

# Study of IT Role in Strengthening Local Culture

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**Abstract**— Arts as a part of culture is a product of human creativity as an expression of feel, sense, emotion, and perception. Arts also affected by environment. In globalization and information era, ease of information access and distribution also had a significant impact into arts and culture.

Indonesia as a country which has precious and unlimited local arts and cultural diversity, also face the same challenge to keep the precious value of cultural heritage. We need to maintain and enrichment of local art potential so it can provide as a spirit to built nationality and unity.

The role of IT to support the local art preservation and sustainability can be exists in some ways such as to help us in process store, share, display, learn and create the local art products. It can be done by five phases: Create IT, Store IT, Share IT, Display IT, and Learn IT. Each phase will support the local art sustainability and help us to maintain the knowledge through SECI's model. By mapping these phases into Nonaka's SECI model, it can show the role of IT to support the knowledge storage, distribution and creation according to local art product.

**Keyword:** local arts, role, IT, strengthening, SECI, knowledge.

## I. INTRODUCTION

Arts and culture is a valuable asset for a society. It represents the values which exist in a society. A big nation usually has put high appreciation on their arts and culture and does some actions to preserve or sustain it. The goal of these efforts is to preserve the value of cultural heritage as the spirit of nationality.

Local arts, as part of culture also represent the social value that exists in an area. It can change, influenced, and interactive with other culture, depends on the area characteristic. Indonesia, as a country with consist many districts, many island, also has precious and unlimited resource for local arts culture and products, which exists in many form such as language, dance and art performance, martial arts, cuisine and food, literature, architecture and many more.

We also have prepared some action to help local art preservation, especially to record it for documentation, so it can distribute and learn by the others. For example, make a brochure, catalog, or digital record format of our local arts such as angklung, traditional dance, batik, and so on. But it is still not enough. There is many opportunities which keep untouchable, and one of these opportunities, is how we can empowering IT as a tools to strengthen the local art. The aim of this research is to show the role of IT in strengthening local

culture from the Nonaka's framework in knowledge creation and management. This paper will discuss some aspect of local culture and impact of globalization to local culture to give us the reason why we have to preserve our local culture. The next section discuss some actions that have been made according to local culture preservation and followed by discussion of many aspects of IT usage for local culture preservation and some of sample application which come from individual initiative and then mapping the application into SECI Nonaka's model to show the role of IT in knowledge creation and knowledge management.

## II. CULTURE, LOCAL ARTS, AND IMPACT OF GLOBALIZATION

### A. Culture and Local Culture and Arts

Wikipedia.com define a culture as[4]:

- Excellence of taste in the fine arts and humanities, also known as high culture
- An integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for symbolic thought and social learning
- The set of shared attitudes, values, goals, and practices that characterizes an institution, organization, or group

The term local culture is commonly used to characterize the experience of everyday life in specific, identifiable localities. It reflects ordinary people's feelings of appropriateness, comfort, and correctness—attributes that define personal preferences and changing tastes. Local culture usually exists in specific geographic area, but the existence of local culture sometime can spread across geographic boundary, as the impact of people movement and communication. Local culture also can change as impact of interaction to others culture which can come later or after people made some adaption in a new place[4].

We can divide local culture aspect into some categories which are [2]: language, art, social behavior, social or community rule, and in larger dimension we can call it as social system.

Arts can define as a creative product or process of someone or groups as an expression of feel, sense, emotion and perception about their environment. Its influence by social environment, interact and reflect the social values where the arts arise and grow.

Art, as an aspect of local culture, has its own categories which are: music and dance, martial arts, traditional theater, architect, crafts, food and cuisine, and literature,

*B. Globalization, Information Age and Acculturation*

Globalization and Information Age are two jargons that common in some articles when we discuss about recent phenomena in modern society.

Globalization101.org [7] has defined the phenomenon of globalization as the "acceleration and intensification of economic interaction among the people, companies, and governments of different nations". Observers of globalization are increasingly recognizing that globalization is having a significant impact on matters such as local cultures, matters which are less tangible and hard to quantify, but often fraught with intense emotion and controversy.

The information age [6], also commonly known as the computer age or digital age, is an idea that the current age will be characterized by the ability of individuals to transfer information freely, and to have instant access to knowledge that would have been difficult or impossible to find previously. The idea is linked to the concept of a digital age or digital revolution, and carries the ramifications of a shift from traditional industry that the industrial revolution brought through industrialization, to an economy based on the manipulation of information, i.e., an information society.

