

INSCAPE – Interactive Storytelling for Creative People

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Abstract

In the first part of the paper, the global aims and objectives of the INSCAPE project¹ are introduced. Then, first results of the research work at ZGDV Darmstadt in form of an analysis of story patterns and story models as underlying semantic structure of the INSCAPE application domains – ranging from game based approaches, life performances or entertainment to more serious applications such as training and simulation or communication and marketing- are presented. Hereby, the focus is set on “Education and Entertainment” which also represents the INSCAPE application sector addressed for the INSCAPE alpha version. Based on that analysis some examples for the usage of INSCAPE for museum applications are described. Finally, an outlook points out further steps and future prospects of the INSCAPE approach.

Motivation and Introduction

Storytelling and story-writing are probably one of the oldest cultural skills of mankind. Nevertheless, professional story-writing needs various experts such as editors, ghost-writers or plot-designers to create a story or a script. INSCAPE aims at the establishment of a comprehensive authoring and run-time environment enabling both ordinary individual authors as well as a team of professional authors and producers to create Storytelling based applications in a broad spectrum of application domains:

- Cinema and Television
- Animation and Cartoons
- Live Performances
- **Education and Entertainment**
- Communication and Marketing
- Science and Industry

This ambitious overall goal of INSCAPE is targeted by an excellent complementary consortium consisting of research partners, technology provider and end-users settled in the different application domains listed above. During the first project phase of the INSCAPE project being started in September 2004, the foundational research group of INSCAPE has elaborated a comprehensive state-of-the-art analysis providing a summary of Interactive Storytelling concepts, its potential and obstacles as well as current trends. Complementary, the end-user group specified numerous generic and specific end user requirements and the technical group started to create the first version of the INSCAPE system (alpha version), which will be available in early 2006.

With respect to the correlation between Interactive Storytelling and Edutainment (summarizing the terms Education and Entertainment), the basic idea is to bring in dramaturgic aspects [Thissen and Mödinger, 2004] and Interactive Digital Storytelling mechanisms [Hoffmann et al., 2005] in order to build more exciting learning courses (knowledge transfer) or joyful entertainment applications (such as game based access to cultural heritage via interactive installations in a museum or a kids corner providing quizzes and stories on a museums website). As a result, suspenseful stories and course material with a suspense curve arise combining learning objects and dramaturgic elements of a

¹ INSCAPE: Interactive Storytelling for Creative People, Integrated Project, contract no. 004150, www.inscapers.com

story model. Consistent with this development, museums use stories and storytelling issues as new media for knowledge transmission and -similar to game based approaches - to enhance immersion and experience in learning environments. For instance, Springer describes the usage of Digital Storytelling at the National Gallery of Art [Springer, 2004] or the Educational Web Adventures [Eduweb, 2004] characterizes the trend with its slogan: "Eduweb's mission is to create exciting and effective learning experiences that hit the sweet spot where learning theory, Web technology, and fun meet."

Other examples underlining that trend represent virtual galleries, interactive tours or 360° panoramas using different browser plug-ins (Quicktime, Macromedia Shockwave, Flash) or 3D environments (VRML, Java 3D). These applications are often placed on websites or kiosks in the museum itself to provide information and navigation environments to visitors, allowing them to explore museums in a game-based way. In addition, virtual characters (sometimes in 2D comic-style [Cedy, 2005], sometimes as full 3D avatars) are used as virtual guides, guiding visitors through virtual museums and exhibitions.

Apart from using digital media for edutainment purposes, the digital age of museums is dawning in logistical aspects as well. Digital libraries, intelligent heritage and digital preservation are only a few examples of how digital media can support the aims of museums.

Analysis of Storymodels

From a research oriented perspective, in the first period of the INSCAPE project ZGDV analysed different story models with regard to their appropriateness for the different storytelling domains listed above. Examples of models which were analysed include the classical three-act structure of Aristotle (widespread in theatres), the Propp model (originated in the field of Russian fairy tales), Vogler's Journey of a Hero, and models used in learning/CBTs, animation/comics or computer games.

In general, the most story models analysed (with a focus on models for scriptwriting) result from the fundamental three-act model by Aristototele with the parts "beginning", "middle" and "ending".

In Vogler's model [Vogler, 1998], simple functions have to be fulfilled to get from one step to the next and each step is a clearly separated part of the story. The simple functionalities of scenes and their being autonomous within the story allow a story engine to automatically skip or add scenes according to the user's interactions. If, for instance, the user does not decide for the hero to overcome the first threshold, the story would have to skip to the scene in which a mentor appears in order to urge the hero, giving him strength or magical presents to overcome the threshold after all. If however the user decides for the hero to answer the call to adventure right away, without hesitating to overcome the first threshold, the mentor need not appear at all – his function has become redundant.

