The Effect of Multidimensional Curriculum on Environmental Knowledge, Attitude and Skill of Preschoolers

Roshanak Nazmi,
MSc Curriculum at the University of Alzahra, Iran

Parvin Ahmadi,
Associate Professor of Curriculum, University of Alzahra, Iran

Simin Bazargan,
Professor of Education, University of Gharazmi, Iran

Abstract
The aim of this study is to investigate the effect of multidimensional curriculum planning and a learning package based on it named "our earth and everything inside it" on the environmental knowledge, attitude and skill preschoolers. The method is semi experimental and it is designed as pretest and post test with control group. The demographic population includes all the female preschoolers of Dist.6, Tehran in academic years 2013-2014 and the sample consists of 30 individuals (15 individuals are of control group and 15 individuals are of experimental group) who were selected through multistage cluster sampling. The tool of this study is an environmental questionnaire. SPSS software is used to analyze data. The results represent a meaningful and positive relationship between education based on multidimensional curriculum planning in the form of multimedia curriculum planning on environmental knowledge, attitude and skills of preschoolers.

Keywords: multidimensional curriculum planning, environmental knowledge, attitude and skill - preschoolers

Introduction
Factors like population growth, using fossil fuels, dirty wastes and residues from different industries and other human activities which are not desirable for environment cause dramatic changes on the earth's surface. Sudden heating of earth because of greenhouse gases, destruction of ozone layer, toxicity of rivers and oceans, freshwater pollution, melting the ice of either poles, extinction of different biological species, pollution of big cities are disasters caused by industries and developments (shabbir,2009). One of the requirements for surviving on the earth is undoubtedly the environment and keeping it clean. Humans make some decisions during their lives which have an effect directly or indirectly on the environment. When each of these decisions is made by millions of people, they make main changes in environmental systems and some of these changes have a long-term effect and some other have a short-term effect on the environment. If humans have environmental literacy, they will make decisions with more knowledge (landers,2002) With regard to complicated matters between human and the environment, the importance of training citizens with environmental literacy is highlighted. we can make it possible to use the earth's resources such that all humans and next generations can make use of them. Knowledge: Knowledge is more than a simple transfer of information and knowledge transfer happens is simple. Understand, apply, analyze, synthesize, a four framework in which they can receive new information. Any training of learning and teaching is not without a series of basic principles of theoretical knowledge as a requirement for successful completion of activities will be considered. In fact, environmental awareness means to overcome the lack of knowledge and misinformation about the environment, but environmental awareness is not always a direct impact on behavior change, but to make good environmental practices can help (Krnel ,D& Naglič, 2009) Attitude:

Acknowledgment
I would like to thank Dr. PARVIN AHMADI for her Invaluable advice and knowledgeable recommendations. Thank you sincerely.
I would also like to thank Dr. SIMIN BAZARGAN for her interest and knowledgeable recommendations.
Attitude stable as positive and negative feelings about people and objects. The opinions and attitudes are closely because the information about a person's a person, an object or a problem is noted. And mental attitude hidden structures in the human personality that a person's readiness to face the facts, the issues are. In short, the attitude in relation to a specific purpose (business benefit of managing losses) form can be seen changes in attitudes and behavior and their habits change people's dungeons (Roth, C. E& Disinger, J. F (2003) Skill: environmental skills, ability to solve environmental problems Specific requirements of each community in terms of social, cultural and personality to deal differently with the environment. The environmental skills, behaviors that consciously seeks to minimize the negative impact of individual actions on the natural world (including reduced consumption of energy and resources, the use of non-toxic materials, reducing the production of waste, finding solutions to environmental problems. Environmental skills and behavior towards the environment responsibly final environmental education programs, and the capacity to act in everyday life and how people and societies relationships with natural systems are (Fateh moradi, s, abdollahi, reza2013). One of the most important educational courses is the preschool for what is taught during this period has an effect on child's growth in the future. Theory and practice in preschool education emphasize that the positive relationships between child and nature have a special effect on his/her behavior and attitude towards environmental issues. Children who have positive and useful experiences with nature are more likely to become consumers with better knowledge (Veselinovskaa ,2010). The results of Kernel and Naglic’(2009) research indicate that the students who were taught regularly have more environmental knowledge. Farrokhhi(2010) suggested that using the preschoolers' favorite activities in teaching the environmental knowledge has a positive effect on their environmental knowledge. Chu, Li & Ku, Sin(2007) have found out that the educational experiences have a positive effect on the children's behavior and attitude towards the environment. A study carried out by Bell(2006) in a school shows that those children who deal with nature are more creative and knowledgeable than those who do not deal with nature and their nutrition is also better. The study by Mallon(2003), caffey(2001),and Moort(2000) shows that the social skills of those children who deal with nature have been developed.. Liberman and Hoody(1998), Archi(2003) and Neetf(2000) have found that those schools which focused on environmental teaching had better performance in all stages of curriculum planning. The multidimensional curriculum planning approach and multimedia learning package based on it were suggested by Simin Bazargan. Furthermore, the first learning package based on this approach named " our earth and everything inside it" was published in 2004 and it was designed for the preschool level. The multidimensional curriculum planning is a holistic planning and it aims to train the child's character and sees the child as a " human being". The learning theories which are highlighted by multidimensional curriculum planning are as follows: Piage's intellectual development theory, Vigutski's social advancement theory, Gardner's structuralism theory, John Davy's humanism theory.

