

# Getting off the straight and narrow: Exploiting non-linear, interactive narrative structures in digital stories for language teaching

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**Abstract.** Digital storytelling is already used extensively in language education. Web documentaries, particularly in terms of design and narrative structure, provide an extension of the digital storytelling concept, specifically in terms of increased interactivity. Using a model of interactive, non-linear storytelling, originally derived from computer game design, this presentation aims to illustrate how digital stories may be developed into more interactive experiences for learners. This paper will show an example of teacher-created digital story, which allows learners to choose and follow their own individualized paths through the story. Interactivity often means a more engaging, personalized experience for the user, but in terms of educational, instructional design, it also means such stories may become more adaptable to the specific needs, interests and abilities of the individual language learner. Ultimately, interactive narrative models can be used to create, it could be argued, more constructivist, active learning environments. Alongside, the potential benefits of such narrative designs in educational contexts, however, possible drawbacks in their use need to be addressed. Specifically, to what degree interactivity is actually exploited by a user, and to what degree interactive stories may actually increase the cognitive load a learner experiences, ultimately having a negative impact on their learning.

**Keywords:** web documentaries, interactive narratives, digital stories.

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## 1. Introduction

The growth and development of the web documentary is perhaps a result of the greater levels of interactivity it affords compared to more traditional forms of the genre. Such interactivity is in part achieved through the application of a variety of multimedia tools, such as video, audio, animation, graphics, and infographics, in the creation of these media. However, the interactive heart of the web documentary is most fully located in the distinctive, non-linear forms of narrative design that such documentaries often employ. Web documentaries may, for example, allow a user to choose particular routes through the story's architecture, or allow them to step to one side at particular moments in an otherwise linear narrative to investigate or learn more about a particular theme in the story, for example.

The link between the kinds of interactivity that multimedia can afford and effective pedagogy has been noted by [Kennedy and McNaught \(1997\)](#). Instructional design models for creating materials for learning which are sourced in a more constructivist model of knowledge development would situate the learner, their existing knowledge and mental models at the centre of their learning. The requirement of the multimedia courseware designer, from this pedagogical viewpoint, is in designing an adaptive, individualized learning environment which seeks to engage the student at their level of comprehension, and in which they may develop a personal perspective on content, while generating their own representations and hypotheses about content and language on their own terms ([Kennedy & McNaught, 1997](#)). The clear role that non-linear, interactive narrative design, in the form of digital stories or web documentaries, may play in delivering such an individualized, non-linear learning environment is immediately clear.

## 2. Interactive narrative design

### 2.1. Interactive narratives

The debt that web documentary narrative design owes to online gaming is noted by [Maurin \(2011\)](#). In an online course on game design, [Schreiber \(2009\)](#) provides a useful summary of available interactive narrative structures ([Appendix 1](#)), which, as [Maurin \(2011\)](#) shows, are also used extensively by web documentary makers. Each narrative type has its advantages and disadvantages, related, for example, to potential information overload, or design time and costs. However, each structure displays a relative level of interactivity, in which the user can, to different extents, shape content and decide the next stage in the development of the narrative.

## **2.2. A trip to Kyoto**

This paper demonstrates an example of a 15- minute interactive digital story called ‘A Trip to Kyoto’. The central story is on the theme of the value of travelling to a tourist destination out of season. The story is designed for use by advanced learners of English, largely because of lexical and grammatical complexity. As an interactive narrative model, the story uses a ‘Fishbone’ structure ([Appendix 1](#)). This structure was chosen because it tends to avoid issues of potential loss of storyline coherence, which is a possibility with more complex interactive narrative forms. There are losses, however, relatively speaking, in terms of the level of interactivity the story can offer. The software used to make the basic digital story was ‘iMovie’, while the software used to create the interactive story as a whole was ‘Klynt’, which has been created specifically for developing interactive digital stories.

## **2.3. A trip to Kyoto: specific features**

The story is divided into six ‘chapters’ which are linear when played from start to finish; however, via the index feature of the software, the learner can listen to the chapters out of order. There is also information on the index informing the user which chapters they have already seen. Each chapter gives the learner the choice, via on-screen interactive buttons, to access help in understanding the voiceover, should they require it. Specifically, the learner can open a glossary of potential problem words contained in the voiceover of that chapter, and also read the script of the voiceover. Moreover, the learner can access a listening quiz for each chapter in the form of a ‘Hot Potatoes’ activity in order to check their comprehension of the voiceover. Each chapter also offers the user the chance to access a ‘language tip’, isolating an element of the voiceover for grammatical analysis and explication. This is done not only to help the learner understand that element of the voiceover, but these features are also designed to encourage the learner to reconsider their existing understanding of particular grammar points, as well as think about and develop their own productive language use. Thus, for example, a learner’s attention is drawn to slightly more complex examples of conditional structures featured in the voiceover. In addition, the user is able at the end of each ‘chapter’ to open sequences containing further cultural content which may address conceptual difficulties related to intercultural difference, or else give background information on cultural themes in the voiceover. Help features are offered in two different ways, textually, but also with video. Each interactive button is colour-coded in terms of the kind of information or activity (e.g. grammatical information, quiz, etc.) it offers, with a ‘key’ tutorial provided at the start of the story.

## **2.4. A trip to Kyoto: interactive narratives and pedagogical effectiveness**

By employing an interactive narrative design, the digital story, 'A Trip to Kyoto', potentially offers, then, a learning environment in which the user/learner may move through the material in a relatively autonomous manner, based on the choices they make about what extra material or support to access. This structure also makes the content adaptable to the level of comprehension of the language learner: glossaries can be consulted, a script can be opened, and information on language and culture can be viewed, if the user requires it.