The information age has taken us into globalization era. The easy access and interconnecting from anywhere into any place at anytime make us easy to know, see, and learn culture from any area in this world.

As the impact of information age and globalization, we also could not deny the culture acculturation phenomena. Acculturation can be conceived to be the processes of cultural learning imposed upon minorities by the fact of being minorities [6]. If enculturation is first-culture learning, then acculturation is second-culture learning. This has often been conceived to be a unidimensional, zero-sum cultural conflict in which the minority's culture is displaced by the dominant group's culture in a process of assimilation.

III. LOCAL ARTS IN INDONESIA

*A. Local Arts Phenomena in Indonesia*

Indonesia is a unique country. We can view Indonesia as a country in cross strategic function. The position of Indonesia, geographically, is a strategic position where many things can across us. Historically, Indonesia has an importance role in world business route. Some Eastern merchant choose Indonesia as a transit station. While doing their business, the merchant also introduce their culture into local society. It caused the interaction and then produced assimilation and acculturation as the result. Indonesian local culture might be affected by some factor such as:

- a. Strategic position as a transit place or route for merchant ship which came from China, India, and Arab Saudi and European Country (Netherland, UK, Spain, Portugal)

- b. The spread of religion, which came from many source, some of them come from the merchants.
- c. Interaction with foreigner and colonialism such as Netherland, Portugal and Japan.

As impact of these factors, we can find some mixed culture such as mixed between traditional culture with religion belief, mixed culture and ethnic between foreigner and local society (in some business city such as Jakarta, Medan, Surabaya, Semarang), mixed culture in geographic boundary area such as Riau, Kalimantan and Papua. This phenomena can explain why such traditional dance which is familiar in Riau, also well known in some area in Malaysia, or why the traditional music from Jakarta sounds like a Chinese music instruments, etc.

Table 1 show the example of diversity in local art culture that found in Indonesia.

Table 1. Local Art Diversity in Indonesia

Category	Example	Original Area
Music and Dance	Angklung Kolintang Gamelan Degung Saman Reog	West Java North Celebes Central Java West Java Aceh Ponorogo
Martial Arts	Silat Benjang	Any region West Java
Traditional Performance	Lenong Ludruk Wayang Golek	Batavia East Java West Java
Architects	Rumah Gadang Pendopo	Minang Central Java
Food and cuisine	Nasi Kuning Rendang	Java Minang

*B. Local Culture Preservation*

Local culture preservation is an important issue in many countries. The culture sustainability against the globalization has reached more intention and many programs has built and implemented to resolve these issues. The motivations of cultural preservation are [1]:

- To keep, sustain, and bequeath the culture to the next generation.
- Increase the knowledge and awareness of young generation to care about culture preservation.
- Provide the good environment for cultural diversity
- Enrichment the local culture become a commercial value
- Symbol of civilization identity.

Indonesia, as a country with rich and valuable arts and cultural diversity, also has many programs for cultural preservation. According to local culture preservation, we have implemented many programs such as inserting the local arts in elementary and higher education curriculum facilitate the local arts performance, taught arts in formal or non formal institution and many more[3].

These programs might be suitable for internal environment, limited in one organization, but so far, not much we have done to promote and facilitate the learning of local art in more efficient way [3].

IV. IT'S ROLE IN LOCAL ART STRENGTHENING

As a part of daily life needs, IT can help us in many areas, include in learning arts. IT can help us to enjoy the art, promote it and learn it. IT has many potential usage to strengthening the local art culture and heritage.

Recently, we have heard some young people in Indonesia has developed some application which is empowered IT to learn and enjoy the art, especially for local art. For example, the klungbot, is a kind of robot which can play angklung, a traditional music instrument from West Java, which is invented by two junior high school students. It uses a Lego Mindstorm Robot and LeJOS software to translate the musical tune into programming language which translate via Bluetooth into a Robot to select the right Angklung [8].

The main objective of using IT for local art strengthening is how to make us easier to enjoy and learn the art by empowering IT. It can be done using many ways because IT has been using as a powerful tools for knowledge capture, store and learn. The role of IT in strengthening local art can be described by using a framework to evaluate the role of each application that has been made. We can treat local art as a knowledge because it needs to learn before preserved. The process of learn will be easier if the knowledge exist in explicit form and easy to access. The potential usage of IT can give us some opportunity in many aspect of local art preservation, not limited for documentation, but also as a tools for learn, share, and display.

