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Investigation of the environmental attitudes of the early childhood teacher candidates

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Abstract

This study aimed to determine early childhood teacher-candidates’ environmental attitudes. The sampling of the study consisted of 605 teacher-candidates attending to early childhood education programs in faculties of education in universities in the provinces of Ankara, Afyon, Denizli and Konya in Turkey. Environmental Attitude Scale” developed by Fernandez-Manzanal et al. (2007) was used as a tool of data collection. At the end of the research, the environmental attitudes of early childhood teacher-candidates’ are identified and suggestions are made based on the findings.

Keywords: Early childhood education; teacher candidates; environmental attitudes.

1. Introduction

Today, it becomes harder to prevent diverse ecological effect caused by increasing population industrialization, urbanization and technological innovations, while a great many national and international institutions carry out studies to prevent rapidly increasing environmental problems. Researchers agree that the most influential method for the individuals to change consumption habits and living styles, which is considered to be one of the leading causes of environmental problems, is “education” (Gough, 1997; Davis, 1998; Palmer, 1998; Palmer et al., 1998; Corral-Verdugo & Armendariz, 2000; Pooley & O’Connor, 2000; Jacobs, 2002; Christenson, 2004; Erten, 2005; Henegar, 2005; Engels & Jacobson, 2007; Travis, 2007; Vrasidas et al., 2007; Yörek, 2007; Desjean-Perrotta et al., 2008).

In this context, the education of environment aiming at supporting such skills being aware of the element taking place within ecosystem by the individuals and appreciating the dynamics of this system, developing an awareness concerning how they could perceive their surrounding, evaluating the types of alternative behaviors for environment and the forms to guide the change, and arranging behaviors regarding how to make the earth system work better in an effective way (Laing, 2004; Smyth, 2006).

In order to educate communities as individuals sensible to environment and with an improved motivation, the issue of environment should be given priority within educational goals (Palmer, 1998; Henegar, 2005; Alm, 2006; Bozkurt, 2006; Buhan, 2006; Carson, 2007). As for teacher training, it should be formed as a significant stage of educational policy aiming at environment.

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In this sense, besides teacher training, the education of environment, environmental awareness, improving positive environmental attitude and behaviors should also be considered within vocational development for the teacher to develop an environment based program and practice it effectively from the period of preschool education onward. The first step of vocational education is undergraduate problems educating teachers. Even though there have been such academic activities as in-service training, courses and seminars in terms of vocational development of teachers, basic knowledge and skills attainment could be realized through undergraduate education. Early childhood years, comprising a critical period in terms of cognitive and social development, are of vital importance concerning making child attain positive environmental attitude and behaviors. Therefore, it is required for preschool teachers that they spend more time on the activities over realization of environmental goals. In addition, the fact that preschool teachers play an active role in recognizing environment, discovering, thinking over the solution of environmental problems is of great importance in terms of being a model for children and parents. In this perspective, it is necessary that the programs educating preschool teachers should be taken into consideration in terms of their environmental attitudes and behaviors in making the society attain knowledge as well as attain people aware of environment or environment friendly people. In this case, it is also of great importance that the attitudes of preschool teachers be determined in terms of the fact that it leads to teaching programs to be prepared.

When we examine the literature concerning the determination of environmental attitudes of pre-service preschool teachers in Turkey, it is clear that they mostly focus on the pre-service teachers of primary and secondary education (Şama, 2003; Erol & Gezer, 2006; Maskan et al., 2006; Akbaş, 2007; Erdem et al., 2009; Kahyaoğlu, 2009; Öztürk & Akış, 2009; Ürey & Y eşiltaş, 2009). On the contrary, it is remarkable that the numbers of the studies into the determination of environmental attitudes of pre-service preschool teachers are rather meager (Çabuk & Karacaoglu, 2003; Erten, 2005).

2. Method

2.1. Sampling of the Study

The sampling of the study consisted of 605 final class students attending to the programs of preschool education at the Faculty of Vocational Education of Gazi University, and the faculties of education of the universities of Afyon Kocatepe, Pamukkale and Selçuk. Ninety-one percent of the pre-service teachers included in the study were girls, while 6.9% was girls. In addition, the majority of the pre-service teachers (45.1%) expressed that they spent most of the lives in a city, while 39.7% said that they lived in a town and that 15.2% expressed that they lived in a village.

