

Enhancing the Ability of Creative Expression and Intercultural Understanding through Visual Story

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Abstract. In our web-based platform “*Wayang* Authoring” children with different cultural backgrounds can create and share stories, and make experiences in culturally different storytelling. The idea of *Wayang* Authoring is based on the Indonesian ancient art form *Wayang*. The research question focuses on if and how the design of our system can support children to enhance understanding of story grammar, creative storytelling and self-expression as well as help to share cultural diversity. In this article the *Wayang* Authoring platform and its background is presented.

Keywords: *wayang*, storytelling, story grammar, authoring tool, web-based application.

1 Introduction

Throughout the world puppet show is a popular form of entertainment. Sometimes it is an ancient heritage, a reminder of an age long past; sometimes a medium for contemporary artist’s experiments with shape, color and movement. For centuries it has been used to relate myth and legend and enact simple traditional farces. Now, as well as undergoing a tremendous revival as entertainment for both adults and children, it is becoming more and more widely used in education and also in therapy.

In our project *Wayang* Authoring we want to use the web to revive traditional storytelling with puppets. We aim at educational use of virtual storytelling. Sharing an interesting and challenging application and practicing intercultural exchange young people all around the world can gain media literacy. We want to enable children to express themselves in creating own stories and to share them with others.

Virtual worlds cannot substitute the rich experience of performing with real puppets and a face-to-face audience. But we want to ponder the potentials of Web design and usage for the field. New possibilities may arise from a worldwide availability and from intercultural exchange of local knowledge on storytelling. Web software can alleviate own construction and design activities. The popularity of client-side scripting allows extended functionality and new kind of interactivity in web applications. The Web offers amazing communication and cooperation possibilities all over the world, especially with the rise of social networking sites and the semantic web.

The idea of *Wayang* Authoring is based on the Indonesian ancient art form *Wayang*. We will explain more about it in the third and fourth chapter. *Wayang* as a traditional art form offers a space and power to be explored. The second chapter will portray about the field of storytelling and story grammar. In our project that is described in the sixth chapter we combine the tradition of *Wayang* story telling with digital media in order to create a new type of performance possibility without obstructing the role of the original art itself. *Wayang* Authoring is designed as a multimedia web-based application for children to create stories and to build a virtual community of storytellers. At the end we will refer to Jenkins notion of media literacy in order to reflect on how these competences could be encountered by *Wayang* Authoring. We estimate the understanding of audio-visual codes become a major literacy factor in a media defined society because it changes the way to read and write.

2 Storytelling and Story Grammar

Storytelling is an ancient art form where experiences, events and actions are conveyed in words, images and sounds. This art form is traditionally an oral performance with an interactive relation between storyteller and audience. The storyteller uses often a set of incidents or fragments of plots that are mixed and composed in an improvised manner [1].

Storytelling and the development of media influenced each another alternately, and each new media established a new kind of storytelling. With Digital Media as a major media nowadays several new kinds of storytelling are created, such as text adventure, interactive fiction, role-plays and games with story elements. In an interactive story the user becomes the protagonist (the main and active character of a story) travelling through a universe of possibilities [2].

The process of story creation follows typically certain rules. In order to analyze the structure of stories it is possible to divide a story into small units. By several rearrangements it becomes obvious that only some arrangements of those units are acceptable as a story. Some narratologists like Gerald Prince developed formal models of narration according to detected patterns and roles [3]. According to Gerald Prince the content unit of stories is the event. The 'stative event' of an agent (a character) describes a situation or status of mind, for example "Robert is happy". The active event expresses an activity, a movement, an action of an agent or a change, for example "Robert reads a book". With this unit it is possible to detect causalities, to analyze chains of actions and to comprehend reasons of an agent. Even though *Wayang* Authoring is meant to support the intuitive handling of the grammar of a story, some basic aspects of the Gerald Prince's model and David Herman's approach [4] inspired our concept. The tool enables starting with the creation of several story units that later can be combined and rearranged.

