	1.15	188	.88	.379	Female	78	3.69	1.08	4. CAEI in terms of avoidance of the haphazard use of energy resources	Male	112	3.86	.97	188	-2.33	.021	Female	78	4.16	.71	5. CAEI for the results of acid rain and Ozone Depletion	Male	112	3.16	1.19	188	.03	.969	Female	78	3.15	1.23	6. CAEI in understanding climate changes	Male	112	3.65	1.08	188	-1.64	.101	Female	78	3.88	.95	7. CAEI for the protection of near extinct species of animals	Male	112	3.90	.95	188	-1.70	.090	Female	78	4.12	.81	8. CAEI for the fight against environmental pollution	Male	112	3.72	1.09	188	-1.97	.050	Female	78	4.02	.95	9. CAEI for environmental literacy and awareness	Male	112	3.36	1.26	188	-2.18	.030	Female	78	3.75	1.13	10. CAEI for the information on environmental health	Male	112	3.88	.02	188	-2.13	.034	Female	78	4.17	.80	11. CAEI for the protection of natural sceneries	Male	112	3.45	1.07	188	-3.05	.003	Female	78	3.93	1.06	12. CAEI to understand the importance of creating protected areas	Male	112	3.40	1.18	188	-2.25	.025	Female	78	3.76	.96	13. CAEI in learning the activities of governmental and non-governmental organizations	Male	112	3.41	1.19	188	-1.57	.116	Female	78	3.69	1.13	14. CAEI in setting environmental policies	Male	112	3.26	1.27	188	-2.31	.022	Female	78	3.67	1.09	15. CAEI in learning the importance of the laws and regulations related to the environment	Male	112	3.34	1.12	188	-3.12	.002	Female	78	3.85	1.07	16. CAEI for the evaluation of environmental waste	Male	112	3.28	.89	188	-3.90	.000	Female	78	3.73	.55	17. CAEI in leaving a good legacy for future generations	Male	112	3.60	1.10	188	.359	.000
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	Female	78	3.69	1.08				4. CAEI in terms of avoidance of the haphazard use of energy resources	Male	112	3.86	.97	188	-2.33	.021	Female	78	4.16	.71	5. CAEI for the results of acid rain and Ozone Depletion	Male	112	3.16	1.19	188	.03	.969	Female	78	3.15	1.23	6. CAEI in understanding climate changes	Male	112	3.65	1.08	188	-1.64	.101	Female	78	3.88	.95	7. CAEI for the protection of near extinct species of animals	Male	112	3.90	.95	188	-1.70	.090	Female	78	4.12	.81	8. CAEI for the fight against environmental pollution	Male	112	3.72	1.09	188	-1.97	.050	Female	78	4.02	.95	9. CAEI for environmental literacy and awareness	Male	112	3.36	1.26	188	-2.18	.030	Female	78	3.75	1.13	10. CAEI for the information on environmental health	Male	112	3.88	.02	188	-2.13	.034	Female	78	4.17	.80	11. CAEI for the protection of natural sceneries	Male	112	3.45	1.07	188	-3.05	.003	Female	78	3.93	1.06	12. CAEI to understand the importance of creating protected areas	Male	112	3.40	1.18	188	-2.25	.025	Female	78	3.76	.96	13. CAEI in learning the activities of governmental and non-governmental organizations	Male	112	3.41	1.19	188	-1.57	.116	Female	78	3.69	1.13	14. CAEI in setting environmental policies	Male	112	3.26	1.27	188	-2.31	.022	Female	78	3.67	1.09	15. CAEI in learning the importance of the laws and regulations related to the environment	Male	112	3.34	1.12	188	-3.12	.002	Female	78	3.85	1.07	16. CAEI for the evaluation of environmental waste	Male	112	3.28	.89	188	-3.90	.000	Female	78	3.73	.55	17. CAEI in leaving a good legacy for future generations	Male	112	3.60	1.10	188	.359	.000	Female	78	4.14	.84																				
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Table 5. Contd.

18. CAEI in learning of international actions on global environmental concerns.	Male	112	3.29	1.12	188	-2.40	.017
	Female	78	3.69	1.12			
Mean score Of CAEI	Male	112	3.50	1.27	188	-4.31	.000
	Female	78	3.82	1.09			

2010). The findings of this research also show similar results. Nevertheless, as is in this study based on the data, some researchers have also shown that female students have more positive attitudes on environment education than males (Özmen et al., 2005; Şama, 2003). Similarly, it has been found that female pre-service teachers believe more in the effectiveness of CAEI in courses than males. This finding is consistent with that of Kaplan et al. (2013) and Yıldırım and Kaban (2010).

The fact that views towards the computer assisted environmental instruction course (CAEI) by pre-service teachers in this study are positive may lead to the thought that they are satisfied with the subjects taught and the materials used in the course.

This study is consistent with that of Morgil et al. (2004), Çepni et al. (2004), Ruchter et al. (2010) and may in this aspect play an encouraging role in promoting the usage of CAI in environmental courses for lecturers. Moreover computer assisted environmental instruction (CAEI) may also increase the performance of the students in the course. The development of environmental literacy has an important place in environmental education (Stables, 2010). Kostova and Vladimirova (2010) brought to light that CAEI improved and strengthened students' environmental literacy. Pre-service teachers in this study provided similar explanations. Rickinson (2001) stated that media has an important role in environmental education according to the results of studies done regarding its effects. In this context, CAEI may be useful in bringing environmental issues and events reported in the media to the classroom. Teachers who are sensitive and conscious of the environment may improve the students' necessary awareness and responsibility (Şahin et al., 2004). For this reason, computer assisted instruction is necessary for the better teaching of environmental education. One way to rescue students from learning by rote on environment courses is to have them prepare projects by means of computer assisted instruction. We therefore need to consider afresh the utility of the current generation of hardware and software in teaching and learning and conduct research on what techniques are effective (Ranade, 2001).

Environmental citizenship concept has begun to be popular recently. This concept can be viewed as the ultimate outcome of education for sustainability (Meerah et al., 2010). This study reveals that CAEI has an important role in the teaching of environmental education. Because

“A more livable Turkey” can also be realized by increasing citizen thinking on ecological or environmental issues in societies as is the case in all countries.

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