

Cultural Entropy on Digitizing Balinese *Lontar* Manuscripts: Overcoming Challenges and Seizing Opportunities

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Abstract:

The lontar manuscript as a documentation medium is highly vulnerable to rodent insects and high humidity levels. While on the other hand, the development of digital technology provides benefits in the preservation of manuscripts through digitization. Digitalization of manuscripts can preserve information and knowledge in the lontar palm leaf into digital form. However, much later emerged obstacles and other challenges in the process of managing the digital manuscript, in addition to technical matters such as the availability of supporting tools are also included lack of human resources. The biggest problem is that people can not use the digital manuscript because of the limitations in mastery the language and aksara (script) used in the palm leaf manuscript. Decreasing the knowledge and ability of the communities to read the manuscript can be caused by the process of modernization. The influence of globalization and modernization on the cultural life of the Balinese peoples led to the cultural entropy on the effort to preserve the lontar manuscript. Meanwhile, the main objective on the preservation activities is that the information contained in the manuscript can be used for a long time. But what would happen if the manuscript has been preserved in digital form, while people are not able to use it? Then we realized that preservation activities are not only dealing about preserving the information in the manuscript, the other things regarding the usefulness of the manuscript is also important to note. The conservation and preservation is no longer the work which only done by the library, but involves the community as the owners, together to preserve the lontar. Through these activities we are trying to re-popularized the lontar writing tradition, build an understanding of the importance of keeping the traditions of Balinese lontar manuscript. This was done through the lontar festival including the Balinese language and the aksara, lontar writing class regularly, unique and interesting lontar exhibition, etc. This activity can improve utilization and access to the manuscript, either physical or digital form. So that the manuscript digitization activities can be beneficial to the community. In the future, the manuscript preservation program can be a program that is more inclusive, synergistic and integrative.

Keywords: digitalization, *lontar*, palm leaf manuscript, cultural entropy.

Introduction

Balinese *Lontar* manuscript is a manuscript written on a piece of *tal* leaf (*Borrassus flabelliformis*). *Lontar* contains science about religious teachings, philosophy, architecture, astronomy, commerce, arts, agriculture, politics, environmental science, etc. As a documentary

media, the *lontar* has important values and roles in Balinese life. *Lontar* records every aspects of the socio, cultural and religious life on Balinese peoples, which manage every life aspects from birth until death. Like a book, *lontar* used as a medium for recording information and knowledge. *Lontar* save the local wisdom and indigenous cultures of Bali. But unfortunately, *lontar* also has various weakness. Made of palm-leaf, *lontar* is susceptible to weather changes, high humidity levels, up to the attacks of rodents and insects. Given *lontar* as a cultural heritage that so precious, the presence of *lontar* in Bali became important to be preserved.

In the other hand, the presence of digital technology has become part of our lives. With the presence of digital technology, this will facilitate the manuscript rescue effort, one of the breakthroughs that can be done to save the *lontar* manuscript is through digitalization. Digitizing manuscripts were able to preserve the *lontar* manuscript contents which vulnerable to damage by the weather changes and rodents. In addition to providing a positive impact on *lontar* conservation activities, this activity also poses a dilemma in the society. Mostly feel uncomfortable and difficult, when they read in digital form. So that the utilization of digital manuscript be less than optimal. In addition, there are fears in the community, with the presence of digital technology would eventually shift the long-lived traditions in the community, especially regarding *nyurat* (writing *lontar*) tradition and the existence of the *lontar* itself.

The development of information technology has also caused many changes to the social, cultural, political and economic life of Balinese people. The presence of technology accelerates the pace of modernization, shifting the activities of traditional societies as well as customs that have lived thousands of years. As a result, today's Balinese teenagers have no knowledge of the *aksara* and language used in the *lontar*. Since the last few decades, many pessimistic comments popping up related to the existence of palm leaf manuscript in Bali. Not a few who respond with the statement that the *lontar* will soon be extinct. The Balinese teenagers as the next generation, prefer the contemporary pop culture rather than traditional things, like *lontar* and its tradition. Not to mention, it is exacerbated by making *lontar* into something that is sacred so it can not be read by just anyone. It is increasingly distanced adolescents on the tradition of reading and writing *lontar*. *Lontar* is considered as old-fashioned and outdated. *Lontar* only popular among the elderly and is a marginalized activity, so sooner or later it will become extinct.