3 A Living Shadow Theater Tradition

Puppets are shadow, hands, dolls, figures and figurines. *Wayang* is the general word to many kinds of traditional theatre in Java, Bali, and some other parts of Indonesia

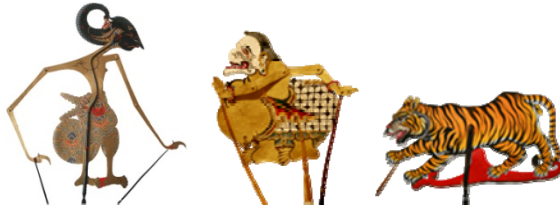


Fig. 1. Example of *wayang* puppets

and Southeast Asia, both puppet theatre and actor's theatre. *Wayang* is an ancient form of storytelling that originated from the Indonesian island of Java. Communities that enliven the *wayang* tradition exist meanwhile all around the world.

Wayang kulit consists of two words, *wayang* and *kulit*. *Wayang* is a Javanese word meaning shadow or ghost, *kulit* means leather, and added together it can be translated as 'shadow from leather'. The *wayang kulit* is a two-dimensional puppet, made of buffalo or goat leather; like paper dolls, but with arms that swivel (see Figure 1). A *wayang kulit* puppet is a representation of mainly human characters and the physical world. Every part of the puppets' design has symbolic significance.

The rich visual tradition of Javanese shadow theatre adapted a huge range of archetypal images. Often the visual appearance is an abstraction of a human characteristic, a specific emotion or behavior. The shadow enhances the evocative character [5],[6]. The figures become alive. The psychologist Fritz Heler created an animation movie, where abstract shapes like triangles and dots become actors. The audience gives those shapes intentions, wishes and personality. Heler suggests that the ability to create and understand stories is a human ability that helps us to get orientation in the social world and to understand others. Stories are fields for experiments, to try out relations and to develop empathy [7].

4 Story Structure in *Wayang* Tradition

Like in other theatrical traditions the dramatic narration consists of characters, situations, contexts, locations and time. The stage for the puppets is the empty blank screen, which is on one hand undetermined by any situation, context, and time but on the other hand is the possibility for every possible imagination of the world. The puppets carry the context and establish a situation in space and time as soon as it appears on the screen.

Pictorial moments in the performance are moments or segments during which the puppets are stuck in a banana trunk, and either not moved at all, or only their arms are moved as 'they' speak. At this moment the visual movement stops and the screen becomes like a picture and the puppeteer begins the dialog. When the dialog is over the puppeteer may take the puppets from the position and start to move immediately.

This interplay of movements and visual-oral dialog is one of the narrative techniques of *wayang* that is extended by a technique, which Jan Mrázek called *wayang-montage*. The partial representation of a movement for example does not only make this impression of a continuing movement, but rather what happens mentally in between the shown parts [8].

If we pin down the structure of a *wayang* performance we could differentiate it also like Gerald Prince in units of ‘events active’, such as movements and units of ‘events stative’ or when the situation change to a pictorial mode. In this pictorial mode dialogs are acted out which are also ‘event active’. The specific character of *wayang* seems to be the combination of visual language, dialog and a language of movements. These movements are represented in partial representations that seem to be similar to montage in movies. The aesthetic category of the decision to show a partial aspect is ‘what needs to be seen’. This category is also used by the visual construction of puppets and also the wholeness of a character can be comprehended as a combination of its several appearances that are performed during the narration.

5 Related Works

Technology offers an opportunity to support and facilitate collaboration in many respects [9]. YouTube [10] and Flickr [11] are well known platforms for sharing content; videos and pictures respectively. In these systems users can share contents and find inspirational ideas by looking at other user’s creations. However, these are not platforms that support the creation of content. Users need other tools to produce pictures or videos. And also none of them addresses children as a special target group.

Animation tools like Flash [12] are popular and very good tools to make designs, animations, and user interfaces across all browsers and platforms. But this tool is too complex for children to create an animation.

