A MULTIMEDIA STORYBOARD AS AN OBJECT AND AS A STARTING POINT FOR LANGUAGE LEARNING

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1. Introduction

Fables have been known for centuries to be an excellent means for the expression of thoughts and ideas as well as for teaching human values. This paper deals with the possibilities that a multimedia storyboard offers in supporting the teaching/learning process of a subject area. In particular, an attempt is made to interpret the added value emerging from the employment of a multimedia storyboard in a Computer Assisted Language Learning (CALL) environment.

The employment of a storyboard in the learning process lies in the fact that the appeal of fables has always been unquestionable to all ages and, in particular, to young children. The plot of a fable can be considered as the Ariadne's clue, which guides the user to a journey of discovering knowledge. A storyboard can incorporate all the necessary constituents that allow its use as a means for language learning especially to young children. According to Porcher (1991) "childhood constitutes the triumph of narration [...]. Language learning could not therefore ignore this dimension, even if it wished to do so". In addition, a storyboard as a means for supporting the teaching/learning process of a subject area complies with all ages interests and preferences.

The realisation of a storyboard in a computer environment, with the use of new technologies, makes it more attractive and engaging for the learners. Recent research results prove the effectiveness of the new technologies in the learning process. In particular, new technologies improve learners' performance, and reduce the time of learning (Kulik et al. 1980 and Kulik 1994). Furthermore, by using new technologies young children can enhance their reading and writing skills (Poole, 1997).

The multimedia storyboard can exploit the potentials of the new technologies. Visual and acoustic memory of the pupils are simultaneously activated in order to trigger the learning process. Modern user interfaces enable young learners to take advantage of the multimedia content. Especially, new developments in multimedia and animation technologies allow the realisation of a fable in a way that creates a sense of immersion for the user. The development of a user-friendly environment enables the learner to be actively engaged in the learning process. Learners need to become involved and motivated by the materials and to take ownership of the skills and knowledge that they acquire. It is worth noting that the use of a CALL environment can help pupils to build a positive attitude towards the language course.

The dual role of a multimedia storyboard as an object and as a starting point for learning offers many possibilities for pedagogical/teaching realisations and can be exploit for every subject area as can be seen in Figure 1. In the first approach the story itself contains a sufficient number of reference points as well as user activities (e.g. educational games, logical puzzles, etc.) related to the subject area. The teaching material consists of the reference points that are fully embodied in the plot of the story. The user activities are used for the presentation of the teaching material in an exploratory and interactive way and for practising purposes. This approach allows the integration of cross-thematic elements within the story-line enabling this way the interdisciplinary learning.

In the second approach, the reference points of the storyboard are used as points of departure that are further expanded in a parallel level for teaching purposes. The reference points correspond to the phenomena to be taught. The teaching material, in this case, involves a systematic presentation of the phenomena followed by a number of exercises that enable the user to test and consolidate the knowledge s/he has received during the systematic presentation. In this approach the learning process is loosely connected to the story, and therefore the interdisciplinary element is not supported.
In Sections 2 and 3, we will examine how the dual role of a multimedia storyboard as an object and as a starting point for language teaching/learning purposes can be realised. Section 4 presents the MYTHE project as a case study of a CALL environment that is based on a multimedia storyboard. Finally, a summary of the paper is presented in Section 5.

2. The multimedia storyboard as an object for language learning

Recent research suggests that it is essential for the developing mind to acquire personal experiences through different combinations of action and practice in order to develop the requisite abilities. The storyboard can represent the framework in which the knowledge can be considerably shaped through personal experience and users will be receptive to getting and elaborating stimuli that promote their ability of learning. Knowledge can be obtained either implicitly or explicitly through the plot of the multimedia storyboard by means of references or user activities related to the teaching material.