The assumption that local art is the knowledge gives the idea how to treat it as well as other knowledge. On this paper, we use the approach of SECI Nonaka's Knowledge creation model to show the role of IT in strengthening local art.

Nonaka promotes the process on knowledge capture and adapt the knowledge to create new knowledge in a SECI model (the acronym stands for *Socialization, Externalization, Combination, Internalization*). Each step shows the evolution process to translate the tacit knowledge into explicit knowledge [9]:

- **Socialization** – “Sharing and creating tacit knowledge through direct experience.” (Nonaka and Takeuchi, 1995)
  - **Reflection:** The person, who gaining the knowledge with direct interaction with other people
- **Externalization** – “Articulating tacit knowledge through dialogue and reflection”. (Nonaka and Takeuchi, 1995)
  - **Reflection:** During the communication a person's tacit knowledge is understood by other personals. It means that tacit knowledge of a person is converted or transformed into explicit knowledge.

- **Combination** –“Systemizing and applying explicit knowledge and information”. (Nonaka and Takeuchi, 1995)
  - **Reflection:** Collected explicit knowledge and Information from outside the organization are combined systematically and applied to their organization. It means the explicit knowledge converted into explicit knowledge.
- **Internalization** – “Learning and acquiring new tacit knowledge in practice”. (Nonaka and Takeuchi, 1995)
  - **Reflection:** A person is getting the knowledge from various experiences. It means that explicit knowledge gathered by a person by reading, listening, observing, etc, is converted into tacit knowledge.

To determine the role of IT in local art knowledge creation and management, we classify the the potential of IT usage in 5 dominant areas: create IT, store IT, share IT, display IT and learn IT.

- **Create IT** : IT as a tools to create a local art product
- **Store IT**: we can use IT to store the local art product and repository, by converting it into digital forms.
- **Share IT**: IT make us easy to share the local art product, both manually or using internet facility.
- **Display IT**: IT help us to display the local art product in esthetic manner but in easier way, for example to produce the brochure, to manage the lighting and sound in art performance and many more.
- **Learn IT**: IT can help us to learn the local art.

Some applications have been made and its can find easily through internet searching. But, these application was built without realize that they had a good contribution into local art strengthening in specific domain of knowledge creation and management. Here is some example :

Create IT

- Kendang and gamelan application was developed for Iphone and Ipod device by Dhani Irfan. This application can play kendang and gamelan using Iphone and Ipod Touch [10].

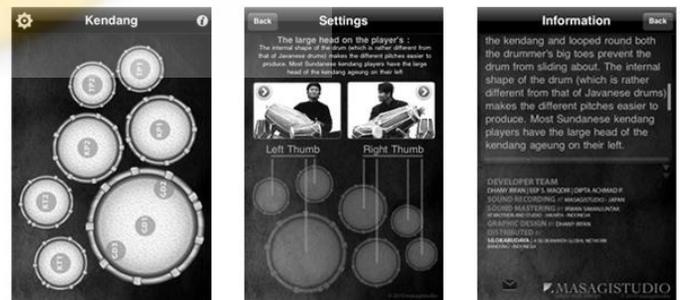


Figure 1. Kendang and gamelan application for Iphone and Ipod Touch (<http://dhanyirfan.com>)

- Playing Gamelan using computer, was developed by IT team in SMPN 1 LUMajang Jawa timur. Using this application, students can play the gamelan without

using real gamelan, instead, using a laptop, except for the Gong.

- Batic fractal, is a software which can use to create a batic pattern using mathematical formula, It was developed by M Muhamad Lukman, the architecture graduate students from ITB, 2005. [12]
- Wayang Kulit application, developed by University Waseda Tokyo. This software can play wayang character using computer and was used to learn about wayang. [13]
- Wayang kulit online is a simple flash game about wayang [14]

**Store IT**

- Kamus bahasa daerah, develop by Feriawan agung which has 5 version of language, Nias-Indonesia, Sunda-Indonesia, Jawa-Indonesia, Banyumas-Indonesia and Ambon-Indonesia. The features of this software include small size application, simple interface, searching facility, adding new words, automatically search from local language to bahasa. [15]
- Kanigara, the site which provide online dictionary, It has 10 local language versions for each words. Although its only contain at about 100 words, but it is a good initiative and maybe it needs more attention to extend. [11]

**Share IT**

The applications which are potential to build such as Candi Information, traditional dance, traditional music, traditional performance and traditional architecture. Recently, no single portal online which provide these information. Some of students in university has built some software which attempt to provide an encyclopedia for local art, but in multimedia interactive CD program. As a country of thousand islands and thousand temples, it is hard for us to find the single sources that provide complete information about temples or traditional dance.