If it is allowed to drag on, sooner or later the extinction will certainly occur. The preservation and conservation of the *lontar* is important to be implemented, as most of the palm leaf manuscripts scattered in the community today are not well documented. *Lontar* conservation activities can not rely solely on technical activities and efforts to digitize the information content in the *lontar* into digital form. But it is also necessary to pay attention to the sustainability of the use of palm leaf manuscript in society. Through this article, we deliver some explanations about the Balinese literary that emphasizes *lontar* manuscript as its main subject. *Lontar* digitalization process that has been done so far and its obstacles, and the efforts undertaken related to the utilization of the results of digitalization in the community will be discussed further in this paper.

***Lontar* as a part of writing tradition in Bali**

Some researchers have attempted studies on *lontar* manuscript, such as Grader & Hooykaas (1941), Hinzler (1993), Rubinstein (1996, 2000). Those researchers discussed about the production of materials, production tools, and type of manuscript, users, and its future. Other impressive research should be mentioned here, such as Raffles (1817), Friedrich (1959,

the original version published in 1849 in Dutch language¹), And Rubinstein (2000) as their attempt to describe how *lontar* was used in the past. Among it, Sir Thomas Stanford Raffles is in the first volume of *The History of Java* noted that in Bali, at the time when the book was written, people perform writing activities on *lontar*².

The word “*lontar*”, consists of Balinese language "ron" which means "leaf" and "ěntal" which means palm tree (*Borrassus flabelliformis*) or its leaf. It combines *ron* and *ěntal* into *rontal* and changed to *lontar* because the sound *l* and *r* is often interchanged in the Balinese language (Hinzler, 1993: 450). Balinese refers *lontar* as both unprocessed palm leaf and written manuscript. The contents of *lontar* manuscript written using Balinese script (*aksara Bali*, *sastra* or *tastra Bali*) with diverse content and language. *Lontar* is just one of several writing materials in Bali.



Figure 1. Balinese *lontar* (palm-leaf manuscript)
Source: Hanacaraka Society

In Bali, there is no record found yet that reveal exactly when the palm leaves are used as a writing material. However, based on ancient records we found some interesting evidences. An Old Balinese inscription of Sukawana AII, which is came from the year 976 Śaka (1054 CE), contains a word “ripta”. In that inscription, the villagers of Cintamani begged to the king to replace their “ripta” inscription into a copperplate inscription, due to its defect³. Zoetmulder refers “ripta” as “document, inscribed object (less durable than copper, perhaps *lontar* or *karas*)” (1982:1555). Furthermore, a Chinese historical note called "Ying-yai Sheng-lan Chiao-chu" by Ma Huan from 1416 refers to that the population of Java and Bali used to write on *lontar*⁴. Korawāśrama⁵, a *kakawin* text which was written at least 1635 CE, mention a word “*lontar*” that gives us a clue. Furthermore, Robson states that:

¹ Was originally written in Dutch language with the title "Voorlopig Verslag van het Eiland Bali" published in Volumes 22-23 of *Verhandelingen van het Royal Batavian Society of Arts and Sciences*.

² [...] in Bali the natives invariably use an iron style, and cut the letters on a prepared palm leaf, [...] The leaf is called *lontar* (1817: 406).

³ “(IIIa/4) [...] sambhanda ni panambah nikanang karā- (IIIa/5) -man i cintamani manghyang amintānugraha tumambrakna pangraksayanya, makanimittāwuk riptanya hana pwa kārunya sambega pāduka haji humuninga sakaparipūrṇṇa kna nikang thā-(IIIb/1)-ni i cintamani matangnyan inaywan sarasani panambahnya, atēhēr inimbuhānira sarasani prasāstinya[...].” (Suarbhawa, et.al., 2013).

⁴ Robson (1976: 354) quoted J.V.G. Mills’ translation, “For writing records they, too, have letters; [and these] are the same as the So-li (footnote: A form of 'Chola'...) letters. They have no paper or pen; [and] they use *chiaochang* (footnote: Malay *kajang*, a general name for different palm-leaves; Ma Huan here means the leaves of the *Borrassus flabelliformis*, called *lontar* in Java...) leaves, on which they scratch the letters with a sharp knife. They also have rules of grammar. The speech of the country is very pretty and soft.”

⁵ Zoetmulder noted *lontar* word on Korawāśrama 104.34: "inilo Kan kapila *lontarnya*" (1982: 1047).

"[...] the Balinese practice of today does in fact reflect an unbroken tradition reaching back at least to the first half of the 15th century" (1976: 354)

According to Pandey (1952), the tradition of writing on palm leaf begins in South India. Xuan Zhang in his spectacular note, Xi Yu Qi from the 7th century, noted that Tripitaka books already written on palm leaves when the Fourth Buddhist Council held, 400 years after the Buddha's death. However, the oldest archaeological evidence of palm leaf manuscripts come from at least the 2nd century AD in India⁶.

