

CREATING A STRUCTURE FOR CREATIVE AND INNOVATIVE OPEN MULTIMEDIA SERIOUS GAME

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Abstract: In a world of creative and innovative thinking, serious games gives us great opportunities for developing unique, interactive environment open architecture for multimedia serious game. Focused on the attraction of thinking of the conscious and subconscious audience level, it aims to promote creativity and innovation in knowledge and priority development and enrichment of the intellect of homo ludens (the playing man).

The objectives of this study include developing a model and create audio-visual gallery of the principles of self-organization and fractal similarity.

Keywords: CREATIVE, INNOVATIVE, MULTIMEDIA, FRACTALS, THINKINGS, SERIOUS GAME

1. Introduction.

Building a creative and innovative structure for serious multimedia game that can unite the University or Interuniversity team for creating of multimedia serious games is an important element of their overall presentation of ideas. The purpose of this article is to solve the following issues:

A problem: The multimedia products are mainly directed in one direction from the author to the audience. In many cases there is no feedback in real time from the audience to the intellectual product (artwork).

Actuality: The market tendencies are in favor of interactive multimedia products, commercials, movies and serious games, located mainly in the global information network.

Purpose: To create an open structure for creative and innovative multimedia serious game. Prerequisites for creation of playing audience.

Tasks: Development of feedback between Audience - Author and Author-Audience, knowledge transfer of the principles of serious games, exploring the main trends in the serious games and multimedia products.

For creation and implementation of the model it is necessary to pass through the following stages:

1. Systematization of the serious games.
2. Research of serious games examples and multimedia trends in worldwide for this type of games.
3. Creation of exemplary model for the structure of multimedia serious game.
4. Development the components of the model for a serious multimedia game.
5. Passing through stages of implementation of creative and innovative model for multimedia serious game.

2. Prerequisites and method of solving the problem.

In the area of Serious Games, tendency tends to be multimedia and Internet solutions designed to make the viewers to participate in the existing situation. Cyberspace has an interactive nature, but it also has some limitations that may cause slowdown the process of searching, entertainment and education.

Systematization of serious games has a purpose to synthesize and summarize the serious games in categories, although there is not a clear definition about this type of games [1].

Table 1: Systematizing and classification of Serious Games

According to the method of distribution	Computer games	TV games	Book games	Phone games
	Internet games	Video games	Direct-communicative games	SMS games
According to the Genre	Military games	Economic games	Entertainment games	Business games
	Role-playing game RPG	Board games	Specialized (to a specific group of participants)	e-learning games (education)
	Simulation games	Verbal (direct)	Nonverbal (indirect)	-
According to the target audience	For children	For Adult	No age limit	-
	Y Generation	X Generation	Pragmatists Generation	Traditionalists Generation
According to the level of dialogue "Author-Audience"	First level of dialogue	Second level of dialogue	Third level of dialogue	Fourth level of dialogue
According to the purpose	For Entertainment	For Education	For advertising	For manipulation
According to the duration	Short games (1 minute)	Episodic (with continuation)	Single games (One time)	Long (over 10 minutes)
According to the information structure	Open type games	Games of closed type	Games of mixed type	-

Verbal (direct) games are those where the participants in the game play it in real time. They have sensory contact between them - hearing, speech, touch and presence of feedback between author and audience.

Non-verbal (indirect) games are those where there is no a direct, visual or other sensory contact and work through telecommunication applications such as computers, books, television, telephone, etc.

According to the information structure, games are:

- Open type games (participants may set the rules and the end of the game);
- Closed type games (the participants play by strictly defined rules and end of the game is provided);

- Mixed type games (participants play by specific rules, but he can change some of them). This type of serious games create opportunities for future development trend. The advantage is that the basic rules which must be followed have been set by the author. The changes that player can make should not radically alter the author's idea.

