**Wayang Authoring -**  
**A Tool to Enhance Children’s Creative Imagination and Self-Expression**

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**Abstract**

In our web-based platform “Wayang Authoring” children with different cultural background can share stories and make experiences in culturally different storytelling. The research question focuses on whether and by which design our system can enhance creative imagination and self-expression as well as helps to share cultural diversity. The idea of Wayang Authoring is based on the Indonesian ancient art form Wayang. A wayang puppet is a two-dimensional movable archetypical image that is a representation of mental power and physical world. In Wayang Authoring children are able to compose a story by using digital puppets, save, and share it. This interactive tool also enables children to reload the story and play it again. Furthermore, the story can be modified or extended by other children. In a small window for each character a story line as a map is created to show enough dynamic movements of the performance.

**Keywords:** wayang, Wayang Authoring, dual-coding theory, imagination

1. **Introduction**

Throughout the world puppet show is a popular 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.

Involvement in puppetry, which encourages children to give their imagination free rein, to enact and come to terms with experiences of everyday life, may help considerably towards their satisfactory emotional and social development.

The idea of Wayang Authoring is based on the Indonesian ancient art form Wayang. A wayang puppet is a two-dimensional movable archetypical image that is a representation of mental power and physical world.
The function of wayang can be compared to a picture book. In particular, the pictures structure an uncertain confusingly complex world for children. Moreover, wayang is a puppet show, which represents a base for role-plays. The Wayang Authoring enables children to adopt many distinct characters and to act out moods, conflicts, and imaginative fiction in a safe environment. The interactive functions of Wayang Authoring connect the world of gaming with traditional art of wayang and enhance imaginary and creativity power of the children. And even more: Allan Paivo comes to the conclusion that there is a close relation between imagination and the ability of thinking.

2. **Wayang Kulit**

*Wayang Kulit* is one of traditional art from Indonesia. Wayang is an ancient form of story telling originated on the Indonesian island of Java. Over the centuries its religious character has increasingly developed into a distinct art form; foreign influences introduced new stories, characters were added, and new refined styles were developed at the courts.

UNESCO proclaimed the Wayang Puppet Theatre as a Masterpiece of Oral and Intangible Heritage of Humanity on 7th November 2003.

*Wayang Kulit* consists of two words, *Wayang* and *Kulit*. *Wayang* is a Javanese word meaning shadow or ghost, *kulit* means leather, and added together ‘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. A *wayang kulit* puppet is a representation of mainly human characters and the physical world. Every part of a puppet's design has symbolic significance. Different shaped eyes and noses denote such qualities as nobility, patience, crudeness, steadfastness, strength, loyalty, clownishness or wisdom.

The performances of *Wayang Kulit* are held for religious occasions, purification ceremonies, or when some transitional event occurs within the life of people. The puppets are stored in line, on a banana tree trunk, which is behind the white screen and in front of the puppeteer. The puppets symbolize the original entities or the celestial archetypes whereas the white screen represents the World. The puppeteer is called the *dalang*. The *dalang* manipulates the puppets, sings and taps out signals to the traditional orchestra. He also speaks the parts for all characters; he must be able to render the shy sweetness in the voice of a princess, the spiteful whine of a lackey and the righteous but controlled anger of a noble hero. An orchestra, consisting of gongs, drums and tuned percussion instruments, accompanies the action - it is known as a *gamelan*. 
3. Related Work

Storytelling is a communication means and an expressive art form in words, images, and sounds, which has been employed since the beginnings of humankind. At the beginning, storytellers tell a story by word (speech), gesture and expression. The technological development has changed the media that are used by storytellers. Media have changed from printing media to digital media. Digital storytelling is combining the art of telling stories with a mixture of digital graphics, text, recorded audio narration, video and music to present information on a specific topic.

Stories have probably been shared in every culture and in every land as a means of entertainment, education, preservation of culture and to instill knowledge, values and morals. Important elements of storytelling include plot and characters, as well as the narrative point of view.

A story can be created by an individual or by a group. The members of a group - distributed or in the same place - collaborate on the creation of a story, which may be done synchronously or asynchronously using different media. This collaborative storytelling has the capacity to build social interaction and to facilitate communication among the members of a community. In the following we refer shortly to some examples of digital storytelling.

TellStory is a web application system that supports the collaborative construction of stories. One of the most important issues of TellStory consists in the user's possibility to use a template in order to address the elaboration of the story through the typical characteristics of a narrative structure.

KidPad is a collaborative story authoring tool for children. KidPad provides drawing, typing and hyperlinking capabilities in a large two-dimensional zoomable space. By these functionalities children can create stories by scenes and link them together in a virtual space. KidPad supports multiple users through the use of multiple mice. Collaborative storytelling helps children develop interpersonal and story-related skills. KidPad only supports collaborative storytelling within one computer but not in computer networks.

KidStory proposes to build systems that support collaborative learning which itself may underpin the development of storytelling and visualization skills along with the development of multiple forms of literacy.

Technology offers an opportunity to support and facilitate collaboration in many respects. Today’s technology is designed to support either one individual at one computer, or one individual collaborating with another individual at a different computer using internet technology.
4. Storytelling and Imagination

The Indian American novelist Siddhart Dhanvant Shanghvi mentioned in a talk the preconditions, which made him a writer and storyteller: It was his grandfather, a Jungian psychoanalyst, who asked him to speak about his dreams. This brought clearness and structure in the chaotic world of his imaginations.

