A USABILITY OF GRAPHIC DESIGN WITH LOCAL CONTENT IN THE INTERACTIVE MULTIMEDIA DESIGN FOR INDONESIAN STORYTELLING

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ABSTRACT

As the computer becomes a trend, interactive multimedia design can be one media to communicate the cultural knowledge. A folktale can be one of the powerful materials to show a country’s culture. The folktale content can be understood effectively by implementing some cultural information background. The main aim of using the local content is to give a vision of the richness culture through graphic design in interactive multimedia technology. By implementing local graphic design based on the cultural background, user can have different feeling about the graphic style and the Indonesian richness culture. This method can also help the user to understand the interactive multimedia content easily. Finally, graphic design with local content is very effective for a transferring the richness culture. In order to make a good interactive multimedia design content based on a cultural background, a designer should need to understand about users, culture, technology and the whole design process.

Keywords: design process, interactive multimedia, culture, technology.

INTRODUCTION

The rapid computer technology has made young generation get used to the computer. New reading style has been developed, such as Internet book, electronic book, etc. Computers are everywhere and it is naïve to imagine that they will not increasingly be used as a vehicle for art
and culture.1 As we know, one of the rich cultures that each country has, is folktale. How to combine the technology and culture to give the vision of the richness culture, many various tools are using, one of them is interactive multimedia design. We need interactive multimedia as a tool to transfer a folktale and its culture.

Historian Eric Hobsbawn said that human beings enter the ages that are lost their memory.2 It was caused by the dissolution of the past life and routine cultural and emotional information because of the rapid social changes and development of technology. Apparently myths and legend through verbal information is not enough for younger generation. To determine the history and memory of beings, and to give vision the richness of culture, various storytelling tools are restored. One of them is Interactive Multimedia. The heritage from the older generation to the younger generation must be done to save the culture and the history of one country. Interactive Multimedia Design is one of the ways out that can be offered to transfer the massage in this era. The interaction that comes from the interactive multimedia design make the user becomes more active by using computer and involving in the story.

![Diagram of Storytelling Media](image)

**Figure 1. The Development of Storytelling Media**

**THE CONCEPT OF LOCAL GRAPHIC DESIGN**

The UNECO Declaration on the Principles of International Culture Cooperation (1966) conformed that “each culture has a dignity and value which must be expected and preserve and further more, that every people has the rights and duty to develop its culture.” That statement is explain that a society has a collective right to the unity of culture, including the right to define, interpret, and having natural change to their culture in the future. Culture is the whole way of thinking (mind set), attitude, and behavior from the small matter to the big and serious matter.

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Cultural heritage with history consciousness is a part of nation identity. Local is a characteristic that has specification, which only has by institution, group, culture, geographic location. Design is always also a grounding process that relates the object to the world we live in.

The design elements range from the characters themselves to the environment of the geography and time period of the storyline. Color, texture, line, shape, and typeface must be crafted to move the storyline forward. Characters express the story through dialog and motion. Text fulfills a similar role, and can create audio bridges between scenarios and add information when the characters cannot. Typography can reinforce the mood, time period, and natural or cultural setting. Color can excite or calm, add psychological dimension, and denote the passage of time; texture can add the simulation of three dimensions or the drama of a dynamic stage to the story action. Lines and shapes can direct attention, highlight, separate and isolate design elements and story action.

It is important to note that in much of the world, whether a surface is wet or dry, glossy or matte is as important as its hue. Pay literal attention to the local color. What is the color of the landscape? What colors are houses painted? What colors do the inhabitants wear? What colors are used in traditional craft? etc.

When presenting works of art in documentary multimedia, the graphic design is not so much a statement as a graceful aid to the body of art works it help to disclose. The most exciting thing about multimedia and electronic publishing is the potential to establish themselves as a completely new media form in their own right, the potential for new kind of creative channel that allows designer to search and uncover the undercurrent of society and learn more about themselves through a process of revealing, not concealing.

