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The Importance of a Virtual Educational Museum in Culture and Sustainable Development. Students' attitudes in High School.

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Abstract
The study examines the attitudes of students towards the course of the local Art and the Culture and the creation of a virtual Educational Museum. Central axis was a team project of the High school in Ialyssos, Rhodes which combined the course of local history and culture by collecting local Art items from private collections, digitizing them and creating a virtual training Folklore Museum on the school website. After the completion of the project, 100 students participated in the survey and answered a questionnaire concerning the teaching intervention. The analysis showed that most of the students learned how to create a virtual Museum and more about Folk Art, Culture Heritage and its meaning and realized how important this is for the sustainable development of their place. The goal of this study is to present the results of the multidimensional Analysis of the questionnaire which shows the differentiation criteria of the students. The results showed that the majority of the students are positive towards using the virtual Educational Museum and believe that their dealing with Folk Art and Culture should be implemented in High schools' education.

Keywords: Virtual Museum, experiential education, sustainable development.

1.   Introduction

The main purpose of Museums as nonprofit institutes was to collect, preserve and display objects for educational or aesthetic purposes (Burcaw 1975). This role has changed with the advent of computers by 20th century, as the society moved rapidly into the electronic world. Nowadays the Museums thrive on the internet, exhibiting millions of items, showing endless sources of artistic and cultural information locally and globally and have an educational/entertainment role. Experimental learning approach is the modern pedagogical challenge. It offers students an active role, based on educational interaction, initiative and creativity. It also emphasizes the participatory aspect in courses, turning students and teachers to co-creators during the educational process. It is mainly implemented through educational action plans (projects) within student's methodical involvement in order to convert their own studies into an interesting topic. The aim of our project was to engage students in search of folk Art objects coming from private collections, to digitize and display them in a virtual educational Folk Art Museum, built by them and also realize the cultural dimension of sustainable development for their own place.

2.   Goals of the educational virtual Folk Art Museum

Virtual reality is a technology which allows the users to interface with a computer system (human-computer interface). Research at European level has shown that virtual reality is a tool as it can facilitate the maintenance, dissemination and presentation of cultural artifacts to virtual Museums' exhibitions. It can also educate and entertain the general public in an innovative and also appealing manner (Jones & Christal 2002).

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According to Hoptman, connectivity is the main characteristic, which enables a virtual Museum to exceed the presentation of information of the exhibited items (Hoptman 1992). Visitors try to understand objects and learn through an active exploration (active discovery) and they are also given more learning opportunities (Bernier 2002).

The virtual educational Folk Art and Culture Museum was created onsite to conserve valuable information extracted through items, photographs, images, files, scripts, etc., to create digital educational material useful for interdisciplinary teaching interventions innervations in school, to promote cultural goods through internet and also the Cultural physiognomy of the local community. The teaching and research goals were the acquisition of general knowledge about Folklore science, especially students' contact with folk Art, civilization and experiential learning. Children searched of information related to items, local workshops and decoration style, developed their aesthetic perception, increased their imagination and abilities/skills. They got involved in the collections', digitization and exhibition of the items, studied, combined and strengthened the role of cultural goods through available information coming from different sources. They also studied the evolution of Technology; accepted the high value of the ecological balance, life's quality and sustainable development through Art.

3.   Method

In our project, students worked in three different teams. The first team visited students' and relatives' houses accompanied by teachers and took digital photos of various folk art items (such as pottery, objects of woodcarving etc.), measured their sides and interviewed the owners about the history of the items. The second team undertook the identification of the items with others, searching in bibliography of the school library and internet suggested by the teachers. The third team had to digitize the texts/information, the transcript of oral testimonies and the digital grouping of the items in different folders. The procedure consisted four stages: (1) Isolate objects from their environment using the "gimp" image editing program (free software), (2) Virtual Museum rooms' construction where the items would be "hosted" using the PowerPoint software. Each slide of the application was stored as a picture, (3) Image maps construction, (4) Upload on the school's website as html files. During the educational activity the teachers who were responsible for the project, acted as mentors and advisors for the students at all stages and they solved out any problems and difficulties encountered. Experiential teaching enhances students' individual experiences as educational material and gives them the chance to produce more knowledge compared to the traditional way if learning (Dewey 1938/1998). The procedure of integrating experiential situations in school life offers the chance of mutation teaching activities and uses an equal communicative relationship between educator and children (Chrysafidis 2000).