2.2. Data Collection Tool

“Environmental Attitude Scale” which was development by Fernandez–Manzaal et al. (2007) to assess the attitudes of pre-service teachers against environment was used in the study. The scale which was carried out with 952 students in order to determine validity and reliability of environmental attitude scale targeting at university students comprised of 20 items. It was made up depending on 5 itemed likert type with “Absolutely Agree, Agree, Neutral, Disagree and Absolutely Disagree”. Cronbach alpha reliability coefficient of the scale was found as $\alpha =.84$ and it was observed that total item correlations were between 0.33 and 0.52.

The adaptation and validity-reliability studies of “The Environmental Attitude Scale” in the current study were conducted by the researchers. The items of the scale was firstly translated into Turkish by three experts of language; then necessary arrangements was conducted depending on the ideas of six specialist in the field of preschool education. As a result of validity analysis, total inner consistency reliability coefficient was decided as Cronbach Alpha .83. It was observed that item–total correlations varied betweenh .28 and .57. In addition, it was determined that in the two half test reliability analysis, the reliability coefficient for the first half was .68 while that of the second half was .78; Spearman Brown coefficient and Guttman Split–Half reliability coefficient for the two halves were .78.

The alpha coefficient of the first factor of the scale (Need for Education About Environmental Problems–NEAEP) was .75; that of the second factor (The Importance of Fieldwork and Activities for Environmental Education–IFAAE) was .67; that of the third one (Environmental Contamination and The Need for Conservation–ECNC) was .60; that of the forth one (Environmental Protection Actions–EPA) became .55.

Therefore, it is likely to say that the scale is reliable enough and the items comprising the scale are homogeneous.
3. Results (Findings)

Table 1. The means of scores the teachers obtained at the Environmental Attitude Scale and its sub-factors.

<table>
<thead>
<tr>
<th></th>
<th>Mean (X̄)</th>
<th>Standard Deviation (s)</th>
<th>Standard Error (se)</th>
<th>Minimum (Min.)</th>
<th>Maximum (Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS score</td>
<td>37.33</td>
<td>9.44</td>
<td>.38</td>
<td>20.00</td>
<td>82.00</td>
</tr>
<tr>
<td>NEAEP sub-factor</td>
<td>10.17</td>
<td>3.70</td>
<td>.15</td>
<td>6.00</td>
<td>24.00</td>
</tr>
<tr>
<td>IFAEE sub-factor</td>
<td>8.31</td>
<td>2.73</td>
<td>.11</td>
<td>5.00</td>
<td>23.00</td>
</tr>
<tr>
<td>ECNC sub-factor</td>
<td>9.15</td>
<td>2.90</td>
<td>.11</td>
<td>5.00</td>
<td>20.00</td>
</tr>
<tr>
<td>EPA sub-factor</td>
<td>11.14</td>
<td>3.80</td>
<td>.3</td>
<td>5.00</td>
<td>23.00</td>
</tr>
</tbody>
</table>

As given in Table 1, the pre-service teachers included in the study obtained \( X = 37.33 \) out of the EAS, \( X = 11.14 \) out of EPA sub-factor, \( X = 10.17 \) out of NEAEP sub-factor, \( X = 9.15 \) out of ECNC sub-factor and \( X = 8.31 \) out of IFAEE sub-factor. In the analysis of the scores, it is clear that the mean scores of total scale and EPA sub-factors was higher compared to the scores obtained from the other subscales.

Table 2. Mann Whitney U test results of pre-service teachers concerning the differences of scores they obtained at the Environmental Attitude Scale and its sub-factors

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>n</th>
<th>Order Mean</th>
<th>Order Total</th>
<th>U</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS Score</td>
<td>Girl</td>
<td>563</td>
<td>300.86</td>
<td>169382.50</td>
<td>10616.50</td>
<td>.269</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>42</td>
<td>331.73</td>
<td>13932.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEAEP sub-factor</td>
<td>Girl</td>
<td>563</td>
<td>299.89</td>
<td>168839.00</td>
<td>10073.00</td>
<td>.107</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>42</td>
<td>344.67</td>
<td>14476.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFAEE sub-factor</td>
<td>Girl</td>
<td>563</td>
<td>302.06</td>
<td>170060.00</td>
<td>11294.00</td>
<td>.625</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>42</td>
<td>315.60</td>
<td>13255.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECNC sub-factor</td>
<td>Girl</td>
<td>563</td>
<td>302.97</td>
<td>170569.50</td>
<td>11803.50</td>
<td>.986</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>42</td>
<td>315.46</td>
<td>12745.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA sub-factor</td>
<td>Girl</td>
<td>563</td>
<td>300.96</td>
<td>169443.00</td>
<td>10677.00</td>
<td>.292</td>
</tr>
<tr>
<td></td>
<td>Boy</td>
<td>42</td>
<td>330.29</td>
<td>13872.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As given in Table 2, no significant difference was found in terms of gender between total scale scores and sub-factor means of the pre-service teachers. In other words, environmental attitudes of pre-service teachers did not differ depending on gender.