Regarding the production of palm leaf blank sheets, Grader & Hooykaas (1941), Hinzler (1993), Rubinstein (1996) and Putra (2013) have conducted the studies. All of these researches refers to the production of palm leaf manuscript that using the traditional way. First, palm leaf midrib harvested from the tree (*mětik*). The midrib is laid and then dried under the sun until the color becomes yellow pale (*majěmuh*). The dried midrib then chopped off on its tip and base in accordance with the desired size (about the size will be explained later), then leaves bones removed (*ngěsit*). Furthermore, the leaves soaked for around three weeks, the water should be replaced with a new one every 3 days. This process called as *ngakum tal*. Then the leaves were removed and rinsed and dried again (*nayuhin*). The dried leaves re-boiled in a mixture containing water, a natural preservative ingredient (*palapah*), and herbs for one night. In the morning, the leaves are taken out of the pot and then dried out. That processed leaves are stored in advance up to 4 months and then pressed. Pressing process performed using a pressing tool called "pamlagbagan". Time for pressing the leaves is not limited, But the longer pressed, the better the quality of the leaves. To achieve an excellent quality, the duration of pressing can take 2 years. The leaves that is considered quite flat then perforated at the right side, left side and center that aligned to the center position (*mirit*). This process is using a tool called "pamiritan", "pamiretan", "pangirikan" or "cempurit". Afterwards, a bundle of leaves are clipped (*něpěs*), then the wrinkle part of the outside smoothed with sandpaper, traditional shaved tool, or knife (*nyěrut*), then the edge was embellished with dye. After the dye dried, the bundle is opened. Guidelines up to four lines are made to help the scribes writing in order. This process is called *nyipat*, *nyěpat*. Until this phase, blank palm leaves are called as *pěpěsan*, and ready to grave.

Writing on palm leaves requires tools, knowledge and skills. The main equipment needed is *pěpěsan*, *pangutik* or *pangrupak*, and blackener paste. *Pangutik* or *pangrupak* is a stylus, which the shaped is like a small knife, made of metal, with sharp edges. This tool is used to carve the letters on the surface of *pěpěsan*. This knife has a different sharpness depends to the purpose⁷. While the blackener is used to color engraved letters. This ink made from candlenut (*tingkih matunu*) which is burned until charred, then crushed and mixed with oil. In addition to candlenut, Putra (2013) shows that burned *nagasari* (*Mesua ferrea*) nut also usable. Besides the primary tools above, a little bed (*lungka-lungka*) used to keep the back of left hand more comfortable when writing. According to some scribes, one is better to cross the leg when writing like doing meditation posture. Therefore, a mini table as high as diaphragm is preferable. Balinese prefer to use a *dulang*, a single pod tray with cylindrical shape as its table. Furthermore, the *lontar* scribe must have a knowledge at reading and writing the Balinese in order to write properly. The scribe must write with discipline to avoid disproportionate

⁶ Dr. Lüders in Pandey (1952: 69).

⁷ Putra explained *pangrupak* types differentiated according to the intent and purpose of writing; that is: *pangrupak* with 45 degrees to write Balinese script, *pangrupak* with 70 degrees to make *prasi* (drawing on palm leaves), and *pangrupak* moderate (about 10 degrees), wide, and sharp for cutting *rontal* (2012: 159).

character, swapping letters, missing the line, and other unbeneficial things. The Balinese language has a lot of vocabulary about particular terms on the quality of written letters⁸.

For information on how to write on a *pěpěsan*, an interview was administered with Ni Wayan Sariani (48 years), a teacher of *lontar* writing in Bali⁹ as an informant. Based on the information of Sariani, on writing *lontar*, the scribe must use both hands. Each hand has their respective roles. The left hand holds *pěpěsan*, which is can vary from one sheet to five sheets¹⁰. The left hand's fingers clamp the *pěpěsan*, which is the thumb is placed at the top of the sheets, while the other four fingers act as its pad. The surface that is about to be written should be facing up. The task of the four fingers of the left hand is to feel the pressure of the *pangutik* so it cannot cut through the *pěpěsan*. The right hand serves to mobilize *pangutik*. Thumb and middle finger clamp the *pangutik* blade and the index finger press down the *pangutik*. While two other fingers hold *pangutik* movement from the right. The letters are written below the guideline. Left thumb guides the movement of the *pangutik* from left to right. Putra (2012) explains that writing on *lontar* requires breath controlling techniques and other subtle matters relates to mental tranquillity. The engraved letters need to be colored to make it readable. The palm leaf is polished with blackener paste until the it covers the whole surface (*ningkihin*). Cotton is used to sweep and clean the blackener so the color of the engraved letters are clearly visible. The written sheet is called *lěmpir* at this phase.