RPG game is a serious type of game where participants take the roles of characters and create stories together. Participants define the actions of their characters according to their characters. According to the established system of rules or guidelines the actions could be successful or unsuccessful. The players are free to improvise their choices. It leads to variety of directions and outcomes within these games rules. The role-playing serious games rarely have winners and losers. That makes them radically different than other type of games. They are liked by the people because they defy the imagination. They focus on mutual assistance and the socialization rather than competition.

Examples of serious games and multimedia trends worldwide for this type of games.

The complexity of the human psychology and heterogeneous thinking of different players are important prerequisites for development and modernization of multimedia serious games mainly in the creation of open-type serious games. They are designed to entertain, inform, to give high confidence, a sense of individuality and personal knowledge of the situation in the action of the game. World researches in this area have proved that the games where there is a liberality in the choice of participants to determine the development and its end are more popular and intriguing. In other hand this makes them more popular and successful, compared with a closed type of games where alternatives are few. An example of an open type game where participants can take the decision himself is the Internet commercial of Peugeot. The main idea is not only the automobile products advertising, but the way of presenting is an interesting and unusual. The participant in this "clip-game" can choose what to happen with the main character through certain time steps, the choice is limited to answers "Yes" or "No". This decision determines how the game would continue. This game aims both to entertain and to advertise the product.

The games that are easy to implement are preferably by the player, but they have a complex design and good technical support. As example for this type of games is the clip "hunter and the bears", where the action does not depends on "Yes" or "No" (as in the video - game Peugeot) [2]. This shall be done by using a box area where the viewer can write what happened to the hunter and the bear. The more alternatives in a game - the more preferable it is. Another type of open games may aim to develop certain personal and professional skills, depending on the nature and purpose of the game.

There is increased consumer interest in the implementation of multimedia games in the world, and the tendency points to their distribution increasing. There are many reasons for this - the multimedia serious games give participants specific and useful knowledge. They develop skills and attributes that can be useful in a real life. They can help to professional and intellectual enrichment. The advantages of multimedia games are that:

- there is variety in ways and methods of implementation of games;
- They are designed for social, professional, and other age groups, which makes them practically widespread and accessible to everyone without restrictions;

- Their structure and the way of presentation create in participants a sense of entertainment and disengagement, whilst it caused mental processes, develop and train useful skills;
- They can be performed directly and indirectly;
- Today they are distributed with great speed and in wide mass range, because of its multimedia nature, possibilities of the Internet and telecommunications.

The global use of Internet communications is the essential tool for the multimedia serious games distributing. The games become available through them easy and exciting for the audience. However there are certain tricky issues in their production and supply, which should not be overlooked and ignored by the author, as example:

- To conduct marketing researchings in order to determine the interest and the needs of potential and actual participants to increase the games effectiveness.
- A clear clarification for targets in multimedia games and identify groups for whom are designed.
- High availability and low level of difficulty in the performance of the game to have more participants and to keep interest in it.
- Improving and appropriate use of multimedia modes and methods for games presentation.

3. Solution of the research problem.

Components of the model:

1. *Homo ludens (playing man) audience - user (he participate with his senses, attitudes, moods, fantasies, needs).*
2. *Tester system of classification of information. (Subtract of certain personal characteristics and qualities of the user audience, the playing man).*
3. *Information library. Audio and video products.*
4. *Assembling of audio and video information.*
5. *Displaying of audio and video information.*
6. *Making a connection between the displayed information and the user.*

Tester system of classification of information.

This system is designed to create shortcuts between the elements of audio-visual gallery in such a way as to comply the requirements set by the viewer - the playing man. This block has to adjust the game in such a way that satisfy the requirements of Homo Ludens. This assessment of the participant may become unconscious level and, thereby the interest in the game will be even greater. Every time it can be different or to vary within certain limits.