The plot can incorporate points of reference and user activities relating to one or several thematic areas or disciplines as shown in Figure 2. Through the dialogues of the story the user will have the chance to be exposed to all aspects of language (phonology, morphology, vocabulary, semantics, pragmatics). In addition, through the user activities the user interacts with the environment and may acquire knowledge in an exploratory way. In this way, the needs of playing and expression (through language, motion, music, painting, etc.) can be embraced. In particular, the storyboard can be enriched with the following types of user activities:

- **Action/educational games**
  Action and educational games are activities that are realised in a game-like way. The purpose of this kind of games is twofold: a) playing and b) offer the user the possibility to acquire skills. For example, a situation where the user has to avoid flying objects can make the learning environment more entertaining. In this case the user has the chance to play and, at the same time, to become familiar with the use of the mouse and/or keyboard. On the other hand, an educational game can expose the learner to situations taken from real life. For example, a simulation of car driving in roads with signs enables the user to come across with situations where s/he is forced to follow certain behavioural patterns. The possibility to combine learning with entertainment is very important especially for young children.
- **Logical puzzles**
  These are activities that expose the user to situations that develop her/his logical and cognitive skills. The idea is to give the user the chance to solve a problem by helping the heroes of the story to accomplish a specific task each time. For example, the user has to use a magnet to take a key out of a crack of the floor. In the case of a language learning environment the user practises her/his listening and reading comprehension skills and at the same time s/he has to use her/his analytical ability to solve the logical puzzle.

- **Quizzes**
  These are activities that aim at the acquisition of language skills and/or knowledge and skills relating to other thematic areas or disciplines. Quizzes are fully incorporated in the plot of the story. For example, the user has to help the heroes to read a “secret” message by putting the words in the right order or find the missing letters. Quizzes can also be presented explicitly through multiple-choice questions. The knowledge can lie either in the question or in the answers. For example, the user must answer a number of questions in order to help the heroes of the story. The story will not proceed unless the correct answer is given.

![Story / Teaching environment](image)

**Figure 2:** Teaching model of a multimedia storyboard as an object for language teaching

It is evident that with the use of new technologies a multimedia storyboard contains the necessary resources (text, audio and video) which can support the teaching material. In this way the storyboard is more attractive and enables the user to discover the knowledge her/himself and to build it up at her/his own pace.

The suggested teaching model uses the multimedia storyboard as a “vehicle” to carry knowledge and skills based on the pedagogical and teaching objectives which include also “hidden” pedagogical features promoting in this way the following:

- **interdisciplinary learning**
  Through the multimedia storyboard, the user may acquire knowledge that can be used in specific scientific domains. The interdisciplinary learning can be promoted via reference points included in the plot or via encyclopaedic questions related to several thematic areas, e.g. zoology, botany, etc.
• cross-cultural education
The multimedia storyboard may incorporate a considerable number of cross-cultural elements that can be naturally introduced within the plot (for example, characters of different nationalities, objects such as flags, traditional food and monuments from different countries, etc.). The promotion of cross-cultural education contributes to the consolidation of the user's identity, to the understanding of other cultures and civilisations, and to the development of a positive attitude towards them.

• awareness of human values
The plot of the storyboard may contribute also to the awareness of certain notions, as well as to the development of positive social attitudes and perceptions. The multimedia storyboard could be interspersed with pan-human elements cultivating in this way positive behavioural patterns.

The main difference between the teaching model that is based on various extracts from literature, newspapers etc. and the one that is based on an event driven story lies on the coherence of the latter. A storyboard can also be seen as a sequence of situations/cases relevant to the subject area under consideration. However, the use of existing stories for that purpose can only meet part of the teaching objectives. It is therefore proposed first to set the teaching objectives and then build the story around these objectives.