Lontar contains a variety of information and knowledge that can be grouped into several classes. The grouping of *lontar* texts has been attempted by several researchers such as Friedrich (1959), Kadjeng (in Hinzler, 1993), and Rubinstein (2000). Quoted from Hinzler (1993: 442), Kadjeng classified the *lontar* genre into 6 types, namely:

“1. *wěda*: texts on religion, ritual, holy formulas (languages: mainly Old Javanese with many Sanskrit words and phrases; Balinese is used only in later, twentieth-century texts); 2. *agama*: law codes, rules of behaviour for children and royalty (*nitisastra*, *sasana*, *putra sasana*), village regulations (languages: Old Javanese and Balinese); 3. *wariga*: handbooks on horoscopes, soothsaying, calendars, technical literature, science, instruction (*tutur*, *upaděsa*), grammars, magical texts (*kanda*), medicine, cock fighting, how to keep horses, doves, etc. (language: mainly Old Javanese); 4. *itihasa*: prose versions of the *Mahabharata* (*parwa*), versions of the *Ramayana* and *Mahabharata* in verse (*kakawin* with Indian metrical schemes), stories, in verse, situated in ancient East Java or India (*kidung* with Javanese metrical schemes) and their modern versions in verse (*parikan*, *geguritan* with Javanese/Balinese metrical schemes) and prose (*satua*) (languages: Old Javanese, Balinese, Sasak, Malay); 5. *babad*: chronicles, historical stories, genealogies (languages: mainly Old Javanese, sometimes Balinese); 6. *tantri*: fables based mainly on the Indian *Pancatantra*, folk tales, riddles (languages: Old Javanese, Balinese, Sasak).”

While later, Suwidja (in Putra, 2012), added an additional group named after “*lelampahan*”. This category includes manuscripts of performing arts performances such as *gambuh*, *arja*, and *wayang*.

Preservation and Digitization of Balinese *Lontar* Manuscript

Related to the effort of *lontar* preservation which has been done by various parties and stakeholders so far more related to technical things. Conservation and preservation of palm leaf manuscripts in Bali is still done in a conventional way. Dirty palm leaf manuscripts are cleaned using a brush, which is cleaned in one-way movements to remove dirt and dust from the *lontar* sheets. Meanwhile, the faded writing on *lontar* is blackened using burnt candlenut. Sometimes

⁸ Hinzler (1993) has collected the entries contained in the dictionary Kawi-Balinesesch-Nederlandsch Woordenboek by van der Tuuk published in 1897-1912 and translated into English.

⁹ Interview was conducted in Denpasar, dated 20 April 2017.

¹⁰ Meanwhile, according Hinzler (1993: 461), *pěpěsan* sheets could be held together from 4 to 5 sheets.

lontar that have been stored for too long and have not been noticed cleanliness often show the color change to blackish. *Lontar* practitioners in Bali use ethyl alcohol to clean and lighten the color of *lontar* manuscript. While the more traditional ways, using ‘belimbing wuluh’ (*Averrhoa bilimbi*), by sweeping the ‘belimbing wuluh’ fruits on *lontar*, then *lontar* dried.



Figure 2. Preservation and conservation activities with the community
Source: Hanacaraka Society

The old *lontar* has a dry, brittle, and easily broken structure. In addition, the main foe *lontar* is a rodent insect and high humidity. The rodents cause the *lontar* manuscript become damaged and potholes. To cope with this, the manuscript is smeared with an essential oil which insects doesn't like, such as lemongrass oil and clove oil. However, the use of essential oil in *lontar* also raises the pros and cons. Those who refuse to use essential oil are based on the understanding that the oil obtained by the distillation process still content water in it. It is believed can accelerate the growth of fungus in the palm leaf manuscript. In addition to rodent insects, high humidity also often causes damage to the *lontar*. Humid temperatures and poor air circulation, causing the *lontar* become moist and easily moldy. This causes the surface of the *lontar* can be black and easily broken. Therefore, in the conservation and preservation of the *lontar*, it is necessary to pay attention to the storage method used. It is endeavored for the *lontar* storage space have a good air circulation and stable air temperature.

So far there is no standard rule in the conduct of *lontar* conservation and preservation program. Formal institutions, such as libraries, archival and documentation centers use the means by which methods are recommended by national institutions. While the *lontar* tradition activists still use traditional approaches according to local wisdom that has been done for generations. Indeed preservation or preservation covers all aspects of preserving library material and archives, including management policies, finances, human resources, methods and storage techniques (Basuki, 1993). Preservation of bibliography concerning business that is preventive, curative, and also concern about factors influencing the library materials (Dureau and Clement, 1990).

