An Applied Sample Environmental Education for Adults: Water Awareness Education

Evren CAPPELLARO¹, Gül ÜNAL ÇOBAN², Ercan AKPINAR³
Eylem YILDIZ⁴, Ömer ERGİN⁵

¹ Dr., Akdeniz University Faculty of Education Antalya-Türkiye
² Asist.Prof.Dr., Dokuz Eylül University, Buca Faculty of Education, İzmir-Türkiye
³ Assoc.Prof.Dr., Dokuz Eylül University, Buca Faculty of Education, İzmir-Türkiye
⁴ Dr., Adnan Menderes University, Faculty of Education, Aydın-Türkiye
⁵ Prof.Dr., Dokuz Eylül University, Buca Faculty of Education, İzmir-Türkiye

Received: 11.05.2010  Revised: 15.10.2010  Accepted: 15.11.2010

The original language of article is Turkish (v.8, n.2, June 2011, pp. 157-173)

Keywords: Water Awareness; Water Education; Environmental Education for Adults, Water Education Materials

SYNOPSIS

INTRODUCTION

It is a well-known fact that educational activities are important in finding long-lasting solutions to water-based environmental problems (Auriault, 1998; Ergin, 2008; WWAP, 2006). Training people as conscious and sensitive individuals about the use and the protection of water resources is the most important step towards solving these problems. In this context, we need to inform individuals about water resources and their current status and help them achieve a positive change of behavior in the framework of water saving. Since these problems cause global changes, they should be dealt with a new and broad perspective. The short-term solution to these problems is expected from adults of the community.

Environmental education activities performed in Turkey are usually either in form of education (training) activities as symposiums, seminars and conferences or training activities intended for adults where participants are passive or in form of informing through the media.
In this study, unlike the "passive" activities done, adults were subjected to a workshop called Water Awareness Project that is designed according to constructivist learning approach where they can attend as “active” participants. The aim of this study is to help adults to become environmentally responsible citizens by bringing solutions to environmental problems with water awareness (Camozzi, 1994). Thus, the effect of Water Awareness Education, in which educative materials for water awareness are used and adults participate actively, on adults’ awareness, attitudes and behaviour on water-related issues were examined.

This research is an experimental study based on a single-group pre-test and post-test model (Balci, 200; Karasar, 2002). The sample of the study is 22 adults working at government offices in Izmir who received primary or further education degree. Water Awareness Education for adults was done under the name of "Water School" at science laboratories. The measurement tools were prepared by researchers and applied as pre-test, post-test, and permanence test, done three months after post-test. Water Understanding Test (WUT) is a multiple-choice test, and it is prepared to determine the levels of cognitive learning of adults on water-based issues. Water Use Survey (WUS), is composed of two sub-scales; attitudes and behaviour. Open-Ended Questions are prepared to understand how adults perceive water and water related concepts like identification of water, water pollution, water preservation, and also to look at adults’ attitude change. The Interview Form was applied to 6 randomly selected adults out of 22; six open-ended questions were asked regarding the research’s content, quality, pedagogical methods and applicability to daily life.

RESULTS and DISCUSSION

In the Water Awareness Project, great attention was paid to ensure that participants learn concepts of water, protection of water resources and acquiring the necessary attitudes and behaviours leading to participation in the solution of water-based environmental problems. The Water Use Survey was developed in order to assess attitudes and behaviours. Based on their score in this survey, it can be said that adults have had a positive attitude in water usage. The rise in the post-test scores and the consistency in the permanence test show that the Water Awareness Education workshop made a long-lasting effect. According to the water-saving sub-scale of Water Use Survey, the training resulted in a permanent and significant improvement in attitudes towards water preservation. When economic dimensions of water saving were explained, adults tend to change their attitudes and behaviours more easily as they can make a direct connection to their daily lives. Sustainable water usage sub-scale of Water Use Survey shows that the training had very limited effect on participants behaviour ($X_{pre}$=37.90 and $X_{post}$=40.95), although this improvement is permanent ($X_{permanence}$=40.21).