3. The multimedia storyboard as a starting point for language teaching/learning

As mentioned above the storyboard itself contains many constituents around which the language teaching material can be built. Furthermore, a multimedia storyboard can be used as a starting point for a more systematic language teaching/learning. In this approach, the story is realised in the story environment while the teaching of the language material takes place in another environment, the teaching environment, as can be seen in Figure 3. These two environments are connected through the points of reference that are contained in the story and are expanded further in the teaching environment. The teaching material consists of the a) Systematic presentation and b) Consolidation (exercises and evaluation).

a) Systematic presentation
The systematic presentation of a subject is realised by means of small dialogues, which present in detail the linguistic functions, language phenomena and vocabulary existing in the plot. Parts of the dialogues of the story will be employed and further expanded at the teaching level, for a systematic presentation of particular phenomena and functions. The objective of this presentation may divert from the plot of the story and can be seen as a stand-alone situation.

b) Consolidation
The consolidation of the knowledge is realised through practising of the language phenomena and/or functions. Language exercises allow the user to test and consolidate the linguistic input s/he has received by watching/learning the story and the systematic presentation of the corresponding language phenomenon and/or function. Evaluation is the process of feedback by which the user becomes aware of the degree of success of her/his training. Overall evaluation strategies should include the formative and summative evaluation that will take place during the development phase.

The parallel level of the teaching environment is related to the teaching material and allows the user to choose a language phenomenon and/or function, navigate through the systematic presentation of the phenomenon, which is related to a point of reference in the storyboard, and finally practise through language exercises.
The advantages of such a teaching model is that the systematic presentation of the language material as well as the practising of the language are realised on a different level that leaves untouched the plot of the story. So the storyboard remains authentic and the teaching material is presented in detail.

4. MYTHE – A case study of a multimedia storyboard

MYTHE project (mythe.ilsp.gr), an EC funded project, aims at setting three languages (Dutch, English, and Greek) within a common CALL environment to be used by young children aged 6-8, for both mother tongue and second language learning. The language material of the platform is build around a story that is presented in an interactive 3D environment with animated characters. The pedagogical/teaching model adopted is similar to the one shown in Figure 3. The teaching goals are realised in two levels: a) the story level and b) the pure teaching level.

a) Story level
The storyboard is developed on the basis of five thematic areas, namely: environment, health/hygiene, culture/arts, science and technology and democracy. So the plot of the fable is interspersed with pan-human elements in order to develop positive social attitudes. The story of MYTHE is interspersed with user activities that include encyclopaedic questions, action games and logical puzzles.

b) Teaching level
This level includes the presentation of the language phenomena and functions followed by a number of language exercises. The transition from the story level to this level takes place at the end of each episode and involves the transition from the environment of the action to the environment of language teaching and practising.

Every language phenomenon and/or function is presented in two stages: a) the presentation of the language phenomenon and b) the language exercises. The presentation involves small dialogues, which present in detail the linguistic functions, vocabulary and language phenomena existing in each episode. Parts of the dialogues of the story are employed and further expanded at the teaching level for the systematic presentation of a particular language phenomenon and/or function. The exercises component is the part where the user tests and consolidates the linguistic input s/he has received in the course of the episode and the presentation part.

A number of Language and Imaging (LIM) tools has also been incorporated to facilitate the learning process. These include spelling and agreement checkers, continuous speech recognition, correct
stressed position assessment tool, and lip motion tool. The tools are used in the environment of the exercises or in the user activities of the story. In particular, the lip motion tool is used in the dictionary setting that enables the user to watch the pronunciation of the words from different angles. More details can be found in Katsouros (2000).

5. Summary

In this article two teaching models of a computer assisted learning environment based on a storyboard were presented. Language was selected as the subject area but the suggested model is valid for any other subject area. In the first model, the storyboard itself contains all the necessary learning material which is presented within the storyboard through points of reference to the theory or through user activities such as logical puzzles, quizzes and action and educational games. The second teaching model consists of two levels: a) the storyboard and b) the teaching level. In this approach the storyboard contains reference points of the subject area, which are expanded further on a parallel level, the teaching level, for a more systematic presentation of the theory. The teaching level also includes a number of exercises that help the consolidation of the knowledge by the user. Finally, the MYTHE project is presented as an example of a CALL environment that combines the two teaching models.

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