With the development of digital technology, providing a new colors in the process of preservation of manuscripts. The efforts undertaken to preserve information and knowledge in *lontar* are taken through the method of digitization. *Lontar* manuscript converted into digital form, up to it is available and can be accessed online. So far, the process of digitizing the manuscript is still done manually, using camera, photographing the *lontar* sheets one by one. The steps in digitalization of *lontar* manuscript, include: preparation of manuscripts, cleaning, photographing process, photo editing and digital processing. The equipment used was quite simple: cameras and photo processing software.



Figure 3. The process of digitizing Balinese *lontar* manuscript
Source: *Pusdok Bali*

Not many institutions digitize the palm leaf manuscript in Bali. So far, there are two times the process of digitalization of manuscripts that have been done in Bali, by the Documentation Center of Bali Cultural Agency (2011) and *Lontar* Libraries of Udayana University (2016). *Lontar* digitalization by the Bali Cultural Office in collaboration with the Internet Archive Foundation digitized approximately 2.700 titles of *lontar* manuscripts from the Bali Documentation Center. The community can access the complete digitized-manuscript online¹¹. While in the 2016, *Lontar* Libraries of Udayana University also digitize 1.000 manuscripts collection.

The *lontar* digitalization process that has been done in Bali, facing many problems. The main problem faced is the difficulty to get the funds used in the digitizing program. Similar to the *lontar* conservation activities in general, the *lontar* digitalization program also still rely on financial support from foreign institutions, including human resources who assisting the process. Difficulty of funding, human resources and supporting equipment are inhibiting the process of digitizing in Bali. In addition, digitalization activities that have been performed also do not show satisfactory results implications in terms of its utilization. Most people prefer to use *lontar* physically instead of using *lontar* in digital form¹². This can be seen from the utilization of digital *lontar* on archive.org is not significant. For six years (2011-2017) the average number of visits on each *lontar* is only about 300 views.

The low utilization of *lontar* digitalization results does not meet the purpose of digitizing activities that preserve information for sustainable use. Many things are behind the low attention of people to digital *lontar*, physical *lontar* and its traditions as a whole. Changes in the community culture became one of the causes of the shifting paradigm of society to the existence of *lontar* in Bali. The influence of globalization and the occurrence of modernization, the more distanced the community from the tradition of *lontar*, Balinese language and the *aksara* (script).

The Existence of *Lontar* in Bali Today

Culture and tradition of writing on palm leaves have changed. Writing and reading tradition on the palm leaves that were once active, has now shifted into a passive activity. Before the Netherlands introduced a new reading and writing technologies like paper and pencil in Bali, palm leaves was used as writing materials. The Balinese have been constantly writing

¹¹ *Lontar* manuscript collection can be accessed through: <https://archive.org/details/Bali>

¹² People feel difficult and uncomfortable to read *lontar* in digital form, and prefer to read using *lontar* in physical form. see Kurnia, 2015.

on palm leaves¹³. In the past almost every family in Bali has at least one *cakep* (bundle) of *lontar*. Similarly, with families who have a collection of palm leaves in considerable numbers. This shows that the family is classified as an educated family, which in Balinese terms it is called as *anak nyastra*.

With the development of technology, people can choose which media is most needed, which is cheaper, easy to obtain, easy to carry, and durable. We can observe how now paper gradually replaced with the use of electronic media. The same thing happened to *lontar*. We cannot deny that the *lontar* becoming obsolete as writing material either for producing new text. However, as a mean which record many things about the past, *lontar* is too valuable to ignore.

In Bali, the public view *lontar* as a special substance and cannot be separated with the Balinese script. Balinese script is considered as sacred (Hinzler, 1993; Rubinstein: 2000; Bagus in Merta, 1992), mystical (Zurbuchen, 1987), and “alive” (Fox, 2013). Balinese script also managed to become an integrated part that accompany the Balinese from birth, live protection, illness, death, until the introduction deliverance of souls (Soebadio: 1971; Nala, 2006; Stephen, 2010; Acri: 2016). Indeed, until recently, the role of *lontar* in the realm of religious sacred cannot be replaced (Acri: 2013).