TellStory is a web application system that supports collaborative construction of stories [13], but this application supports only text based story. KidPad is a collaborative visual based story authoring tool for children. KidPad provides drawing, typing and hyperlinking in a large two-dimensional zoomable screenspace. By these functionalities children can create stories by scenes and link them together in a virtual space [14]. However, TellStory and KidPad do not support the aspect of story grammars.

6 Wayang Authoring

Building *Wayang* Authoring we learned from existing approaches and decided to use digital media and the Web not only to support children to create visual stories either individually or collaboratively with others, but at the same time helping children to understand ‘the grammar of stories’ in general and in a specific culture by composing and arranging stories according to a story line.

6.1 Wayang Authoring as a Visual Story Tool

Wayang Authoring is designed as a tool to compose a visual based story than a text based story because visual element is especially important for young children, who often think in iconic, visual forms, as well as for poor readers who rely more on visualization of thoughts to scaffold memory skills [15].

In cooperation with drama teachers we got indication that the *wayang* images in *Wayang* Authoring can support children for allowing themselves to enter the imagination. The aesthetic power of images foster children to get involved in this play and the pictures get a live. Like a picture book in drama education can be used to create an own story, our tool can be used to explore the world of a story and to prepare for the play-making with the physical puppets with a processing storyboard. The design of the shapes and the need to choose an emotional style for the acting picture limits the repertoire of fixed dramatic solutions to the substance and fosters concentration that is often dispersed by every day (multi)media. The handling of cultural artifacts support the ability to understand different cultural codes and we hope that it supports also the curiosity to learn more about the culture behind these artifacts. This can enhance intercultural empathy.

6.2 Elements of the Prototype

Wayang Authoring is composed of three elements: the imagination building element, the creative working element and the social interaction element (see Figure 2.). At first element children can get an idea or an inspiration from the tutorial or from stories that already exist, are stored and shared by other users. The second element enables a child as a member of the *Wayang* Authoring community can compose a story, save, replay and perform it. Then in the third element they can share stories, give comments and rank other children's stories. This process is supporting children to get friends and to connect with friends in the context of the social network.

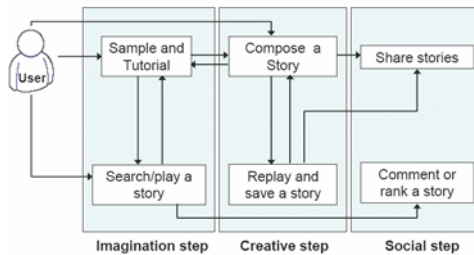


Fig. 2. Basic elements of *Wayang* Authoring

6.3 Tool Features

The main features of *Wayang* Authoring are:

1. **Composing a story.** This feature is the main function of this tool. The user composes a story by clicking and dragging objects, moving it and assigning some properties to the object. A story can be recorded and replayed. Dialog boxes (text) can be added to the story to make the story more attractive. The web-based GUI of this “composing a story” is shown in Figure 3.
2. **Playing a story.** The user can play a story by choosing it from a list of stories. Color and black/white can be selected when a story is played.



Fig. 3. Screenshot of Wayang Authoring’s prototype

3. **Rearrange story’s sequence.** A story can be composed from some units of small story. This functionality enables children to compose a story from others story and rearrange the sequence to get the different meaning of the whole story.
4. **Sharing a story.** This feature enables the users to share their stories or to decide not to share.
5. **Rating and commenting.** Users can rate a story and comment a story.
6. **Grouping.** This tool is supposed to create groups of stories based on the main actor of the story. Each user can become involved in several groups.

6.4 How the User Can Define Movements

The web-based GUI for composing a story allows for recording the movements of objects. The user can define the movement of an object using the dragging capability of that object. Direction and speed of the movement are automatically recorded, so that the user can record all movements very easily without defining a time line. A start/end point of the object’s movement can be fixed. An object can be flipped using a context-menu.