The reason for the limited development may be derived from the fact that the concept of sustainable water resources has complex structure of ecological, social, economic and political dimensions, which requires a long-term training. Yücel et al. (2008) explain the reason why the environmental awareness does not reflect on attitudes and behaviours of adults as; knowing but ignoring environmental problems, avoiding to react to the problems due to economic, psychological and social reasons, lack of behaviour alter activities in given training, and among these, not rewarding exemplary behaviour or failing to punish negative attitude. This may also result from adults not knowing how to actively participate in solving environmental problems or feeling incapable in doing so (Villemagne, 2008b). In this case, it is supported that environmental education for adults must be prepared with a participatory approach (İleri, 1998). Adults should be informed on
how social participation in solving environmental problems can be achieved and the effects of given decisions (Atasoy, 2006).

According to the scores received from open-ended questions, the Water Awareness Education is effective in teaching concepts of water awareness, water pollution, and water preservation. Although the pre-test and the post-test responses of Water Understanding Test do not significantly differ, an analysis of open-ended questions shows that the water-related pre-test and post-test results differ significantly and this can be considered as a positive result. In the Water Understanding Test, participants were expected to choose from multiple choices, whereas in the open-ended questions they were asked to write down answers themselves. This may indicate that adults are not sufficiently familiar with multiple-choice tests, and feel more comfortable in answering open-ended questions.

At the end of the Water Awareness Education Workshop the adults’ responses to the interview questions were analyzed, they had positive responses to the education for being practical. An examination of the activities showed that adults have enjoyed during the training and they mostly preferred activities with discussions and experiments. In this way, the participants had opportunity to examine water based environmental problems by mutual discussion, listening and criticism. Interactive learning environment provides active participation and helps in providing positive responses to negative situations. Participants found some activities inadequate. It may be due to the fact that the activities were prepared by using a general framework. Therefore, the individual differences based on different variables such as the participants’ readiness level, socio-economic and educational backgrounds should be taken into consideration for preparing the educational materials and activities accordingly. So that it would be possible for educational activities to have a potential to lead a change in their own environment (Atasoy, 2006). The fact that participants have shared new knowledge, attitudes and behaviours acquired in the process of training with the people around them indicates that water education had succeeded in its’ aim to environmental education, active participation in finding solutions to environmental problems, and sharing. One of the conclusions drawn from these interviews with adults is that they prefer activities regarding knowledge, attitudes and behaviour that they can apply to their daily lives. This once again stresses the importance of preparing environmental education activities for adults with examples from local regions or concrete examples from their daily lives. (Giordan & Souchon, 1991; Beranger, 2003).

The Water Awareness Education Workshop done within this project had limited improvement on water-related cognitive and emotional learning, and the permanence has been limited as well. This is because environmental problems come after the priorities like work, family and economic problems and this limits the gains in environmental education (Clover et al., 2000; Türkman, 2000; Yücel et al., 2008). Although this shows that gains of adult training may not occur easily, it must not be forgotten that adults have a powerful position in solving environmental problems. In this respect, environmental education for adults must be generalized and activities should be adaptable to their daily lives.

CONCLUSION

In this study, in order to raise awareness, activities regarding water knowledge, water pollution and water preservation were organized allowing active participation of adults. The results of pre-test and post-test of the Water Understanding Test were not significantly different: Only a limited increase was observed in post-test scores. In the permanence test, the increase in the learnt concepts was consistent. Results show that the participants are familiar with water-related issues, however the post-test and permanence test results are
not found to be significantly different. The reason might be that the activities prepared in this project did not cover adequate levels of new information for adults. Therefore, while preparing research activities, using a wider range of information is recommended.

The other contributions of the Water Awareness Education Project to the field of water education is that the Water Understanding Test, Open-Ended Questions, Water Usage Attitude and Behaviour Scales are prepared, and their validity and reliability are confirmed by the researchers. All of these scales are supposed to be applicable to experimental and survey studies.

REFERENCES


Türkman, A. (2000), Yaşanabilir bir çevre için, İzmir : Dokuz Eylül Yayınları


http://www.vertigo.uqam.ca/vol8no1/art5vol8no1/carine_villemagne.html

10 Temmuz 2009 tarihinde incelenmiştir.