Based on preliminary data released by the Department of Culture of Bali Province (Dinas Kebudayaan Provinsi Bali) on 14 September 2016 and thanks to the Penyuluh Bahasa Bali (instructors of Balinese language), who had collect the data. The data reveal that 8370 *cakĕpan* stored spread widely in Balinese inhabitants’ house. 2562 *cakĕpan* which have damaged thus the physical condition and / or incomplete. The damaged manuscripts in Buleleng reached 85%, 96% Badung, Denpasar 25%, Gianyar 67%, 53% Karangasem, Klungkung 41%, 58% Jembrana and Tabanan 25%. Based on these data, we can use the average number of damaged manuscripts in each area as a reflection of how people neglect the *lontar*. How can it be abandoned? Because the keeper still has a tendency to sacralize the *lontar* manuscript. Research conducted by Hinzler in 1993 said that people tend to sacralize the *lontar*. Although conducted over 20 years ago, it seems this is still relevant today. The Balinese people are limited to *lontar*.



Figure 4. Damaged and perforated *lontar* manuscripts
Source: *Hanacaraka Society*

¹³ Hooykas stated: "[...] maar de geheele Balische Literatuur, die zoo Buitengewoon omvangrijk is, doordat ze aile mogelijke gebieden tijdsruimte bestrijkt over een jaar van meer and duizend [...]" (1941: 26).

The tradition of literacy has been around a long time in Bali, but no one can confirm the number of people who understand literacy in the past. Nevertheless, there are general texts such as manuscripts folklore, heroic epics, poems, songs, and the like into the category *itihasa* and *tantri* that bear "no secrecy"¹⁴ spread in the Balinese people. UPTD Gedong Kirtya, a *lontar* manuscripts library erected by Dutch in 1929, has published a catalogue of their collections. Through this catalogue, the manuscript grouped into this kind of category reach 1203 titles while *itihasa* and *tantri* reach 400 titles. According to Rubinstein (2000), in the past, at least since the information of Raffles (1817), Friedrich (1849), Van Bloemen Waanders (1859), van Eck (1878-1880), and Jacobs (1883), access to *lontar* manuscript very limited to the Brahmins, followed by group *Kṣatriya* and *Vaiśya* (called *triwangsa* or three clans). However, Friedrich noted that there were also groups outside *triwangsa* (he called them as *Śudra*) were able to read and write. After Gedong Kirtya opened to the public in 1929, the opportunity to read *lontar* increasingly open to the public. According to Hooykaas (1976) when he was in charge (1939-1941), there he saw Balinese outside *triwangsa* also visit the reading room in Gedong Kirtya. Although it could not express by means of number, it can be presumed that the people of Bali in the past were familiar with the script and *lontar*.

However, Hooykaas had predicted that the new writing materials such as paper and pens are cheaper and easier to use, will replace *lontar*¹⁵. The Netherlands has its own role in the introduction of modern writing technology to the people of Bali. The Netherlands have brought *a la* western education and introducing the Latin script. Schools and mass media have a big impact for the education of Bali since the end of the 19th century, that they use the Latin script more. In 1875 the first school in Buleleng called Tweede Klasse School has been established. Other schools such as Erste Inlandsche School (1913) and following the Hollandsche Inlandsche School was built. Bali intellectual movements that have developed since 1923 began to print newsletters in Malay and used Latin script. Not only has the colonial government, the Indonesian government also shifted the role of Balinese script. After the post-independence of the Republic of Indonesia, Indonesian language set to be the national language of Indonesia and Indonesian Latin script used as the script. These changes have taken over the role of the Balinese script in many aspects of community life. Over time, number of the Balinese who illiterate of their script become widened. These limitations lead to ignorance, and if it left to be such a way, it may causes people not able to read the title, content, even pages from the *lontar*. People who have limited to literacy considers the text they do not understand is harmful to them¹⁶. In fact, the Balinese script is a prerequisite for the reader to be able to

¹⁴ Friedrich noted in his report that the texts from *kakawin* group was not limited to anyone who wants to learn. He mentioned titles like *Bhāratayuddha*, *Arjunawiwaha*, *Smaradahana*, *Sumanasāntaka*, *Bhomakawya*, *Arjuna Wijaya*, *Sutasoma*, and *Hariwangsa* as "common Kavi literature" (in Rubinstein, 2001: 19).