Table 3. Kruskal–Wallis test results of pre-service teachers concerning the differences of scores they obtained at the Environmental Attitude Scale and its sub-factors depending on location

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>n</th>
<th>Order Mean</th>
<th>X2</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS Score</td>
<td>City</td>
<td>273</td>
<td>301.33</td>
<td>1.037</td>
<td>.595</td>
</tr>
<tr>
<td></td>
<td>Town</td>
<td>240</td>
<td>310.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>92</td>
<td>288.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEAEP sub-factor</td>
<td>City</td>
<td>273</td>
<td>301.89</td>
<td>.513</td>
<td>.774</td>
</tr>
<tr>
<td></td>
<td>Town</td>
<td>240</td>
<td>308.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>92</td>
<td>293.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFAEE sub-factor</td>
<td>City</td>
<td>273</td>
<td>303.78</td>
<td>1.781</td>
<td>.411</td>
</tr>
<tr>
<td></td>
<td>Town</td>
<td>240</td>
<td>310.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>92</td>
<td>281.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECNC sub-factor</td>
<td>City</td>
<td>273</td>
<td>291.22</td>
<td>3.058</td>
<td>.217</td>
</tr>
<tr>
<td></td>
<td>Town</td>
<td>240</td>
<td>307.53</td>
<td>5.805</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>92</td>
<td>326.14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 (continued). Kruskal–Wallis test results of pre-service teachers concerning the differences of scores they obtained at the Environmental Attitude Scale and its sub-factors depending on location

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>n</th>
<th>Order Mean</th>
<th>X2</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA sub-factor</td>
<td>City</td>
<td>273</td>
<td>312.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Town</td>
<td>240</td>
<td>307.40</td>
<td>5.805</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Village</td>
<td>92</td>
<td>263.19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As shown in Table 3, no significant difference was found between total scale score and means of sub-factor scores depending on the location. In other words environmental attitudes of pre-service teachers did not differ depending on the location where they spent most of their lives.

4. Discussion

The EPA sub-factor of EAS comprised of the items especially those aiming at determining the attitudes to work as an active individual to prevent environmental problems and to protect environment.

With a rapid deterioration of ecological balance, protection of environment and having an awareness of environment have become one of the most significant duties of citizenship in the 21st century. Within this framework, environmentalist movement that started with the efforts of volunteer environmentalists has turned out to be an international action and its importance is getting increased. Although legislations have an significant place within the activities of the protection of environment, volunteer institutions have a major responsibility in making these arrangements activated, keeping the awareness of the society on this issue alive and guiding the new generation to approach this issue more consciously and in an educated way.

Also, in a parallel study with the findings of the current study carried out by Orbay et al. (2009) in order to investigate the perspectives of pre-service teachers over global warming, it was found that a great majority of the students believed that countries should work in coordination with each other against global warming and that they agreed on the precautions to be taken in order to prevent global warming.

The fact that pre-service teachers got higher scores out of the EPA sub-factor compared to ECNC and NEAEP sub-factors could be due to the fact that in particular such ecological issues as global warming, climate change have frequently been expressed by environmental organizations, official institutions and media recently, and that individuals have been encouraged to be active to prevent these problems.

What’s more, preschool teachers got lower scores out of EPA sub-factor compared to total scale and IFAEE sub-factor. The reason for this could be the fact that preschool teachers had less motivation to protect environment and that they were not aware of the behaviors to prevent environmental pollution. Pelletier et al. (1999) found in a study carried out to determine the reasons of lack of motivation concerning the behavior of protecting environment that the reason of lack of motivation was the fact that there is no significant relation between the beliefs concerning efforts and those concerning becoming helpful.