4.   Virtual Folk Art Museum and sustainable development

In recent years the sustainable development has been combined with culture and has given emphasis to the economic value of natural sources and cultural goods of a place. Cultural goods are considered very important for the visitors and also the residents who demonstrate them (Fokiali 2009). They are also a great evidence of local development. Therefore, the protection, projection and also promotion of cultural goods are broader strategies, on one hand to create cultural identity of a place and, on the other hand to strengthen the traditions and cooperation of local authorities (Konsola 1993).

The introduction of innovations in education cultivates people able to plan the maintenance and improvement of quality, development and survival. It has also direct relation with the educational system of a country (Kontakos et al 2007).

The issues of sustainability and sustainable development are related with the values of peace, culture and ecological factors and also the nature of human relationships (Demetriou 2005). One of the main characteristics of sustainable development among the others is the global thinking. Its components are to understand all aspects related to environmental problems (including social, economic and cultural dimensions) and realize the global dimensions summarized as "thinking globally, act locally" (Cotter & Hannan 1999).

One of the important principles of sustainable development is the Cultural Heritage which contributes the continuity of anthropogenic systems and the qualitative character of development. The virtual educational folk art and culture Museum, is considered as a cultural activity that leads to students' holistic personality's development and increases their skills, creativity and confidence (Matarasso 1999).

With their experiential engagement, students are sensitized as future citizens towards their cultural heritage and they can also develop personal initiatives in their place. The importance of this virtual Museum to sustainable development is great as, it mobilizes students' relation with the past and they realize the importance of tradition and need of its preservation. They also generally understand that cultural heritage is not only a local issue. Each cultural asset of a country is also a component of the universal culture (Mitoula 2006).

5.   The results of the research

The survey was organized using a questionnaire in order to investigate students' aspects before and after the creation of the educational folk art virtual Museum by the children themselves. 100 students of junior High school, third grade, participated in the survey before and after the teaching intervention, 47.52% boys and 52.48% girls and we present some of their attitudes towards the course and the Multidimensional Analysis of the whole questionnaire.

When asked "would you like to participate in a school project related to the preservation of Popular Culture" a 69.00% of the students answered "yes" and 31.00% "no". Students, when asked "do you know what local folk art is?" a 54.00% of the participants answered "yes" and a 45.00% answered "no". After the teaching intervention 95.00% of the participants answered in the same question "yes" and 5.00% "no". Students, when asked "do you know what a virtual Museum is?" a 66.00% of the participants answered "yes" and a 34.00% answered "no". After the teaching intervention 96.00% of the participants answered in the same question "yes" and 4.00% "no".

Students that took part in the project and survey before teaching intervention when asked "can you construct a virtual Museum using a computer?" a 31.00% of the participants answered "yes" and a 69.00% answered "no". After the teaching intervention a 97.00% of the participants answered in the same question "yes" and a 3.00% answered "no". To the question "do you think the promotion of local folk art is important?" a 16.00% answered "strongly disagree", 22.00% "disagree", 39.00% "neither agree nor disagree" the 15.00% "agree and 8.00% "strongly agree". After the teaching intervention a 3.00% of the participants replied in the same question "strongly disagree", 4.00% "disagree", 38.00% "neither agree nor disagree" a 34.00% "agree" and 21.00% "strongly agree".

To the question "do you think that local folk Art should be taught in secondary education?" a 60.00% of the participants answered "yes" and a 40.00% answered "no". After the teaching intervention the views above differed. A 80.00% answered "yes" and 20.00% replied "no".

When asked, "do you think the preservation of cultural heritage is important?" before the teaching intervention, a 3.00% answered "strongly disagree", 9.00% "disagree", 30.00%

"neither agree nor disagree" the 23.00% "agree and 35.00% "strongly agree". After the teaching intervention a 2.00% of the participants replied in the same question "strongly disagree", 4.00% "disagree", 13.00% "neither agree nor disagree" a 36.00% "agree" and 45.00% "strongly agree".