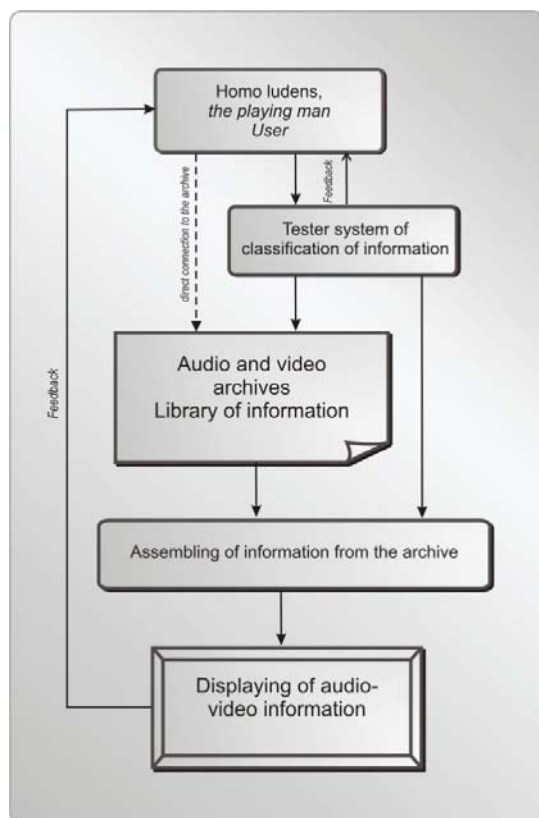


Fig.1. Structure of an open type game and innovative serious game

Library, archive of information.

There are two options for the creation of this library.

The first option is that it can be created by the author or under a predetermined script structure. This structure must accurately describe the relationships and the necessary elements. The audio-visual library can find out audio products - sound, voice, voiceover, sound effects, music, video footage without sound (frames beyond aural environment), video footage with sound (for example speaker on camera, a presenter, replicas of character or participant interviews with people).

In the second option the archive could be updated by the participant in the game. This option has the advantage that every viewer may change the parts of the gallery or to add additional elements. The author can enter the gallery information after evaluating of the element. The disadvantage of this option is that there should be a good evaluation system for selection of quality products.

The storage of this information may be in cyberspace. The disadvantage of this idea is that because of the large amount of information the connection between the user and the information can take longer data transfer time.

Another type of information storage can be done by data storage (CD, flash memory). The advantage of this type of media is that they contain large amounts of data. The disadvantage is that data must be protected.

Assembling and outputting the elements from the library

Assembling the elements from library should be a predefined regularities and connections for which care system - the tester. Working with visual products in real time at this stage is practically difficult. It has to be used mainly ready elements from the library. New items must be predesigned and completed in the archive. Some color corrections and filters in real time can be made, which must be optimized for the hardware in the system for video playback - PC, TV receiver, devices connected to them. We must use elements from the gallery, because a complex changes in real time would not be possible, (For example, computer generated video footage which represents a few seconds, consisted several layers can take from minutes to hours render time. To generate the full computer generated images it may take computer rendering time from days to months). The most realistic option at this stage is using of elements by the established library, only to be assembled in real time. The output of audio information can be in formats that have appropriate compression (mp3, ACC), which preserves the quality at the expense of the amount of data. The same rule applies to video data. It should be in such a virtual container that allows easy and fast image reproduction with minimal loss of information.

4. Results and discussion.

For implementation of this model it has to pass through the following stages:

1. Choosing an appropriate target audience to accept the most well-established multimedia products in the form of serious game.
2. Creation of products of this type, following the presented structure.
3. Development and improvement of the structure by focusing on its parts and components.
4. Create a number of techniques aimed at contributing the renovation and creation of audio-video archive.
5. Forming a complete product to promote the activities of the team for developing creative and innovative structure.

This is a new type of product which must be subject to attestation and approbation. There is no data available for structures of this type worldwide.

5. Conclusion.

The model for the structuring of multimedia serious game can solve the problem of the connection between author and audience. It can be very useful in creating a communication and interaction of high-level dialogue. You can also create conditions for increasing the number of "homo ludens" and to spread this concept and give it a mass audience.

The team that is working in this area of Serious Games for innovative training also remains an open system, with an option of expanding acceptance of new ideas and innovative ways for dealing with this type of problems.

6. References.

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