TRADITIONAL DANCE AND E-LEARNING: THE WEBDANCE LEARNING ENVIRONMENT

by
Evangelia Kavakli, Sophia Bakogianni, Adam Damianakis,
Maria Loumou, Dimitris Tsatsos

Abstract. This paper presents the WebDANCE project: Web Dance for All Using Advanced E-Learning Tools. WebDANCE promotes the use of new technologies in dance education and in particular (a) the use of interactive multimedia technologies (e.g., video, 2D and 3D graphics, interactive images and text) for representing information about traditional dances and (b) the use of the Internet as the learning medium.
Keywords: traditional dance, e – learning, multimedia application, conceptual modelling

1. Introduction

With respect to dance education, teaching of traditional dances forms part of most of the school curricula in many European countries under the remit of arts or physical education (Europe of Cultural Co-operation, 2002). Existing teaching aids are limited to books and video recordings, which despite their wide use provide only a fragmented picture of the dance experience, focusing either on the cultural or the movement aspects of the dance. Limited teaching resources carry the danger of dance either being taught as a set of steps/movements devoid of cultural meaning or as a quaint art form that does not retain dynamic social involvement.

Currently, the Internet and the World-Wide-Web are increasingly being used as a source of information and as a learning medium, in formal and informal contexts. Web-based applications in cultural education focus mainly on subjects that involve development of cognitive skills, such as history and literature and to a less extent the visual arts. Available information on the Web relevant to dance is more or less unstructured (in the form of collections of HTML pages, PDF documents, MS Word documents or as MS PowerPoint presentations). As such, it is hard to access and requires additional processing before teachers and/or students can use it. The objective of the WebDANCE project is the development of a web platform that will bypass these problems by offering a structured set of learning tools based on a goal-driven learning framework.

From a methodological perspective, design and development of the
WebDANCE Learning Environment for assisting traditional dance education
requires (a) to identify the abstract concepts that define traditional dance
together with the appropriate hypermedia forms for describing/visualizing each
concept; (b) to organize the content and develop the teaching curriculum; (c) to
design the structure and interactivity of the learning environment; (d) to
implement the user interface; (e) to proceed in content production; (f) to
develop e-learning modules; (g) to incorporate the separate modules in the
WebDANCE e-learning environment and (h) to produce the accompanying
material with explicit instructions for the users. In WebDANCE evaluation
plays an important role in all the above activities involved in the design and the
development of the suggested educational environment. The aim of the
evaluation process is both to prevent the appearance of problems as well as to
improve the design, development and application, of the proposed
WebDANCE learning environment. The WebDANCE evaluation process
consists of the following three phases and runs through the whole process of
the design, development and implementation: front-end, formative and
summative evaluation (Papadopoulos, 1999, Panagiotakopoulos et. al., 2003).
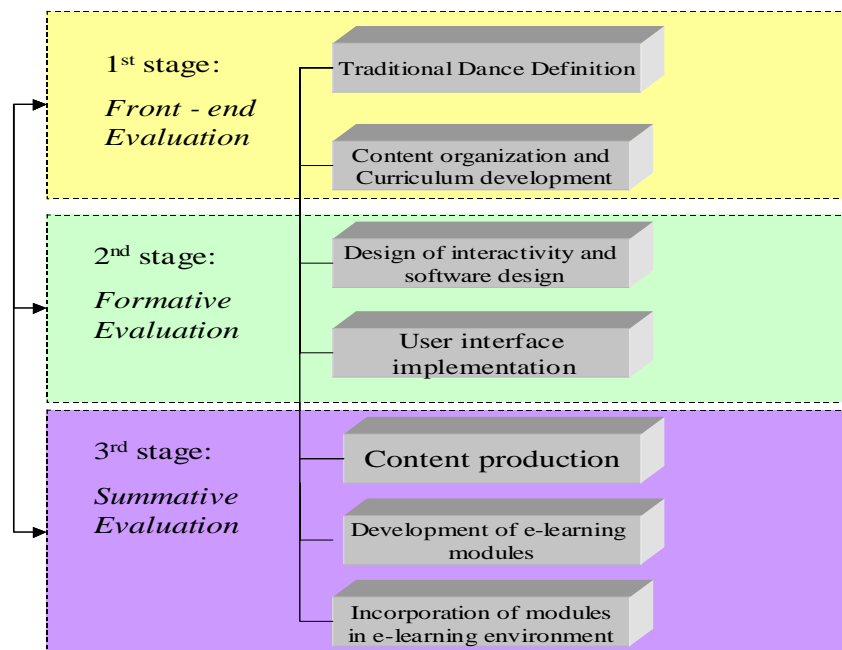The overall process of the design and development is shown in Figure 1.