Speaking about mental images can enhance imagination. But how can the process of story creation support the ability of imagination?

Allan Paivio focused his work on imagination and language. With his dual-coding theory he described how we store and remember information. The results of Paivio’s research supports his hypothesis that verbal information is processed differently than visual information. Depending on the context, the access of both of these channels is needed for mental processes.

For Paivio mental images are analogue codes and represent the physical stimuli we observe in our environment. The verbal representations of words are symbolic codes and these arbitrary symbols represent concepts related to the context of use. The media pedagogue Franz Josef Röll invented a method how to use media in pedagogical contexts. The base of his concept are imagination, symbols and verbal expression. In his book he discussed some main results of the research of Susanne Langer and Alfred Lorenzer. In the following we recapitulate shortly the main ideas.

Symbolic images and by imagination created pictures are focal point for a quest of identity. It makes invisible things comprehensible by a visible sign. Our verbal language deals with semantically arranged constellations of meanings. Through pictures we endow meaning and comprehend our world.

Franz Joseph Röll develops in his book a specific view on the mental process of image creation. Imagination means two actions: first it comes from imagio what is in his understanding related to presentation. Secondly it comes as well from imitor what stands for mimic acts. 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. Firstly, there is a process that might be described as a process of communication with ones own mental processes and secondly there are also processes of communication with other humans.

Culture educed several art forms for symbolic condensations such as theatre, fine arts, myth, and fairy stories. Wayang 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. The associations that are stimulated by the wayang shapes are extended when a constellation of shapes is used. This constellation of shapes motivates and attends emotions in the process of story creation and story telling.

The wayang puppet presents an imagination. Their shapes themselves are on one hand a symbol and on the other hand they have a rich visual and sensual appearance that tells already a story. Those symbolic figures might evoke imagination and associations for stories. Notwithstanding wayang puppets have a complex and ornamental appearance giving a lot of space for ones own imagination. Not all parts of a figure are completely visual fixed. The interplay of decoration and abstraction generate this space. This interplay between perfect composition and perfect visual design on one hand and indetermination on the other hand will be extended by the possibilities and perfection of digital media. Virtual wayang puppets may encourage to use digital media in a more active mode by communication and symbolization. In order to use the symbolic shapes of wayang, more activity and emphasis is demanded.

5. **Prototype**

Authoring tools can be roughly categorized into five basic programming approaches: script-based, card-based, icon-based, timeline-based and object-based. Wayang Authoring tool treat the application as a collection of objects. Children choose some objects and define properties of these objects.

![Figure 1. Basic elements of Wayang Authoring](image)

Wayang Authoring is composed of three elements: imagination building element, creative working element and social interaction element (see Figure 1.). Children can get an idea or an inspiration from the tutorial or from other stories that are built and shared by other users. They can also
give comments and rank other children’s stories. A child as a member of this system can compose a story, save and share it. This process will support children to get friends and to connect with friends in the context of the social network. A story is composed by using an interactive, a simple and an easy tool.

Figure 2. Screenshot of the Wayang Authoring’s Prototype

6. Discussion

According to Jenkins paper which he published with the Mc Arthur Foundation from 2005 more than one-half of all teens have created media content, and roughly one third of teens that use the Internet have shared content they produced. He summarized that trend under the term participatory culture.

The Wayang Authoring tool serves all three forms of a participatory culture described by Jenkins:

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.

As the software would mainly attract the attention from younger children age 6-11, the social software tool does not need to have too many functions in order not to become confusing and taking away attention from being creative.

Social software can usually be broken down in 7 pieces: identity, presence, relationships, conversations, groups, reputation, and sharing. Wayang Authoring focuses on 5 functions:

1. **Identity** - is necessary. Children login to the application by a user profile. They identify were they are from, they add a picture and their age.
2. **Conversation** - would be provided by the possibility of commenting on each others stories on a wall.

3. **Groups** - are established through the main character of the story. We assume that similar to comic heroes children will have favorites and are eager to see what others have created with the same character and they can exchange about that.

4. **Reputation** - would be either a rating system on the quality and entertainment value of stories or stating the activeness within the system.

5. **Sharing** - can be organized over a map that places icons of the main featured character of the story on the home location of a child. That way the children can search either according to character or location.

When children create a story themselves and share the knowledge through the stories, children learn through friendly environment and develop their knowledge them self and also share it with others. So *Wayang* Authoring aims at media pedagogy in a way.

The shared stories of a child enrich the imagination of another child through his culturally new images. In order to edit a shared story the children interact with these new images and assimilate them as well. This is a process of imitation of unknown images, which enhances the capacity of imagination.

7. **Summary and Future Work**

In summary, we propose a new approach to design story authoring that is intended to enhance children’s imagination and self-expression. The traditional art form *wayang* is full of visual characters and symbolic images. During a performance the imagination of the audience is requested by the story and the performed images. *Wayang* Authoring combines the world of computer games with this traditional art context.

Future work will involve children from diverse cultural background to evaluate this system, focusing on whether our system enhances creative imagination, self-expression, and intercultural understanding.

**References**