¹⁵ Hooykaas as researchers are very dedicated himself to the study of Balinese texts, has written his thoughts that the future must inevitably *lontar* sidelined by the technology cheaper and more efficient. "Toch is ook het *lontar*blad als schrijfmateriaal ten doode opgeschreven, zal althans in zijn gebruik tot een steeds kleiner gebied teruggedrongen worden. Schrijven op papier gaat vlugger, kost dus minder, en drukken kost een fractie. De Baliër is gehecht aan zijn materiaal en aan zijn letter, maar evenmin blind voor de waarde van het geld en de duurte van zijn literatuur die tot onbereikbaarheid en ontoegankelijkheid leidt. Hoe levendig het te betreuren mogezijn uit folkloristisch oogpunt, wanneer de *lontar* en pangoetik worden verdrongen door papier en vulpen, schrijfmachine en drukpers - aan de algemeene volksontwikkeling zal gebruik der laatsten kunnen tegemoetkomen. De mechanische vermenigvuldiging van het oude en nieuwe eigene zal hieraan een nieuwe verbreiding kunnen geven, ook daar, waar men nu genoegen moet nemen met mechanisch-vermenigvuldigde zaken die niet-eigen en zelfs ongewenscht zijn" (1941: 29).

¹⁶ In the past, letters and literacy skill were special and associated to supernatural abilities. See Goody and Watt in Ong (2013: 139).

read a manuscript. So many people who become *ra buntut tra tawanga*¹⁷, *tra bisa nastra*¹⁸.

The influence of globalization and the occurrence of modernization in Bali also strongly affects the existence of *lontar*. The discourse between tradition and modernity is the subject of concern in Bali today. Foreign ideologies and cultures are penetrated into the public sphere of life, thus impacting the stability of values within the locality of Balinese society. Similarly, the development of technology as a determinant of the change of socio-cultural life and the local traditions in Bali. The influx of foreign cultures is much influenced the stability of local culture, Michel Picard calls the existence of a 'cultural crisis', namely the blurring of the distinction between indigenous culture and foreign culture¹⁹. This blurring is also happening in the view of society to *lontar* and its tradition, that faded and forgotten. *Lontar* is seen as something ancient and has no meaningful value to the most people.

Today *lontar* is still often used in the daily life of the community, associated with the implementation of religious rituals, social life of society, as a record of family tree, etc. On the other hand, the influence of global culture influences socio-cultural changes in Balinese society, causing the traditional values to become increasingly faded and powerless to mobilize the social system of society. Based on these circumstances, it can be said that there is a so-called cultural entropy, where the existing cultural value system does not die, but loses its power to motivate and control the existing social system. Utilization and intention to keep preserving *lontar* manuscript is still exist, but the implementation of real conservation by society does not exist. The public is only concerned about the existence of the *lontar* without participating in efforts to conserve the *lontar* significantly. The attitude of the people who merely maintain the tradition of the ancestors is limited to the needs of religious ceremonies and feel that the cultural value in it is eternal or not lost. While in actuality, these values are no longer functioning effectively as expected, in order to maintain and preserve the manuscript of the *lontar* in society.

Therefore it is necessary to re-popularize the tradition of reading and writing *lontar*. Because to preserve the *lontar* manuscript can not be done by keeping the manuscript both physically and digitally but necessary to maintain the existence of *lontar* and its traditions in the community. The *lontar* manuscripts are different from the Latin texts which can be stored by digitizing the manuscript. The community needs to understand and articulate the *aksara* (letter) and the languages used in the *lontar*, so that the *lontar* automatically will remain in the community.

Efforts on Bringing Together *Lontar* with the Balinese

Need a real effort to minimize the impact of the problems mentioned previously. Preservation efforts have often sounded by the government or non-government party. Formal education are now already adjusting well to the literacy curriculum, language, and literature of Bali. Seeing gaps against the *lontar* and Balinese script, we assume that we can contribute our ideas and actions facing this problem. First, to reintroduce the characters, language, and literature of Bali in real terms, for example, exhibition of palm leaf manuscript. Citizens who are losing their access to old manuscripts can interact back with the product of literacy culture of Bali in its true sense. The exhibition does not mean just physical appearance, but need to be

¹⁷ Literally meaning "not knowing Mr. Tail", meaning illiteracy.

¹⁸ Literally meaning "can not write", meaning the same as the above terms.

¹⁹ Michel Picard, "Cultural Heritage and Tourist Capital: Cultural Tourism in Bali", pp. 44-66 in M.F. Lanfant, J.B. Allcock and E.M. Bruner (eds), *International Tourism: Identity and Change*, (London: SAGE Publications, 1995), p. 44

coupled with the correct narrative and educative. The combination of hardware (*lontar* physical appearance) and software (its narration) will be a great experience for the visitors.



Figure 5. Balinese *lontar* manuscript exhibition
Source: *Hanacaraka Society*

Second, we need to empower the human resources to treat *lontar*. Some parties have been working hard in effort of this palm leaf manuscript, such as the Pusat Dokumentasi Dinas Kebudayaan Pemprov Bali (Documentation Center of Bali Province), UPTD Gedong Kirtya in Singaraja, and UPT Lontar at Udayana University. According to the data from the Penyuluh Bahasa Bali, it gives us hope for the preservation of *lontar* in public hands. No less important, the community as the owner/keeper of the manuscripts can be introduced to Balinese literacy, language, and literature. This is necessary so that they have the skills to keep *lontar* and read independently. Therefore, the more hands that are willing to maintain, preserve and develop the literacy, language, and literature of Bali.