Figure 1: The development stages of WebDANCE Learning Environment

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2. The WebDANCE Conceptual Model of Traditional Dance

The conceptual model of traditional Dance of the WebDANCE learning environment is based on the dance conceptualization framework that has been developed from WebDANCE Consortium (Karkou, 2003). This was motivated by the need to face the concept of Dance in a holistic approach without following the usuall discrimination between movement and context (Royce, 1977, Zographou, 1989, Sermpezis and Goulimaris, 2001), which only provides a fragmented view of the dance experience.
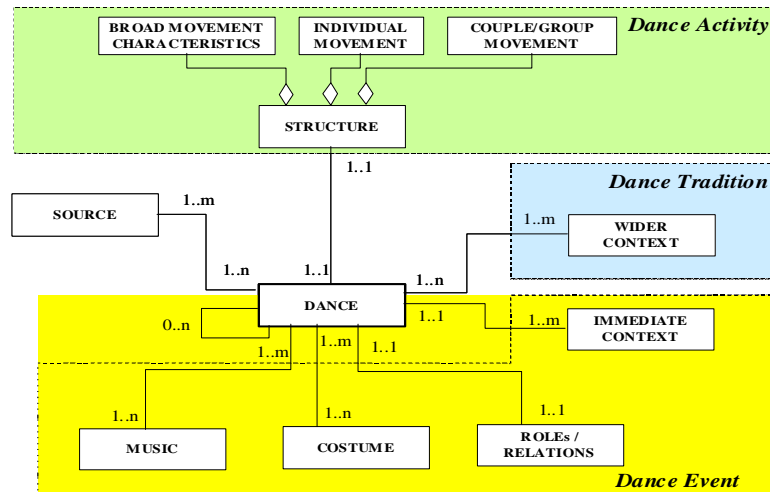

Figure 2: The WebDANCE Conceptual Model

In particular the dance conceptual model consists of three types of dance concepts: concepts that focus either on the movement components of the dance, or the dance's context or both. We refer to these three categories as: *Dance Activity*, *Dance Tradition* and *Dance Event*, respectively. Each of these three categories is further divided into a number of sub-concepts and characterizes the entity of a Dance as shown in Figure 2. This conceptual model has been integrated in the WebDANCE Curriculum and the Learning Environment. Each sub-concept of the dance conceptual model forms a dance lesson in the WebDANCE curriculum, e.g. the subchapter of Dance Event consists of the following lessons for the music, the costumes and the roles of participants (Kavakli, et.al., 2003). This relation of dance concepts and dance lessons is shown in Figure 3.
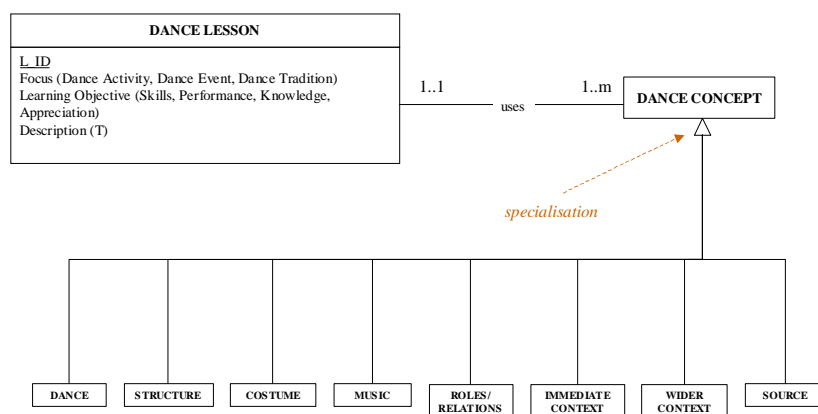
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Figure 3: Relation of dance concepts and dance lessons

Each dance concept is further analyzed and the resulting descriptions formulate the different sections of a lesson. For example, the concept of Dance Costumes is analyzed in the following: common costume components, distinctive costume components, relationship of costume to movement and relationship of costume to everyday clothes that form the subsections of the corresponding lesson.