When asked "do you think that a virtual educational Museum can help you to meet local folk Art?" an 82.00% answered "yes" and 18.00% "no". After the teaching intervention a 97.00% replied "yes" and 3.00% "no". To the question, "would you like to contribute to the dissemination of local folk Art through the construction of a virtual educational Museum?" an 82.00% answered "yes" and 18.00% "no". After the teaching intervention a 97.00% replied "yes" and 3.00% "no". To the question "do you think that the virtual educational folk art and culture Museum can help you to understand further the historical continuity of your region?" a 60.00% of the participants answered "yes" and a 40.00% answered "no". After the teaching intervention the views above differed. An 80.00% answered "yes" and 20.00% replied "no".

6.   The results of the Factor Analysis

We used the methods of the Multidimensional Statistical Analysis in order to show the main and most important differentiation criteria of the students and the classification in groups of the persons who participated in the survey according to their common characteristics. The methods we used were the Multiple Correspondence Factor Analysis which shows the differentiation criteria of the students and the Hierarchical Clustering which defines the clusters of the students due their answers and their common characteristics.

7.   The Differentiation Criteria of the students

We used the method of Multiple Correspondence Factor Analysis to find how the persons who participated in the survey differentiated according their answers.

This method investigates the correlation of the variables of the survey simultaneously. The factorial axes are the criteria of differentiation which express the oppositions of the students' answers (Athanasiadis 1995). The criteria which differentiate the 100 students who took part in the research are showed by the following three criteria of differentiation:

First criterion of differentiation criterion – inertia percentage 7.04%: In the first axis consists on one hand of students who would like to access a virtual Museum of folk art and culture on the school website and believe that they learned more about their homeland folklore through the school project. They also believe that the virtual Folk Museum can be a learning tool and consider that the preservation of cultural heritage of a place is very important. On the other hand there are students who believe that the study of the tradition does not help in the reconstruction of its social organization and stated that they would like to have access to a virtual folk Art and cultures' Museum on their schools' website. These students did not learn more elements about their homeland folklore through the school project and do not find important the preservation of cultural heritage of a place.

Second criterion of differentiation – inertia percentage 5.00%: In the second axis on one hand there are boys and girls who although they believe that the virtual folk Art Museum can help them to meet the local Arts and further to understand the historical continuity of their land, they would not like to contribute to the dissemination of folklore and culture through the virtual Museum. For these children it is not important at all to highlight and promote local Art. On the other hand, there are boys and girls who do not believe that the study of their lands' folklore helps them to collect data on the social organization and do not consider it is important to save the cultural heritage of a place. These students think that studying elements

of Folk Art does not mean that they can discover the size of its cultural development and do not believe that the virtual folk Museum can help them to meet the local Arts.

Third criterion of differentiation – inertia percentage 3.90%: In the third axis on one hand there are students who believe they do not know the categories of folk Art, do not know any of the manners and customs of their place nor the folk songs of their region. These children applied that they do not know how to handle the internet and do not believe that the basis of a society's cultural continuity is its tradition. On the other hand, there are students who know the folk Arts categories, know folk songs of their region and applied that they like folk dances. These children know very well how to handle the internet, find very important the highlight and promotion of folk Art and believe that through the knowledge of a places' folk Art can lead conclusions on its residents daily lives.

8.   The Hierarchical Analysis

The Hierarchical Analysis shows the clusters of the persons who participated in the research according their common answers and characteristics. This method also presents a Classification Chart, which connects the clusters and their potential.

8.1 Results of the Hierarchical Analysis

The Hierarchical Analysis led to three groups of persons and it is showed in Figure 1. Next to every cluster there is the number of the persons who participated in the survey and their percentage.

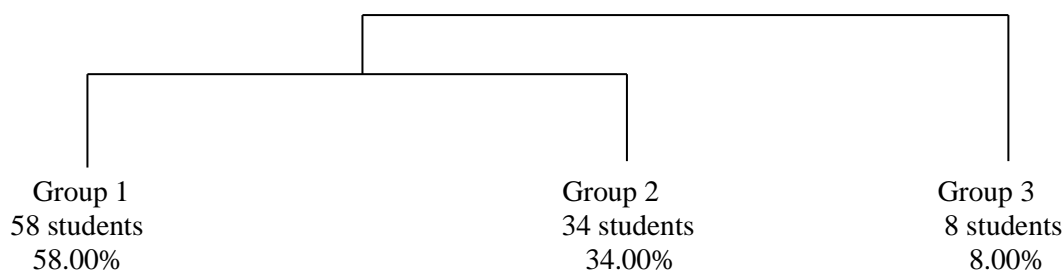| Group 1 | Group 2 | Group 3 |
| 58 students | 34 students | 8 students |
| 58.00% | 34.00% | 8.00% |