**Display IT**

We can use IT to help us displaying local art product in more artistic way. IT usually used in art performance or to create a decoration or brochure for promotion.

**Learn IT**

The benefit of IT is to help us learn easier than before. It is easy to learn local art by using some applications. By digitalizing local art product, we can share and distribute it easily so it can be accessed anytime and anywhere. Emerging technology such as multimedia or mobile application and android, offer the new flexibility for local art presentation.

Figure 1 shows the mapping process between 4 steps of SECI models into 5 types of IT usage in local art strengthening.

The mapping process can be started from Store IT, which is for process socialization, by storing local art in digital format,

it is easy for us to distribute it outside or made it as interesting subject to learn. Store IT also facilitate the tacit knowledge transform into explicit knowledge, but Share IT will facilitating the distribution of knowledge about local art into wider area. Display IT will help us to perform the local art product in many ways, both using real stage performance or virtual stage such as Youtube or others side.

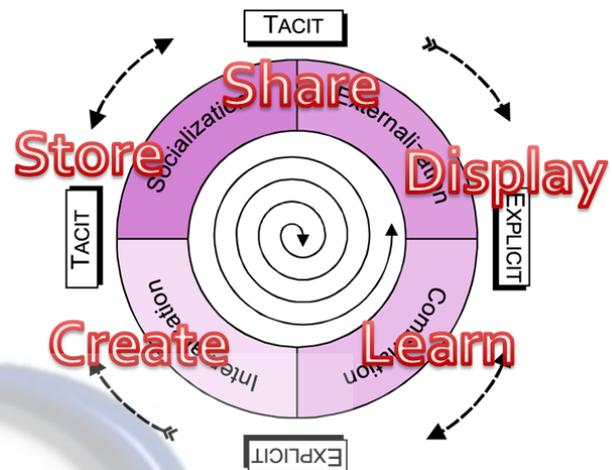


Figure 2. SECI model and the role of IT usage in local art strengthening.

By making the local art product available in digital format, easy to distribute and easy to access, we also facilitate the process of learn. Learn IT will also provide by some multimedia applications such as gamelan using computer, gamelan on iPhone, and portable or online dictionary. Using IT, people not only can learn, but also can contribute to extend the content of local art product.

The final stage of SECI model is how IT application can facilitate the process of Create IT. After know the new knowledge using application to learn a local art, people also can use certain type of IT application to create their creation. For example, after learning how to make Batik pattern, they can learn how to combine these pattern and create their own pattern, with keep the spirit of traditional heritage value exist on their product. Batikfractal.com is an example of extending the idea to invite people to create their own product by using the software jBatik. Figure 2 show the example of batik fractal products.



Figure 2. Batik pattern create by batik fractal (batikfractal.com)

The adoption of SECI Nonaka's model not only give us the the position of IT application in strengthening local cultures but also help us to identify the opportunities to improve the role of IT in strengthening local culture. For example, if know the position of an application in SECI model, then we can see the potential future development of application so it can support us to all stage of knowledge management and creation

## V. CONCLUSION

Local art is an important asset for a civilization to represent their culture and social value which exist in a society. Many countries has put importance of local art preservation to prevent it loss or deceased by influence of globalization and information age phenomena.

Indonesia, as a country which has strategic location and long history, also has specific and unique local art and culture for each area. The local art diversity has influenced by many factors such as foreigner domination, interaction with many cultures, religions, and traditional values, which resulted the unique character of local art acculturation, and also face the negative impact of globalization in many area. So it needs the real action to support the local art sustainability.

IT can help us to support the local art preservation and sustainability by make the local art product available in digital format so it would be easier to share, display, and learn. The role of IT in local art strengthening exist on five phases: Create IT, Store IT, Share IT, Display IT, and Learn IT. Each phase will support us to sustain the local art value and help us to maintain the knowledge.

The role of IT in strengthening local art knowledge can be analyze through SECI's model approach by Nonaka. By treat

the local art as knowledge, we can map some IT application into some phase of knowledge creation to show the role of IT to support the knowledge storage, distribution and creation. The position of application on SECI's model also gives us opportunity to extend the role into next stage so it can support the local art strengthening significantly. The usage of IT application can help us to preserve our valuable cultural heritage so we can keep it exist for the next generation.

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