3. The WebDANCE Learning Model

The WebDANCE learning model describes the educational philosophy adopted within the project and emphasises the need to identify the most appropriate uses of technology to support the overall learning experience. It is based on a three-stage process with the following steps: first the learners are asked to appreciate the new concepts they have to learn (**orientation**), then specific activities drive them to fit new knowledge to their previous experience and knowledge (**construction**) and finally extended activities allow them to reflect on the new concepts and issues (**reflection**) (Ferreira, et.al., 1998).
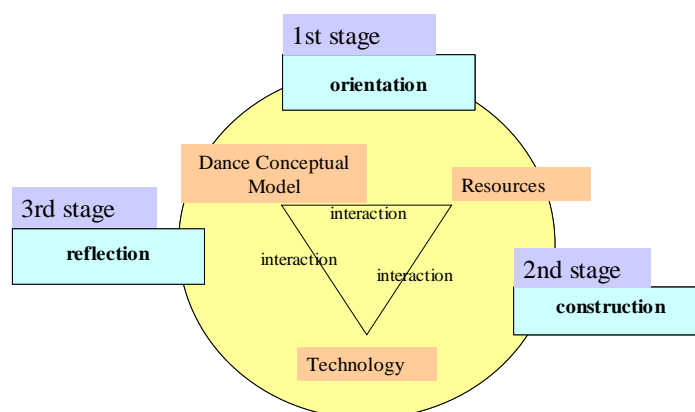
Figure 4: The WebDANCE learning model

Vital in this model are two approaches. The first is the *goal – based approach* (Schank, 1992) whereby the learning process is driven by the goal that the learner aims to achieve (e.g., to present a certain dance in the school journal); this goal directs the learner's activities serving as a motivator for learning. The second is the *learning by doing approach* that focuses on acting rather than memorising facts and concepts. This is achieved by incorporating interactive components in the form of questions and answers, quizzes, and the use of extended activities.

4. The structure of the WebDANCE Curriculum

The WebDANCE Curriculum consists of Chapters, Subchapters and Lessons. A Chapter corresponds to a specific Dance (e.g. Karsilamas) and is discerned to four subchapters (Dance Presentation, Dance Activity, Dance Event and Dance Tradition according to the WebDANCE Conceptual Model). Another subchapter *Dance Presentation*, has also been identified which sumarises the basic dance characteristics and is used as an index of the documented dance. There are several dance lessons corresponding to every subchapter. For example for the subchapter of *Dance Event* users can choose any one of the offered lessons [Music_Lesson, Costumes_Lesson and Roles of Dance Participants_Lesson] or may decide to view all of them. The structure of the WebDANCE Curriculum is demonstrated in the Figure 5.
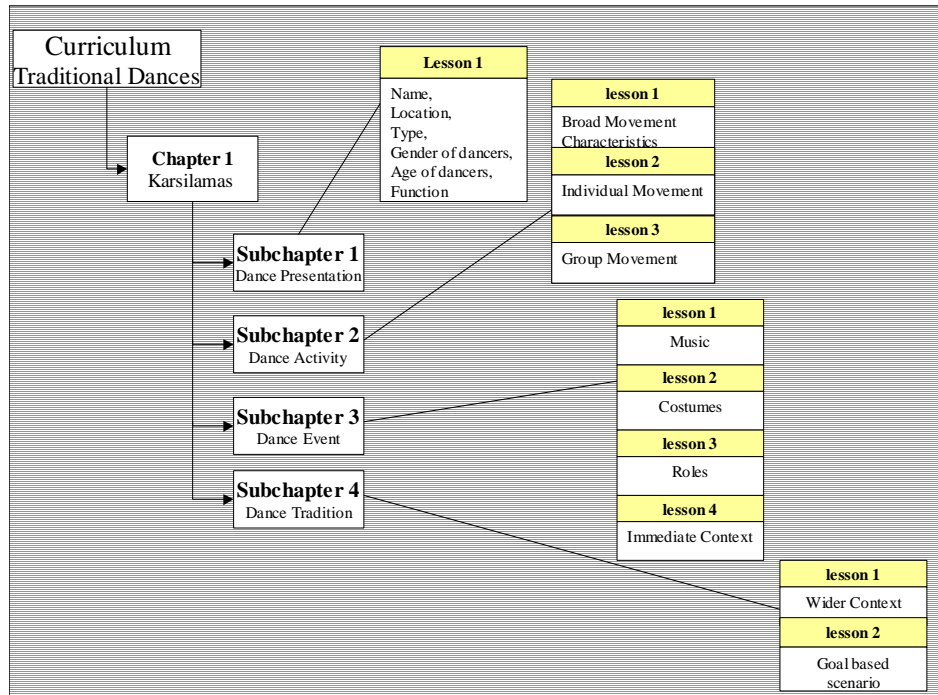
Figure 5: The WebDANCE Curriculum

A dance lesson is the smallest entity of the curriculum and is structured in terms of learning goals, educational activities, associated resources and self-evaluation tasks that can be used either in combination with other lessons or on its own. Teachers and students in a school environment or individual users on the web can create their own paths to investigate the curriculum depending on their specific goals and their interests. Dance Lessons can be combined and used in several ways depending on the teaching methodology followed and the specific learning objective that one wishes to achieve; when a holistic approach is taken then information about a whole dance (e.g. in the form of a video clip of the dance) may be used. Alternatively, when an analytical approach is preferred then the step-by-step analysis of the dance (e.g. using an interactive 3D animation tool) will be more appropriate.