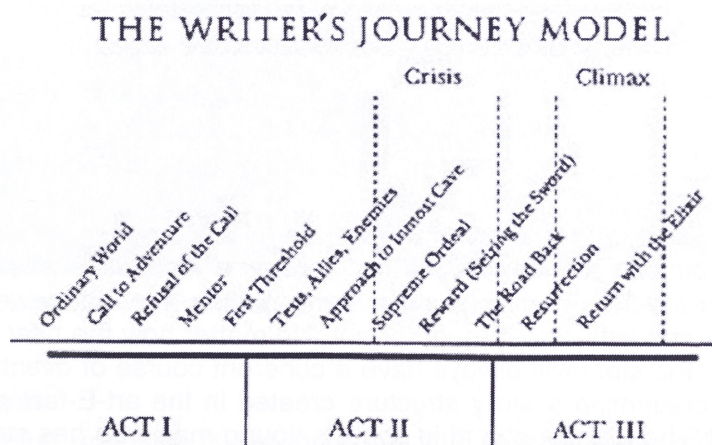


Fig. 1: The Hero's Journey

Similar to Vogler, the russian formalist Vladimir Propp, who analysed hundreds of russian fairy tales in order to extract/derive a common story model, used the approach to break down stories into a set of (morphologic) story functions [Propp, 1984]. In comparison, Vogler's model is less

complex and subsequently easier to implement into real digital applications from a technical point of view.

In a museum application (interactive story, chat-system, interactive tour, game-based rallye, etc.) there might not be a hero and an adventure in the traditional aspect, but there might be a virtual character (e.g. in the role of a tour guide) who needs to be coaxed to ask a professor (expert) certain questions or the visitor himself who needs a mentor-character to guide him along the first steps of the experience, giving him virtual tools which help him along the way. These are all just examples; many possibilities are imaginable at this point.

Although the Hero's Journey is primarily linear it could be possible to make the model non-linear: Most parts of the Journey can be left out or told twice and some parts are interchangeable. Vogler himself writes that the hero, if he loses the elixir, which he has purchased in the supreme ordeal, has to go back and go through the whole adventure again. Thus, there are possible loops and modifications which are very important for interactive story models

Nevertheless, not every step of the Journey can be left out or changed around. Much like supporting pillars of a building, certain scenes are vital for the structure of a story and for the sensible course of the events being told. Consider, for instance, the scene in which the elixir is gained is skipped in the story, but the story goes on telling how the hero returns home with the elixir. The arc of suspense would be lost and worse, the story simply wouldn't make sense. Therefore, a story model for interactive, non-linear stories can only work if some scenes or episodes are set without being interchangeable, while above these, other scenes are connected only loosely.

A story model exactly following this approach of loosely connected scenes and story elements represents the "String of Pearls" technique for sub linear narration, where a series of explorable worlds is interconnected [Hoffman et al., 2005]. This approach is also used in many computer games.

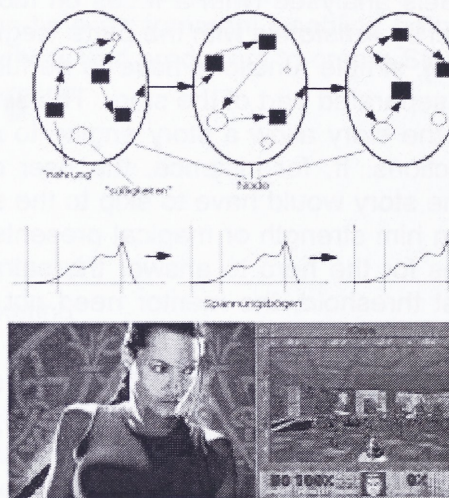


Fig. 2: The String-of-Pearls-Technique as used in Tomb Raider

This technique could be used in order to make the Hero's Journey meet the needs of Interactive Storytelling based edutainment applications. There are certain scenes which are linearly connected: The pearls which are lined up on a string. Within a 'pearl' however there are various scenes which the user can either go through or not. No matter how the user interacts and what he decides within a pearl, the story will always have a coherent course of events. An example for this provides the figure 3 presenting a story structure created in the art-E-fact project² by the ZGDV. The scenario is called 'The Big Coup' and is about a young man who has stolen paintings in order to be able to pay for his sick father's medicine. The user learns about this character during the story and in the end has to decide for him, whether he sells the paintings the way he had planned,

² art-E-fact: Generic Platform for the creation of interactive art experience in mixed reality (EU FP5, IST-2001 37924), <http://www.art-e-fact.org>.

or whether he should give the paintings back, because if he doesn't, the professor's daughter will never consider going out with him.