This model has three main principles:
1. Favorite activities through which a child learns such as: handicraft, theater, storytelling, painting
2. Interdisciplinary contents, skills and attitudes (or theories) which have an effect on child's character (basic skills of learning, critical skills of thinking, interdisciplinary contents)
3. Projects taken from child's life.

In this study, we focus on identifying the effect of multidimensional curriculum planning on preschoolers' environmental knowledge, attitude and skill. This study expands our awareness of dimensions of environmental teaching ( or training) leading to preschoolers' environmental knowledge.

1. Does multidimensional curriculum planning have an effect on the environmental knowledge of female preschoolers from 5-6 years of age in Dist.6, Tehran in 2013?
2. Does multidimensional curriculum planning have an effect on the environmental attitude of female preschoolers from 5-6 years of age in Dist.6, Tehran in 2013?
3. Does multidimensional curriculum planning have an effect on the environmental skills of female preschoolers from 5-6 years of age in Dist.6, Tehran in 2013?
Method
The methodology is semi experimental with two groups, experimental and control, and pretest and post test. In this study, two groups, control and experimental, were measured twice, one before teaching and the other after teaching. In this way, the experimental group was influenced by the independent variable of learning package “our earth and everything inside it” while the control group was not. Demographic population: are all female preschoolers from 5-6 years of age in Dist.6, Tehran in academic years 2013-2014. Sampling method: The sample consisted of 30 children who were studying in two preschools located in Dist.6, Tehran during the aforementioned years. In this study, multistage random cluster sampling was used. Two preschools were selected randomly and 30 children were randomly selected and 15 individuals are of experimental group and 15 individuals are of control group. Method of analyzing data: SPSS software was used to analyze data: using descriptive statistics, data were analyzed by covariance analysis method.

Findings
- Question 1: Does multidimensional curriculum planning have an effect on the environmental knowledge of female preschoolers from 5-6 years of age in Dist.6, Tehran?

Table 1. Covariance analysis indicators for test to the effect of multidimensional planning on environmental knowledge

<table>
<thead>
<tr>
<th>Sources of variations</th>
<th>Sum of score squares</th>
<th>Degree of freedom</th>
<th>Mean sum of score squares</th>
<th>F Ratio</th>
<th>Level of being meaningful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>3.194</td>
<td>1</td>
<td>3.194</td>
<td>.521</td>
<td>.477</td>
</tr>
<tr>
<td>Group</td>
<td>7870.602</td>
<td>1</td>
<td>7870.602</td>
<td>1284.238</td>
<td>.000</td>
</tr>
<tr>
<td>Error</td>
<td>165.473</td>
<td>27</td>
<td>6.129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39697.000</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modified determination factor by percentage = 0/97,9
R² = 98.1

The covariance analysis indicates that the effect of multidimensional curriculum planning on the environmental knowledge of preschoolers is meaningful and equals to 97.9 %. Thus, it can be concluded that multidimensional curriculum planning has an effect on the environmental knowledge of preschoolers.