Furthermore, such a narrative design affords the user the ability to pause within the flow of the story, in order to investigate grammatical points or cultural themes contained therein, accessing material which may be designed to challenge existing conceptual models the learner may have. As [Maurin \(2011\)](#) shows, however, in a brief summary of the disadvantages of the various interactive narrative models, a story based on the 'Fishbone' design, which this digital story employs, faces the question of how much the extra material provided is either useful, or actually viewed by the user.

Moreover, a concern with interactive digital stories generally is whether additional material can contribute to cognitive overload, which may negatively affect the immersive quality of the experience, affecting the users' concentration and even their willingness to complete the story.

Two research questions are suggested: 1) to what degree do users access material or complete activities while viewing the interactive digital story used in this project, and 2) does such material actually negatively affect the user in terms of cognitive load, and thus their ability to comprehend the story?

## **3. Method**

Having identified these two research questions, at the time of writing, small scale research is being carried out to provide relevant data. In a small series of studies, a language student is provided with access to the story via a website<sup>2</sup> to which the digital story had been uploaded. While the learner views the story, their on-screen behavior is recorded using screen capture software. The video is then viewed by the researcher, and the number of times additional information is accessed, what

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2. <http://clockworkstar.com/kyoto/index.html#Home>

kind of information, whether activities are opened and completed, is recorded. Moreover, a post-task questionnaire is administered to the user to gather their subjective opinions on the usefulness of the additional material, its potential for distraction, and whether they feel the interactivity of the story lead to a greater sense of control and autonomy in the user.

#### **4. Discussion**

Data so far suggests that learners may need more than one view of a story in order to more fully avail themselves of help features and extra informational content. Indeed, a user may access these features as much as five times as often on a second viewing, compared to a first viewing. Moreover, support for listening, according to results so far, tends to be called upon a great deal more than either grammatical or cultural information. Finally, data gathered from the post-task questionnaire to date suggests a learner does not feel cognitively over-burdened with information, and this may be linked to positive views, again as reported in the questionnaire, on how far the user feels in control of their navigation of the story/program, linked to its interactive design.

#### **5. Conclusions**

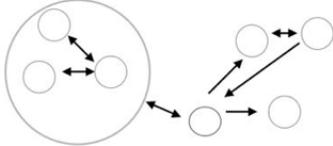
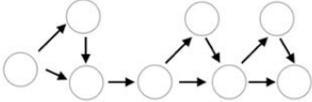
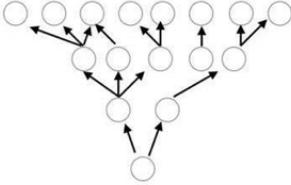
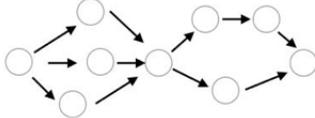
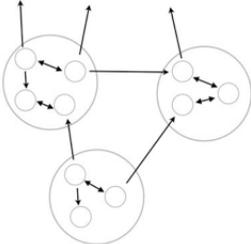
Interactive digital stories are still relatively new, and just as interactive narrative design is still in the process of definition, as Maurin (2012) points out, so are the habits of the user. Introducing such media into language learning brings its own particular benefits, but also concerns. While interactive media may afford more student-centered, autonomous and even constructive learning environments, continued research needs to be done as to how much a learner/user does or is even able to afford themselves of these opportunities. With an interactive digital story, one cannot assume all users are at the same level of interactive literacy, or able to deal with the additional cognitive load it can bring.

#### **References**

- Kennedy, D., & McNaught, C. (1997). Design elements in interactive multimedia. *Australian Journal of Educational Technology*, 13(1), 1-22. Retrieved from <http://ascilite.org.au/ajet/ajet13/kennedy.html>
- Maurin, F. (2011). Freedom and engagement in interactive narratives. *The Pixel Hunt*. Retrieved from: <http://florentmaurin.com/?p=174>
- Maurin, F. (2012). How to help your audience go with the flow. *The Pixel Hunt*. Retrieved from <http://florentmaurin.com/?p=316>

Schreiber, I. (2009). *Game design concepts: An experiment in game design concepts* [web blog]. Retrieved from: <http://gamedesignconcepts.wordpress.com>

## Appendix 1. Interactive narrative structures (Schreiber, 2009<sup>3</sup>)

<p><b>Concentric Narrative:</b> The user is given a central 'hub', such as a menu or map, and moves out to different parts of the story, often returning to the 'hub' after each 'turn'. Larger elements may be sub-divided.</p>	
<p><b>Fishbone Narrative:</b> A linear story is provided, but at certain points a digression is offered the user, such as a sub-story or bonus material. The user returns to the main storyline once they have viewed the extra material.</p>	
<p><b>Branching Narrative:</b> At certain points of the story, the user is offered a choice about what to do or see next. Multiple possible story endings are possible.</p>	
<p><b>Parallel Narrative:</b> A simplified version of a branching narrative. Users have a number of possible paths, but all users must visit certain 'nodes', retaining the coherence of the central story.</p>	
<p><b>Dynamic Object-Orientated Narrative:</b> A series of mini-stories, with multiple exit and entry points. 'Chapters' need not be read in strict order, but can be ordered by the user.</p>	

3. Published under a CC-BY licence, retrieved from <http://gamedesignconcepts.wordpress.com/2009/07/>