THE CONCEPT OF INTERACTIVE MULTIMEDIA

This philosophy is easily carried over to the world of interactive multimedia. Creativity and imagination cannot be bought at the local computer dealer. Humans are the empty vessel that makes interactive multimedia useful. Designer has to place great emphasis on ideas, creative

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6 LK. Peterson, Cheryl Dangel Cullen, Global Graphic Color, Rockport Publishers, USA, 2000, p.7
thinking, imagination, and brainstorming when putting together an interactive multimedia project. Filling up the emptiness with ideas and imagination, then combining them with technology is the heart of imagineering.8 One way of defining multimedia can be found in the meaning of the composed word. Multi- [lat.: much] many; much; multiple. Medium [lat.: middle] an intervening substance through which something is transmitted or carried on; A means of mass communication such as newspaper, magazine, or television (from American Heritage Electronic Dictionary, 1991).9

Multimedia means, from the user’s perspective, that computer information can be represented through audio and/or video, in addition to text, image, graphics and animation. For example, using audio and video, a variety of dynamic situations in different areas, such as sport or ornithology lexicon, can often be presented better than just using text and image alone.10

Interactive Multimedia refers to multimedia that allows for user control.11 Interactive multimedia goes by several different names. Among them are Multimedia and Hypermedia. The technology links together multiple collection of information under the hierarchy of a single application or program. The collections of information can be computer data, stereo audio, full motion video, animation, or graphics. Interactive multimedia applications allow the combination of all of these elements into a single program or application.12 There are six kinds of development software for creating multimedia applications: presentation packages, hypermedia programs, animators, authoring systems, Web page creation tools, and Instructional Management System.13 Multimedia is the use of the computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate. First, there must be a computer to coordinate what user see and hear, and interact with user. Second, there must be links that connect information. Third, there must be navigational tools that let user traverse the web of connected information. Finally, because multimedia is not a spectator sport, there must be ways for users to gather, process, and communicate their own information and ideas.14

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Figure 2. Multimedia is the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create and communicate.

The characteristics of Interactive Multimedia are:

a. Users controlled, non linear navigation using computer technology;

b. The combination of two or more media (audio, text, graphics, images, video and animation) that the user manipulates to control the order and/or nature of the presentation

c. Combine use of several media that using, involving and encompassing communication through hearing and seeing of human and the interactive audio or video device, such: computer, radio, television etc. that make people sense and having super sensory for better communication.

INTERACTIVE MULTIMEDIA AS A STORYTELLING

Stories help us structure our memories. It is natural for us to remember a good story and the meaning it. According to Roger Schank, this is because stories are natural units of storage and retrieval in human memory. We store new experiences in the form of stories and generalized scripts (Schank, 1990; Schank & Abelson, 1977).

A story can simultaneously provide a context for the learning task, teach deeper cultural message, give an emotional impression, and ultimately help tie learning to personal experience.15 Digital storytelling is the process wherein producers and consumers share the story through the

multimedia, such as screen, text, voice, music, video, animation, etc. Multimedia ultimately aims to attain maximum efficiency by satisfying the emotions of consumers.16

A storyteller, Shirly Raines, defines the elements of storytelling: story, audience and narrator. She also named the event as audience’s participation in the storyteller. There are various modes of storytelling in our society. In the ancient times, priests were the representatives of Gods, and this role gave them the power to rule the people. This kind of story is a totally one-way delivery.

![Figure 3. Interaction in Storytelling](image)

Therefore, the structure of inner interaction cannot be changed by outer interaction, i.e., there is no room for audience to interact with the story. Likewise, during the middle age, the narrator invented the story based on the event centering on heroes, kings, and various elements to enlighten and comfort people. Narrators during the romantic age were vagabond poets. They narrate stories about knight, kings, and emperors, showing the dreams of tribe and adventures. This kind of narration considers the mood of narration as important. It is also changeable depending on the audience. Depending on the situation, the story is transformed so that inner interaction itself can be changed.

The narrators in this modern age are the writers. They are the representative form as ‘the person who awakens oneself as an individual’.17 While in the past the narrators were merely the medium of messenger who show or deliver the group’s petition or hope and the desire of people,18 they deliver and spread their own thoughts and experiences with language in this

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17 Edited by Sung Tae Hong, Cyberspace and Cyberculture, Munhwa Kwahak Sa, 1999.
18 Horoyuki, What is Interface, translated by Young Mog Park, Jo Ho, 1989.
modern era. This kind of narrator has the position of almighty, with stories of them shown to people with completed and unchangeable structure. In the process, the consumer or reader loses their role of participating in the story-making and transformation process.