- Question 2: Does multidimensional curriculum planning have an effect on the environmental attitude of female preschoolers in Dist.6, Tehran?

Table 2. Covariance analysis indicators for test to the effect of multidimensional planning on environmental attitude

<table>
<thead>
<tr>
<th>Sources of variations</th>
<th>Sum of score squares</th>
<th>Degree of freedom</th>
<th>Mean sum of score squares</th>
<th>F Ratio</th>
<th>Level of being meaningful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>.024</td>
<td>1</td>
<td>.024</td>
<td>.33</td>
<td>.875</td>
</tr>
<tr>
<td>Group</td>
<td>144.555</td>
<td>1</td>
<td>144.555</td>
<td>199.377</td>
<td>.000</td>
</tr>
<tr>
<td>Error</td>
<td>19.576</td>
<td>27</td>
<td>.725</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11224.000</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modified determination factor by percentage = 0/87.2
881 R² = .
The covariance analysis indicates that the effect of multidimensional curriculum planning on the environmental attitude of preschoolers is meaningful and equals to 87.2%. Therefore, it is concluded that multidimensional curriculum planning has an effect on the environmental attitude of preschoolers.

- Question 3: Does multidimensional curriculum planning have an effect on the environmental skill of female preschoolers in Dist.6, Tehran?

Table 3: covariance analysis indicators for test to the effect of multidimensional planning on environmental skill

<table>
<thead>
<tr>
<th>Sources of variations</th>
<th>Sum of score squares</th>
<th>Degree of freedom</th>
<th>Mean sum of score squares</th>
<th>F Ratio</th>
<th>Level of being meaningful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>.233</td>
<td>1</td>
<td></td>
<td>.436</td>
<td>.515</td>
</tr>
<tr>
<td>Group</td>
<td>1.404</td>
<td>1</td>
<td>1.404</td>
<td>2.626</td>
<td>.000</td>
</tr>
<tr>
<td>Error</td>
<td>19.576</td>
<td>27</td>
<td>535</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11224.000</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Modified determination factor by percentage = 86.2
R² = .871

The covariance analysis shows that the effect of multidimensional curriculum planning on the environmental skill of preschoolers is meaningful and equals to 93.4%. Thus, it is concluded that it has an effect on the environmental skill of preschoolers.

Conclusion
The results show that we can make it possible to enhance the environmental knowledge, attitude and skills in preschoolers through multidimensional curriculum planning and teachings based on multimedia learning package named "our earth and everything inside it". According to this study, the environmental knowledge, attitude and skill of those children who were subject to this curriculum was higher than those who were not subject to it and one of the most important reasons for why this work was successful was that children established a close relationship with nature, they felt water, soil, stone, plants and animals again in their daily lives, and got some experiences from them. In this study, children found out that the earth is our environment and we should try to protect it. In this process, children found a relationship with the earth and everything in it and got scientific experiences about the earth's phenomena, they appreciated the earth's beauties through various activities, and found a logical relationship between separate ingredients of the earth, they listened to poets and stories which expressed the importance of the earth and they achieved knowledge, attitude and skill about the environment to protect it using these blessings correctly. The children obtained more information about the earth's resources. They got familiar with their shape and appearance and their effect on the earth and also their systematic relevance in forming a suitable environment for humans and other living creatures and found out the role humans play in protecting the environment.

1. Using learning package named "our earth and everything in it" for developing the environmental knowledge, attitude and skill of preschoolers
2. Teach the learning package "our earth and everything in it" in elementary schools which did not have it in preschool level.
References
Landers,p (2002). Environmental LiteracyScope and equence.Providing a systems approach to environmental education in Minnesota
Roth, C. E& Disinger, J. F (2003)Environmental literacy. ERIC/ Clearinghouse for science, mathematics and environmental education. CSMEE Digest
Sadat Pournesaei, gh, ahadi, rabiee.(2013). The relationship between metacognitive with the belie in astorogy and superstition and psychiatrioe health among the stueuty of psychology and techno – engineering in the province Ardebil , Iran , Applied psychology vol.1(3)pp.1-8,September.(persian ,2013)
Shabbir, M.(2009); Theory and applications of Environmental Education (Environmental Education Course)