Figure 6. *Lontar* writing class.
Source: *Hanacaraka Society*



Figure 7. Workshop about *lontar*, *aksara*, and Balinese language
Source: *Hanacaraka Society*

Third, innovation is necessary in order to introduce back Balinese script and *lontar* into the realm of contemporary Balinese through appropriate technology. In this digital era, in case of Balinese script can be used more widely and popular. It is not a fantasy because of the efforts to that direction is very possible. The innovations have been done so that the Balinese could adapt to modern technology. Actually effort toward electronic media has started since 1993 by I Made Suatjana with Bali Simbar, a font of Balinese script, which has commonly used in Bali nowadays. This was followed by the creation of other fonts, such as JG Balinese by Jason Glavy (2003), *Aksara Bali* by Khoi Nguyen (2011), Noto Sans Balinese by Monotype Design Team, Geguratan (2015) and Alphalange (2017) by Ida Bagus Komang Sudarma, Tantular Bali (2015) and Lilitan (2015) by Aditya Bayu Perdana, Arif Budiarto, and Ida Bagus Komang Sudarma, and Ubud by Norbert Lindenberg (2015); and software such as Smart Font Transliterator Bali Galang (SFTBG) by Yayasan Bali Galang (2008) began to give a new color in such a digital Balinese script²⁰.



Figure 8. *Aksara*, language and *lontar* in shades of ‘pop culture’
Source: Hanacaraka Society



Figure 9. Balinese script of Alphalange font used in Android
Source: Ida Bagus Komang Sudarma

²⁰ Norbert Lindenberg in <http://norbertlindenberg.com/2015/10/bringing-balinese-to-ios/>.

Later, Balinese script and language began to be promoted through pop cultures²¹. *Lontar* is popularized again through the pop culture approaches. This is done by incorporating *lontar* elements into various forms of media, such as art illustration, installation art, t-shirts, comics, knick-knacks, etc. In addition, there are also a Facebook fanpages namely "Aksara Bali"²² and "Aliansi Peduli Bahasa Bali"²³ which provides knowledge and information about *lontar*, *aksara* and Balinese language to the public through a social media platform. Through the above innovations, Balinese could return closer to their literacy, language, and literature without any awkward feeling. Now Balinese script is usable in desktop computers, laptops, tablets, and mobile phones. The needs on these stuffs increasingly diverse, ranging from conservation, educational media, designs, to creative industries. Internet makes the usage of Balinese script becomes limitless. Nowadays all people in the world can install Balinese script on their digital hardware. These opportunities have be utilized to re-familiarize Balinese script in everyday life.

Conclusion

The main key that can make *lontar* manuscripts still exist in the community is to provide accessibility and knowledge of *lontar* to the every community member widely. With open access and supported by efforts to re-popularize the tradition of *lontar*, cause the community will feel close and have a sense of responsibility to maintain its sustainability. Because the preservation and conservation activities of *lontar* manuscripts can not only rely on technical matters, such as cleanliness and the *lontar* storage method, as well as by digitizing to preserve *lontar* information into digital form. It takes humanistic efforts, by bringing together the manuscript *lontar* with the community. Re-popularization of reading and writing traditions is the best way to maintain the existence of the *lontar* and its information and knowledge in the community. Because it needs to realize that the *lontar* is different from other texts. Society needs to understand the language and the *aksara* (script) used in the palm leaves. What if the *lontar* is already digitized, but the society does not understand what is written in it. Then to whom is digitization aimed? Therefore, education and access to knowledge to bring people closer to the *lontar* be a good approach to maintain the sustainability of the tradition of reading and writing palm leaf manuscript in Bali. Because not always the library can handle the entire manuscript in the community. Peoples need to know and understand about the collection of manuscripts it has, in order to arise a sense of belonging to jointly preserve the cultural heritage as a cultural identity.

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²¹ Comics of Tantraz Comics like "Baladeva-Chronicles of Calonarang" and "The Epic Tale of Baladeva".

²² <https://www.facebook.com/aksarabalikontempore/>, this page has "The page aims to remind the likers Balinese script has accompanied the Balinese and its civilization still exists and flexible for use" by admin.

²³ <https://web.facebook.com/aliansipedulibahasabali>, this page posting content related to character and language of Bali.

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