Figure 1. The Classification Chart

8.2 Results of the Hierarchical Classification

First cluster (58 students - 58.00% of the sample): The students of the first cluster think that the highlight and promotion of local Art and local culture element is quite important. These children do not know traditional dances and folk songs of their own region and they would like to contribute a little so they can preserve the cultural heritage of their place.

Second cluster (34 students - 34.00% of the sample): Students of the second cluster think that the preservation of the Cultural heritage is very important for a place and believe that studying its tradition they can reconstruct its social structure and they would like to have access to a virtual folk and cultures' Museum on the website of the school.

Third cluster (8 students - 8.00% of the sample): The third cluster consists of students who do not know the categories of folk Art, they would like to have access to a virtual folk Art and cultures' Museum on the school website and do not think that an experiential contact with folk Art items would be interesting.

These differences of the clusters are showed in Figure 2 where the graph of the Correspondence Analysis (Factorial level 1X2) presents the centers of gravity of the three

clusters on both axes. It also defines the differences and the similarities among the students of every cluster.
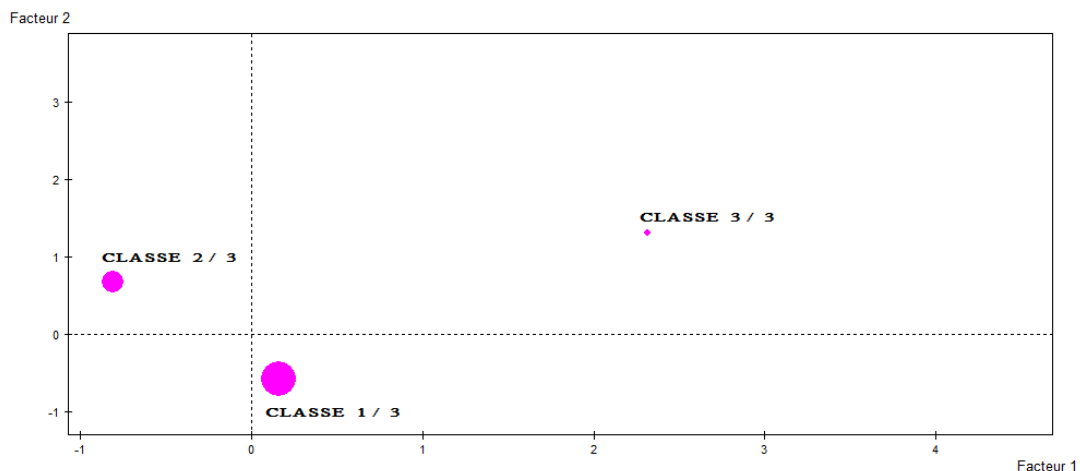

Figure 2. Correspondence Analysis

9.　Conclusions

The goal of this study was to show the views of the students towards the creation and use of a virtual educational Museum of folk art and culture. The majority of students changed their attitude towards local Art, learned more about it and realized the value of preserving Cultural Heritage. They were encouraged to experience more the historical continuity of their region to the extent that the majority of them think that local folk Art should be taught in secondary education. Arts effect children's lives and students through Arts education develop those cognitive abilities that allow him to analyze, describe, assess, interpret and also realize that culture and Art are two interrelated elements (Kampouropoulou-Savvaidou 2007).

The analysis showed that most of the students who participated in the school project were positive towards it. The virtual educational Museum of folk art and culture enables teachers to enrich the traditional way of learning with the use of ICT. Pedagogical Institutes consider that the use and exploitation of ICT provides a cross-curricular approach combined with holistic way of learning. Teachers must use appropriate tools to provide useful information in attractive environment (Kampouropoulou et al 2011). The new methods in teaching practice, in combination with other elements create a new challenge for future researchers in further research on this study (Athanasiadis & Stefos 2006).

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