Similarly, in their study conducted to determine the ideas regarding the sensibility to environment by the students of Ankara University, Faculty of Educational Sciences by Çabuk & Karacaoğlu (2003), it was found that a considerable majority of the students did not participate into the activities of volunteer organizations working over environmental issues. Maskan et al. (2006) found that a great many of the preschool teacher were not a member of an environmental organization. In addition, most of the preschool teachers had not participated into any environmental activity up to that time. Likewise, Erten (2005) determined in a study conducted to examine how much preschool pre-service teacher were aware of the protection of environment, the behaviors concerning the protection of environment and the variables affecting these behaviors that no student participated in an environmental activity, just like Erdem et al. (2009) who carried out a study to determine the ideas of primary school teachers over environment and the problems regarding environment.

It was also found that pre-service teachers obtained higher score means at NEAEP as well as EPA sub-factors. Environmental education is of vital importance in analyzing environment, perceiving the unity, attaining sensibility and awareness of environment. The primary goal of environmental education applied in various countries is to make individuals attain positive attitudes and behaviors. Özmen et al. (2005) pointed out in a study carried out where they examined the factors affecting the attitudes of university students towards environmental problems that a great majority of the students thought that a course of environment is necessary both at primary education, at high school and university.

The fact that the means of higher scores of pre-service teachers included in the research than needed for environmental problem compared to other sub-factors showed that pre-service teachers were aware of the use of education, its need and importance.

Besides that, it was found that pre-service teachers got lower scores out of ECNC sub-factor. This sub-factor comprised of the items that require being aware of the negative effects of pollution on habitats and living creatures and that aim to determine the attitudes of individuals towards these problems.
One of the focal points of environmental education is increasing environmental awareness so helping people to improve positive attitudes and values towards environment. In order to improve judgments depending on the knowledge over environment, it is necessary that people develop their perceptions concerning the effects of behaviors on environment, natural processes in environment, how people live depending on environment and the importance of an effective environmental management and its protection (Vrasidas et al. 2007).

In this context, it is likely to consider that pre-service teachers do not have detailed environmental education. Therefore, it is also possible to say that pre-service teachers do not have sufficient information about environmental concepts and definitions.

In addition, in another study carried out by Çabuk & Karacaoğlu (2003), it was determined that most of the university students were not sensible to the use of materials such as deodorants containing harmful ingredients to ozone layer and to the use of public transport vehicles, and that they sometimes warned other people to become sensible to air pollution. Similarly, Cici et al. (2005) found in their study carried out to find out the awareness of pre-service teachers toward environment and to examine their level of knowledge over environment that pre-service teachers did not have sufficient levels of information about solid wastes. The fact that most of pre-service teachers got lower scores out of ECNC sub-factor was thought to be as a result of not having enough information about environmental pollution and its effects and not having intellectual information.

It is clear that pre-service teacher got their lowest mean score at IFAEE sub-score. Being different from this finding, in a study carried out by Flogaitis et al. (2005) to determine the views of Greek preschool teachers over the concept of environmental education, it was found that the teachers sympathized learning at “environment” through field trips activities.

Children could realize an active learning in an environment where they wonder, see, touch, hear, use all their organs, observe and test from the earliest years onwards. In particular natural habitats offering children to use their scientific process skills and the opportunity of direct interaction should be used rather than the environment where structured activities for the education of environment are offered in a planned way. Natural life is the place where learning is performed most rapidly. In this sense, field trips comprise one of the most significant elements of the education of environment. Field trips has a characteristic of acceleration of development in terms of many aspects by creating an active learning environment as well.

The educational program of preschooling applied in Turkey is prepared as a child-centered one and depending on the principle of active learning. In this sense, students are thought to be well enough to meet the needs of environmental education in such issues as providing children with a communication with nature and natural objects directly, improving their sense of curiosity, investigation, research, discovery, improving awareness over the problems of environment and putting an effort to protect environment. Preschool pre-service teachers take an intensive education of both practical and theoretical aiming at preparing an effective and qualitative educational program and educational environment to get to know developmental characteristics of preschool period children. On the other hand the reason why pre-service teacher got lower scores at IFAEE sub-factors could be considered as the fact that they structured the knowledge of field so intensively and/or could not transfer it. Therefore, there might be a need for pre-service teachers to observe students and practice with them, and plan environmental education and field trips during these applications depending on making students achieve the importance of the trips at environmental education.