4. Technical Implementation: The WebDANCE Learning Environment

For the WebDANCE project a series of self - paced lessons have been created. The lessons are available in two languages (English and Greek) and delivered to the students through a Learning Management System (LMS)

capable of providing the tutor with reports about student attendance and progress. As a general guideline for the realization of the project the AICC protocol is used.

The WebDANCE Learning Environment uses the Lotus LearningSpace 5 platform as a framework for managing and delivery online courses, which is fully compatible with the AICC model and also compatible with SCORM. (Damianakis and Loumou, 2003).

For the implementation of the content of a lesson a new system was designed, consisting of a set of different files.

The main content (text and filenames for multimedia files) of a lesson are included in an XML file describing the lesson structure in sequences each consisting of several frames (according to the AICC structure for levels). A Sample XML lesson is the following:

```
<?xml version="1.0" encoding="UTF-16" ?>

<lesson >
<sequence >
<frame >
<p img="01_01.jpg " > text , text  , text  , text  </p>
<p img="01_02.jpg " > text , text  , text  , text </p>
<p img="02s.swf"> more text </p>
</frame>
</sequence>
<sequence > <frame > <p>……</p></frame ></sequence >
.
.
.
</lesson>
```

An XML parser then processes the XML file and the data contained are presented to the user in the form of the Lesson. Furthermore the parser is encapsulated in a module that is capable of communicating with the LMS and reporting the user progress.

The following shows the files contained in the folder of a sample lesson:

| theFile.xml | The file that contain all the text data. It also contains the file name of non-text data such as images, animations, video, and sounds. |
| main.swf | The XML parser. This file contains the program that reads the XML data and accordingly displays the contents to the user |

	mixing text with multimedia material. The program is developed in Flash MX.
lesson.html	These files encapsulate the XML parser and are used to transfer data between the Lesson and the LMS.
main.html	
results.htm	
01_01.jpg	Some multimedia files that are included in the presentation of the lesson.
01_02.jpg	
01_03.jpg	
01_04.jpg	
01_05.jpg	
02s.swf	

The content of each lesson is created separately using appropriate tools (e.g., text editors, multimedia authoring tools) and is then integrated into the XML file. The following figure shows a snapshot of the XML file and the corresponding lesson as it is presented to the user.

Figure 6: XML file and WebDANCE user interface

The use of the above system for the development of the WebDANCE lessons indicated a number of advantages, as well as certain limitations. The advantages are:

- There is a distinction between multimedia and text in the file system itself.
- A simple text editor is sufficient for authoring the XML file.
- Incorporation of existing multimedia material in a lesson is very simple, just by adding a reference to the XML file, without the use of any special program.
- Since lesson components (text and multimedia) are developed outside the WebDANCE platform, they can be created in parallel by different authors and then combined into the same XML file.
- The multimedia material can be reused for different lessons.
- The communication between the lesson and the LMS is standardized and there is no need to be implemented in each and every lesson separately by the authors.
- The same XML file containing the content of a lesson can be presented in different ways creating a different user interface each time.

There are also some drawbacks, which in no case outweigh the advantages described above:
- Certain file types of the multimedia are not supported.
- Specialized activities (e.g., a quiz activity) cannot be implemented directly, but should be developed separately using an appropriate authoring tool such as Flash MX.

6. Summary - Conclusions

The WebDANCE project promotes the use of e-learning technologies in traditional dance education. So far the conceptual model for representing traditional dance has been defined and the structure of the WebDANCE Curriculum has been modulated. In addition, a prototype version of the WebDANCE Learning Environment has been developed. In order to test the appropriateness and efficiency of the proposed Learning Environment, the prototype version will be put in use in two pilot secondary schools in Greece and UK using information about traditional Greek and English dances. The results of this pilot usage will feed into the implementation of the full version of the WebDANCE platform.

7. Acknowledgements

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Authors:
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