6.5 Individual and Collaborative Stories

In *Wayang Authoring* user can create an individual but also a collaborative story. The tool “individual and collaborative stories” enables to combine different individual, maybe partial stories (that are in the “shared” modus) to one whole story. The user can also change the sequence of a story to get a different meaning out of the story. By this way, the children can learn about ‘story grammar’. Story grammar as a topic of education fosters the ability to detect a meaning by reading. This function is illustrated in Figure 4.

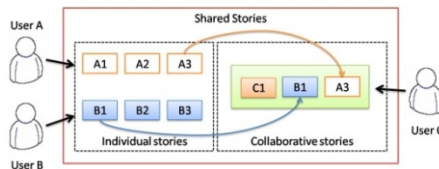


Fig. 4. Individual and collaborative stories

We refer to Jan Mrázek that by ordering the partial representation should be related together so that an action or a story can be built up – for the creator knows what is important to know and how things fit together. Children will learn to produce and understand causal and temporal structured plots that are organized around a variety of themes and involve certain character. Besides that, they also develop the necessary skills to recognize when a plot makes sense or not

6.6 Organizing Story in a Visual Symbolic Way

We consider implementing a functionality to show or play a story using symbols and story lines. Position or distance between actors can be identified from the story line. Each actor will be symbolized as a color line. Activities of the actors, such as dialog, flipping, changing mood, etc, are showed using small symbols.

This functionality is showed on the Figure 5. At this story an elephant comes to the stage in a happy mood, indicated by green circle. But a tiger then appears in a bad condition, indicated by black circle. The tiger and the elephant start a dialog, symbolized by bubble symbol. A triangle symbol is indicated that the actors turned back (flip) from the current position. At the end the tiger becomes happy; the black circle on the red line is changed to be a green circle and then he is rolling down, symbolized by a circular arrow.

We believe this story line model will help children to enhance imagination and creativity because to symbolize is an act of construction and a very important act of thinking. Language and script are the basic symbol set of our culture. In order to progress in mental processes the subjects are supposed to translate experiences into symbolic representations. Symbolization is in this view the basic of invention and creation of ideas. Symbols are not only surrogates of the objects of this world; they are also a vehicle that helps to picture and understand the real objects.

Helping children’s symbolic imagination development and making available a place to exercise it, narrative activities in general and storytelling in particular, prepare the way for abstract thought development and deeper mental processes [16].

This is related with *wayang* tradition, as a living traditional art form hold on a set of symbolic shapes that can be used as a medium to express one self and to evoke fantasy and imagery, to communicate with the own inner world and with others.

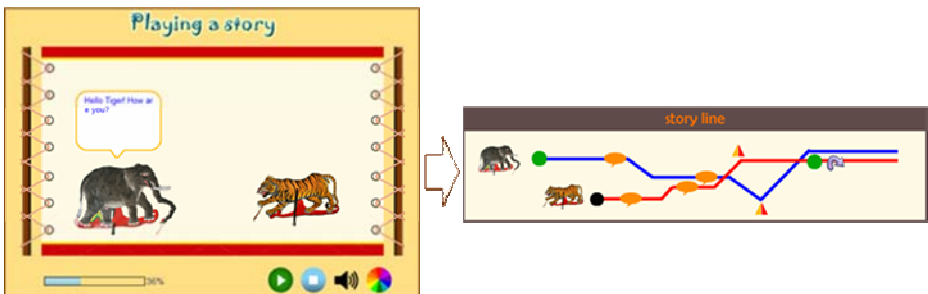


Fig. 5. A Story in a visual symbolic presentation

7 Discussion and Evaluation

Wayang Authoring is designed as a web-based authoring tool for visualizing storytelling with *wayang* figures via Internet. As it is interactive, users who author the stories can specify the behavior of each object. *Wayang* Authoring is also a choice to create a community and a social network of *wayang* storytellers to share and to exchange their stories.