ASPECTS OF INDONESIAN FOLKTALE

Indonesia consists of 17,508 islands and there are 365 ethnics spread in the islands. For the language, Indonesia has the national language Bahasa Indonesia plus 583 dialects and English language. Based on Indonesia geographic, there might be hundreds or thousands of folktales.

In the ancient time, folktales told in verbal, until now still many parents or grandparents telling story to their son or grandson in verbal, based on their memorize ability to the story. Recently, folktale media is getting developed. Many folktale books has been published and distributed widely between the regions and islands. Because of the development of visual media, people from different region could get knowledge about other fairytale story from the other region. The people abroad also can read about Indonesian folktales.

The Indonesian folktales are made based on the culture, society and social life of each area. Basically, the author wants to give positive education to children. The story in the folktale, help children understand about good attitudes and morals.

USABILITY IN DESIGN

Design refers to the creative process whereby our ideas take shape. Design is practical and creative activity, the ultimate intent of which is to develop a product that helps its users achieve their goals. There are many fields of design, for example graphic design, architectural design, industrial and software design. Each discipline has its own interpretation of “designing.” The definition of design from the Oxford English Dictionary captures the essence of design very well: “(design is) a plan or scheme conceived in the mind and intended for subsequent execution.” The act of designing therefore involves the development of such a plan or scheme. For the plan or scheme to have hope of ultimate execution, it has to be informed with knowledge about its use and the target domain, together with practical constraints such as materials, cost, and feasibility. So interaction design involves developing a plan which is informed by the

19 http://www.tourismindonesia.com
product’s intended use, target domain, and relevant practical considerations. Alternative designs need to be generated, captured, and evaluated by users. For the evaluation to be successful, the design must be expressed in a form suitable for users to interact with.\textsuperscript{23}

Essentially, the process of making interaction design involves four basic activities:

a. Identifying needs and establishing requirements.
   In order to design something to support people, we must know who our target users are and what kind of support an interactive product could use fully provides. These needs form the basis of the product’s requirements and underpin subsequent design and development. This activity is fundamental to a user-centered approach, and is very important in interaction design.

b. Developing alternative design.
   This is the core activity of designing: actually suggesting ideas for meeting the requirements. This activity can be broken up into two sub-activities: conceptual design and physical design. Conceptual design involves producing the conceptual model for the product, and a conceptual model describes what the product should do, behave and look like. Physical design considers the detail of the product including the colors, sounds, and images to use, menu design, and icon design.

c. Building interactive version of the designs.
   Interaction design involves designing interactive products. The most sensible way for users to evaluate such design, then, is to interact with them. This requires an interactive version of the designs to be built, but that does not mean that a software version is required. There are different techniques for achieving “interaction,” not all of which require a working piece of software.

d. Evaluation is the process of determining the usability and acceptability of the product or design that is measured in terms of a variety of criteria including the number of errors users make using it, how appealing it is, how well it matches the requirements, and so on. Interaction design requires a high level of user involvement throughout development, and this enhances the chances of an acceptable product being delivered. The activities of developing alternative design, building interactive versions of the design, and evaluation are intertwined:

alternatives are evaluated through the interactive versions of the designs and the results are fed back into further design.

There are three characteristics that should form a key part of the interaction design process. These are: a user focus, specific usability criteria, and iteration.24

Usability and feedback are the important factor in designing interactive multimedia. Designing usable interactive products thus requires considering who is going to be using them and where they are going to be used. Another key concern is understanding the kind of activities people are doing when interacting with the products. The appropriateness of different kinds of interfaces and arrangements of input and output devices depends on what kinds of activities need to be supported.

By interaction design, we mean designing interactive products to support people in their everyday and working lives. In particular, it is about creating user experiences that enhance and extend the way people work, communicate and interact. Winograd (1997) describes it as “the design of spaces for human communication and interaction.” In this sense, it is about finding ways of supporting people.25 Most project start with identifying needs and requirements. The project may have arisen because of some evaluation that has been done, but the lifecycle of the new (or modified) product can be thought of as starting at this point. From this activity, some alternative designs are generated in an attempt to meet the needs and requirement that have been identified. Then interactive versions of the designs are developed and evaluated. Based on the feedback from the evaluations, the team may need to return to identifying needs or refining requirements, or it may go straight into redesigning. It may be that more than one alternative design follows this iterative cycle in parallel with others, or it may be that one alternative at a time is considered. Implicit in this cycle is that the final product will emerge in an evolutionary fashion from rough initial idea through to the finished product. The only factor limiting the number of times through the cycle is the resources available, but whatever the number is, development ends with an evaluation activity that ensures the final product meets the prescribed usability criteria.26