Additionally, Flogaitis & Agelidou (2003) found in a study they carried out to determine the perceptions of preschool teachers over nature and environment that teachers had an ambiguity of context regarding nature and environment. Depending on this finding, it is likely to consider that teachers have diverse attitudes over field trips, they have an ambiguity of context resulted from the fact that they don’t have enough information over the education of environment and the field trips taking place at the education of environment.

There are a lot of studies examining the effect of gender on environmental attitude in the literature. Out of these studies, those of Arcury & Christsianson (1993), Arp & Howell (1995) and Blocker & Eckberg’e (1997) pointed out that environmental factor did not change depending on gender, which is parallel with the findings of the current study (reported by Zelezy et al., 2000).

Similarly, in a study by Akbaş (2007), it was found that there was no significant difference in terms of gender depending on the attitudes of pre-service teachers of Science.

What’s more, there are several studies showing that girls had more positive environmental attitudes compared to boys. (Brody, 1984; Arcury et al., 1986; Mohai, 1992; Chan, 1996; Steel, 1996). In addition, Fernández-Manzanal et al. pointed out in his study carried out to determine environmental attitudes of university students that girls had a higher environmental attitudes compared to those of boys. In other studies conducted in Turkey to determine
environmental attitudes of pre-service teachers and other teachers having an education in different department, it was found that girls had more positive environmental attitudes than boys. (Çabuk & Karacaoğlu, 2003; Şama, 2003; Özdemir et al., 2004; Özmen, 2005; Kahyaoğlu et al., 2008; Ek et al., 2009).

Therefore, no different outcome was found concerning the variable of gender. Due to the fact that boy pre-service teachers outnumbered girls, it was considered that there was no significant difference between the genders.

Erol & Gezer (2006) found in their study carried out to determine the attitudes of university students over environment and environmental problems that there was no significant difference between sub-groups they formed depending on the location they live and their attitudes over environment and environmental problems. In the studies conducted by Guagnano & Markee (1995) and Xiao & McCright (2007), no significant difference was found at the environmental care level in terms of the location lived. These findings support the findings of the current study.

5. Conclusion and Recommendation

As a conclusion, it was determined that when we compared the scores of preschool pre-service teachers they obtained at The Environmental Attitude Scale and sub-factors, the highest mean was the total score, then came Environmental Protection Actions sub-factors. On the other hand, the lowest score preschool teachers got was at the sub-factor of the Importance of Fieldwork and Activities for Environmental Education.

It was also found that environmental attitudes of preschool pre-service teachers did not differ significantly depending on gender and the location lived.

In the light of these findings, the followings were recommended:
• Practical courses of environment could be included in the programs of the departments educating teachers. Also, through the integration of the program within the content of the courses of environmental education, the examples of practice in different cultures and countries over how an effective environmental education are prepared, how environmental activities are practiced depending on the developmental levels of children and over environmental education could be examined and some field trips (historical places, habitat areas supporting living species, nature museums etc.) could be arranged. Pre-service teacher could be made to practice in the nature together with children.
• The interest of pre-service teachers in the nature could be increased by working in cooperation with non-governmental organizations, arranging natural camp and trips for university students through allowing pre-service teachers to know the nature; motivation could be increased in taking roles to solve problems and in increasing the level of knowledge over environmental problems.
• In order to develop a positive attitude towards environment, universities could arrange various activities to increase the awareness of students for environmental problems in cooperation with various non-governmental organizations.
• Participation of pre-service teachers into voluntary environmental activities that are organized to prevent ecological problems and to make them aware of them could be encouraged by establishing student committees aiming at getting to know and protect the nature within university.
• More frequent scientific activities such as national and international conferences, panels, seminars, workshops could be organized in cooperation with state offices, private institutions, non-governmental organizations and media in the issues of greenhouse effect, break down of ozone layer, global warming and disappearance of biodiversity.
• Universities, schools and local department could make up habitats (botanic garden, natural park etc.) supporting biodiversity in collaboration and organize trips to these areas. In addition, University student could be made to have an active role in the protection and promotion of these places.
• Scientist dealing with nature and protection of nature could organize scientific activities in cooperation with those dealing with sports of nature and pre-service teachers could be encouraged to participate these activities.

References