According to Henry Jenkins paper which he published with the Mc Arthur Foundation in 2005 more than one-half of all teens in the US have created media content, and roughly one third of teens that use the Internet have shared content they produced. He summarized that (and other) trends under the term “participatory culture” that should become the center of modern media education [17].

Wayang Authoring in its concept is supposed to serve three kinds of requirements described by Henry Jenkins supporting the emergence of a “participatory culture” [17]:

1. **Affiliation** - through creating a user profile and joining a group centered on its favorite character.
2. **Expression** - through creating a new story with the authoring tool.
3. **Collaboration** - through rating and commenting other children’s stories. Also through rearranging or recomposing a story list.

If these objectives among the others can be realized by children enacting with *Wayang* Authoring will be the subject of empirical research we want to conduct in future.

In our tool the movable pictures of the *wayang* tradition provide a context for the expression of feelings and ideas. Using these images to create own stories children of diverse cultural background can adapt aesthetic ideas not only of the Indonesian culture. The structures that afford to build stories by small units enable them to explore, clarify and transform the feelings and ideas also by reflection.

We conducted a first workshop with eight children with different cultural background at the International School Bremen. This workshop has been focused on usability and functionality of the prototype. We collected feedbacks from the participants regarding their opinion about the prototype.

Most of them had no difficulties to use the prototype without guidance. They enjoyed using this tool and could compose a story, playing and sharing it.

On a second workshop we focused on the story grammar. We gave the kids four parts of a story to be arranged. They discussed and arranged some logic sequences of that story reasonably. Some of them added a bridging part that enables to create either a story with a completely different meaning or in an order that was not reasonable before. It seems that they followed an unconscious comprehension of story grammar that enables them to arrange or complete unconnected parts of a story according narrative logic.

In the last step we asked them to create a story by our tool. They all succeeded to create a story, although some of them had an uneasiness to split a story into some small units during composing a story. They preferred to compose one story as a whole instead of arranging it from some small units. The challenge would be to make the grammar of stories more explicit and to support the playful and improvisational character of the story creation of *Wayang* Authoring.

By two testing stages we observed that children were fascinated by the aesthetic of the Indonesian art form implemented in this software. Two of the children felt motivated to tell spontaneously about their own cultural background. During a longer term school project about Indonesian shadow theatre a student got the chance to perform several small testing observed by a literature and drama teacher. The teacher stated that the visual appearance and the implemented work flow were first uncommon but easy to handle for most of the children. But this not accustomed work flow and appearance evoke a greater curiosity just to try and play unrestricted. The implemented workflow especially is not too complex but support them to perform or play with the tool with suspense. The imagination seems to be more stimulated. Some participants created small stories with only one or two figures and they seem to be identified with them. According to the drama teacher it looks like that this tool supports to re-enact social conflicts in a save atmosphere and to tryout creative solutions. Additionally the teacher told that she noticed that some children with poor language skills speak meanwhile the use the tool. Often it seemed that in this context their language is better.

Beside the main story creation stage this tool offers also a stage where all participants of the community are visualized on a globe. We will evaluate this feature in the next testing stage. Initially we show this stage to two children. They seem to understand this feature by "oh now we can see our friends on the globe". We hope that the visualization support curiosity to try to communicate with children from other cultures, and that the focus on visual story telling ease to do this.

8 Summary and Future Work

In summary, we propose a new approach to design story authoring that is intended to enhance children's ability to tell stories and to express themselves as well as help to share cultural diversity. This media concept is in accordance with main aspects of the ancient art form of *wayang* and combines the world of digital media activities with a traditional art context. We want to explore further that the visual and kinesthetic approach of giving the children a basic idea of story grammar can enhance the ability of creative expression. We believe and are determined to explore further how *Wayang* Authoring can contribute to intercultural communication, social knowledge, media literacy, empowerment and contribution in a participatory culture.

We will conduct other workshop to observe the participants, whether they really engage in composing a story using this prototype, whether they use the online community feature, and pay attention to other users by commenting or ranking a story.

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