Figure 4. A Simple Interaction Design Model

User

User can be divided by two which are: home user and work user. The way in which computers are used in the work setting contrast with the home situation in terms of time, motivation and social context (Whiteside et al. 1988). There is no such thing as a single type of user. Just as the type of work place user varies (Garcia, 1988, pp.38-39) describes ‘the political user’, ‘the asking user’, ‘the managing user’ and ‘operating user’) similarly there is no single type of home user. Educational background, ability and experience of computers will vary in such an uncontrolled environment. The user maybe a home worker (adult or child), a student, a cultural analyze, an interested browser etc. People’s reasons for using computer at home differ; indeed, the same person’s reasons for use will vary over time.  

Multimedia is highly effective. As research and publishing company Computer Technology Research (CTR) Corporation reports, people retain only 20% of what they hear. But they remember 50% of what they see and hear, and as much as 80% of what they see, hear, and do simultaneously.

Reading, speaking and listening: these three forms of language processing have both similar and different properties. One similarity is that the meaning of sentences or phrases is the same regardless of the mode in which it is conveyed. For example, the sentence “Computers are a wonderful invention” essentially has the same meaning whether one reads it, speaks it or hears it.

However, the ease with which people can read, listen, or speak differs depending on the person, task, and context.

Stories have been used for ages to communicate content on many different levels. Many prior multimedia applications have been developed in the area children education (Armstrong et al. 1994). In the case of multimedia system design; the goal is to understand the learning system of the user. The quality of an educational multimedia system is heavily dependent on the system’s ability to emulate the user’s natural learning system. System analysis in designing the educational multimedia system starts with identifying the target audience. By identifying the target audience, we can specify learning requirements for the target audience; that is, the core skills and learning points around which our multimedia system will be constructed.

**Usability**

Usability is a fundamental concern in multimedia applications design. Generally, usability characterizes an application as being usable by the intended users, with reference to intended functions and use.

Multimedia will presumably make the human computer experience closer to the current real-world experience, where multiple senses and cognitive activity form the basis for decisions and behaviors. Because they can support multi modal interaction, interfaces for multimedia applications have the further challenge of integrating different media to convey information. They can also integrate other technologies to make the interaction experience more natural. Through artificial intelligence techniques, interfaces can learn about users, their tasks and their objectives and customize the interaction to their needs. To recap, usability is generally regarded as ensuring that interactive products are easy to learn, effective to use, and enjoyable from the user’s perspective. It involves optimizing the interactions people have with interactive products to enable them to carry out their activities at work, school, and in their everyday life.

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30 Seung Ik Baek, Jay Liebowtz, Alisa Liebowitz: “What’s IS All About?” *A Multimedia Aid for Learning Information Systems* (IS)
More specifically, usability is broken down into the following goals:32
a. Effective to use (effectiveness)
b. Efficient to use (efficiency)
c. Safe to use (safety)
d. Have good utility (utility)
e. Easy to learn (learn ability)
f. Easy to remember how to use (memorability)

Factor influencing basic usability are likely to be the same for users. All users will want clear instruction, concrete icons, lack of errors and positive feedback. (Marchionini 1992) stresses that the user wants to achieve their goals with the minimum of cognitive load and the maximum of enjoyment.33

Feedback
Visual feedback can be direct or indirect. Direct visual feedback occurs when an action immediately causes a reaction by the program, a window opens by starting a program or the scroll bar in a text window scrolls the text. Visual feedback is one of the most powerful effects when learning with simulations.34

Age related cognitive changes seem to influence the time it takes to learn to use a new system. All users can have a better chance to learn to use domestic products faster if they have an interface style that doesn’t rely much on working memory and the capacity to hold spatial information.