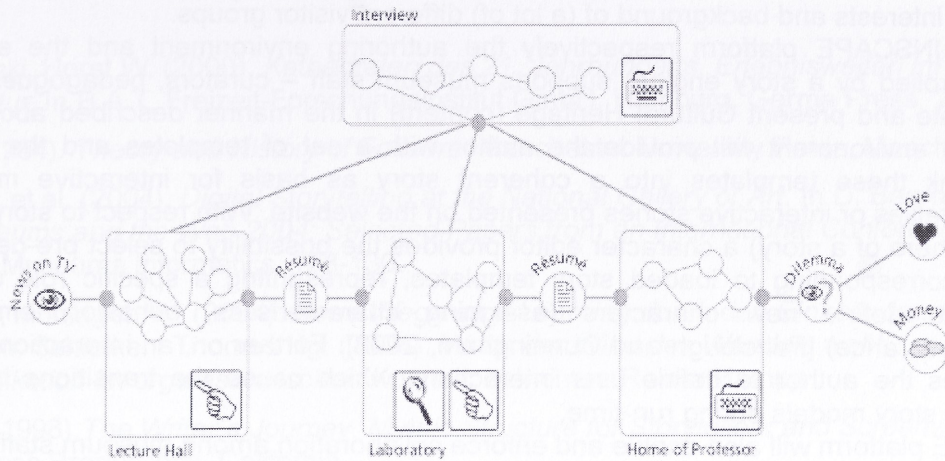


Fig. 3: The Big Coup Story Structure

This is a very simple scenario for which the String of Pearls technique can be used successfully. The Hero's Journey is slightly visible in The Big Coup: The elixir is the money, the Journey leads the hero to a Professor who finds out he has stolen the paintings: obstacles are in the way of gaining the elixir, thresholds need to be overcome. The Supreme Ordeal is the dilemma which the hero faces in the end.

The Big Coup as one of the implemented stories and scenarios of the art-e-fact project, aiming to provide culturally enriching, but also entertaining experiences to museum visitors through interactive installations related to the artworks [Iurgel, 2004] indicates the great potential of Interactive Storytelling approaches for museums. With pointing gestures, which can turn into virtual tools such as a torch, a magnifying glass or an x-ray tool, or with physical props, the user can discover paintings more closely, than ever before.

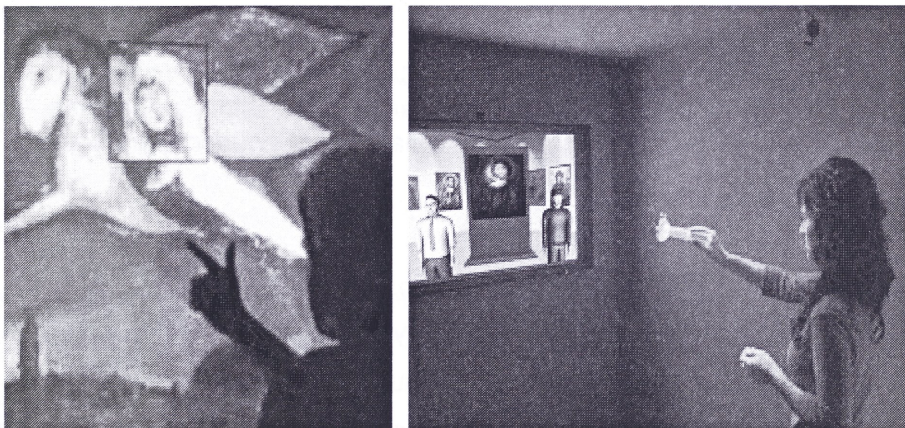


Fig. 4: Discovering Paintings with Virtual and Physical Tools in art-e-fact

INSCAPE for museums

In the era of the "digital age" the museum of the 21st century represents not only a place to preserve and access cultural heritage [Opaschowski, 2000], but also a constructive counterpart to the deluge of reproductive digital media provided on TV, computer games, daily newspapers or at school. However, especially young visitors compare museums with science centers or theme parks and expect technology enhanced methods and installations to explore history/CH or any phenomena.

Concerning the development of such applications there still exist several technical and practical obstacles: Museum staff has the need for content creation and 'adequate' presentation of cultural objects enhanced by digital media and 'appropriate' interaction metaphors and 'exciting' stories matching the interests and background of (a lot of) different visitor groups.

Hereby, the INSCAPE platform respectively the authoring environment and the experiencing system (controlled by a story engine) supports museum staff – curators, pedagogues, scientists etc. – to create and present Cultural Heritage (content) in the manner described above. Hereby, the authoring environment will provide the author with a set of templates and the appropriate means to link these templates into a coherent story as basis for interactive mixed reality installations, rallies or interactive stories presented on the website. With respect to story characters (such as the hero of a story) a character editor provides the possibility to select pre-defined virtual characters (corresponding to loaded story templates, representing a specific role of the story model) or to define new characters (assigning characteristics, behavior, emotions and geometry/appearance) [Fairclough and Cunningham, 2003]. Further on, an interaction and device editor enables the author to define user interactions which cause the transitions between the scenes of the story models during run-time.

The INSCAPE platform will also enable and enforce collaboration among museum staff and visitors such as teachers, pupils or any "enthusiast" in a specific museums domain/community (e.g. contemporary art or palaeontology/dinosaurs). [Göbel and Feix, 2005] provide methods and concepts for such a collaboration among the different groups of a domain-related community.

Summary and outlook

Currently a Storytelling based edutainment scenario in the form of an interactive installation and underlying story model is being conceptualised for the first INSCAPE prototype (alpha version) which will be available early 2006. Based on the experience and user feedback of that version, further research will be investigated to improve the overall system, the authoring and the story experiencing modules. At ZGDV, special emphasis will be put on story pacing and timing issues as well as on the improvement of ICML as INSCAPE Communication Markup Language for the communication among the different INSCAPE modules.

Acknowledgments

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