Another aspect of acceptence is that the pedagogic tradition doesn’t adapt to the new possibilities rapidly. We have a long tradition in verbal learning, by representing and retrieving knowledge verbally. People who have a verbal learning style may not be able to take full advantages of multimedia representations. For many people, books have a value that cannot compete with computers. Books are easy to transport, can be personalized; offer comfortable reading compared to a screen, and have texture. For long time, users haven’t been aware of the quality requirements for software products. This is changing for consumer software and will also

change for teach ware as it becomes more common. Teach ware has to match user needs, be attractive and easy to use, and perform effectively to justify expensive development cost.35

![Direct / Indirect]  
Age Related Cognitive Changes  
Time to Learn  
Working Memory and Capacity  
Value of a Story

**Figure 5. Kind of Feedback**

**Interface Design**

When talking about interface design, we indirectly refer to two sides: the system side and the human side. We change the interface at the system side through proper design. And we change the interface at the human side through training and experience.36 Multimedia User Interfaces are computer interfaces that communicate with users using multiple media, sometimes using multiple modes such as written text together with spoken language [May93a].37 When user interfaces with new media are introduced, it is important to convince users to consume them because people like to do things the same or in ways similar to how they used to them in the past. Therefore, (1) familiar human user interfaces must be created, (2) the users need to be educated, and (3) the users need to be carefully navigated through the new application.38 Good interactive multimedia needs to be experienced. Likewise, good navigation also needs to be experienced. One way of viewing knowledge navigation is as an extension of the human mind.39

**LOCAL GRAPHIC DESIGN IMPLEMENTATION FOR STORYTELLING**

In this case, the local graphic design tried to be implemented in Kasada storytelling. There are many graphic design elements that can be implemented for storytelling. Those elements

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should be taken from local sources. To make the folktale content can be understood easily, this project try to implement cultural information based on a Java Cultural Background, where the story is originated.

The analysis began with the cultural approach. The transfer of culture can be from many sources including folktale. Folktale has many kinds of elements that can be used to give a certain image. From this source the idea is began, and folktale can have its local contents that can transfer the richness culture. The folktale is come from Tengger society.

Basically, the story explains about the existence of Kasada ceremony. At the place where the story from, there is Bromo Mountain which is famous with its beautiful environment (sunrise, active volcano, sea of sand and stair of heaven).
Based on the analysis, the local content could be implemented in background, pattern, and character design. Typography and color concept also should support by local elements, for examples: typography could adopt Hanacaraka (Javanese typography) that has been modified, and the color from the environment and textile. Background design could be taken from the place where the story originally from, Bromo mountain environment, like sunrise, active volcano, sea of sand and stair of heaven. The pattern design is from traditional cloth pattern that people wear in daily life named Batik. The character was made basic on the realistic drawing that often used in Indonesian comic, storybooks etc. Below is the sample of combination between background, pattern, and character design.

Figure 7. Graphic Elements Combination.

INTERFACE DESIGN APPLICATION

To make the interactive multimedia design usable for user considering that using the local content is new, the interface design should made as simple as possible.
button, text, graphic design, title is consistent. With consistent and simple lay out, hopefully the interactive multimedia design can be: usable which mean effective to use (effectiveness), efficient to use (efficiency), safe to use (safety), have good utility (utility), easy to learn (learn ability), easy to remember how to use (memorability).

Figure 8. Main Menu Screen Design  
Figure 9. Layout of Figure 8.

Figure 10. Story Screen Design  
Figure 11. Layout of Figure 10.

CONCLUSIONS AND SUGGESTION.

Interactive multimedia with local graphic design content is very useful for transferring the richness culture. Cultural background is the main factor that should be exists to give knowledge about the richness culture. By implementing the graphic design based on local content, user can have different feeling about the graphic design style and Indonesian culture.

It is not easy to implement the local content in the graphic design. There are many factors that have to be reconsider regarding to usability. Designing usable interactive products requires
considering who is going to be using them and where they are going to be used. Usability is a fundamental concern in multimedia applications design. Generally, usability characterizes an application as being usable by the intended users, with reference to intended functions and use, so for those who already known the cultural background of the folktale is easier to understand the local content compare to those who don’t know anything about the cultural background in the folktale. Further research need to be done to know the usability of local graphic design implementation into interactive multimedia before it is made and produce to the market.

I strongly suggest that this kind of research should be continuously made, because through a local graphic design in interactive multimedia for storytelling, many folktales and its culture can be transferred. It becomes more effective and valuable to introduce the Indonesian culture through the graphic design in interactive multimedia content.

REFERENCES


