

A study of preserving the making process of tepa putul from perished

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Abstract

Tepa Putul is one of the living histories of Bangladesh. The archeological value of this artifact is not only limited to Bangladesh rather it is one of the most important artifact for all Indian sub-continent, because, the form and making process of Tepa Putul is still following the tradition of Indus' Valley Civilization's terracotta. Perhaps Tepa Putul is the only one Indian artifact that still carries the glorious heritage of more than 6000 years old Indian terracotta sculptures without any single change. But unfortunately the heritage of Tepa Putul is slowly being forgotten. Now it is very close to the complete disappearance and there is no proper study that has been done before, which could introduce this tradition to the next generation. Therefore, this research is intended to do a comprehensive and proper visual documentation on Tepa Putul, through systematic effective field of digital documentation to preserve its tradition for the future generation. Major limitation of this research is based on the past literatures, in future empirical studies required to identify the methods to preserve Tepa Putul.

Keywords: culture, culture preservation, culture documentation, visual documentation, making process, Bangladeshi traditional doll

1. Introduction

Tepa Putul is one kind of traditional Bangladeshi terracotta sculpture mostly used as a toy doll or show piece in all over Bangladesh and few parts of India. In Bengali language, 'Tepa' means pressing and 'Putul' means Doll. So the name, Tepa Putul indicates that it is very ancient and has a simple making process where the dolls are made by simply pressing the raw clay using fingers. (Fakir, 1985 & Talukdarin, 2001)



Source: Own

Fig 1: Modern Tepa Putul



Source: Wikipedia (2013) & Indianetzone (2013)

Fig 2: Clay dolls in Indus Valley Civilization times

According to Jahanggir (1982) [18] & Fakir (1985) [7], the tradition of Tepa Putul is more than 6000 years old. The Indian people make and used Tepa Putul for various purposes since the ancient Indus' Valley Civilization or probably since prehistoric era. If we look back to the ancient Indus' Valley Civilization, the way they used to make their terracotta sculpture at that time, still Tepa Putul is made following the same style and techniques. Therefore sometimes it is considered as a living archeological evidence of ancient Indian civilization. But this prehistoric form of art is not only important for its archeological values rather the significances of Tepa Putul is hidden in its unique artistic quality which conveys the very original test of Indian aesthetics from prehistoric time to postmodern era. Therefore, in early 20th century, lots of the Bengali fine artists took Tepa Putul as their visual inspiration and at the same time Tepa Putul was used widely in rural areas as a form of toy.

Background of Problem

Future Generation

No Proper Documentation (Visually) about Tepa Putul – Future generation needs to know about the valuable information of their own Heritage and Culture. But if there is no proper documentation (visually) on it, then they will not get any information on it and they will forget it slowly. During the interview with Dr. Zinat Mahrukh Banu (Keeper & Head Department of Ethnography and Decorative Art, National Museum, Bangladesh) (2011), Swapan Kumar Sikder (Associate Prof. & Chairman of the Ceramics Dept. Faculty of Fine Art, University of Dhaka) (2013), Debashis Pal (Associate Prof. of the Ceramics Dept. Faculty of Fine Art, University of Dhaka) (2013), Maran Chand (National Award Winner Potter & Teacher of the Ceramics Dept. Faculty of Fine Art, University of Dhaka) (2012) and Shushil

Pal (National Award Winner Potter) (2012) motioned that unfortunately there is no proper documentation on Tapa Putul. So it's necessary to document (especially on visual) all the information on Tapa Putul for the future generation to get the knowledge on it.

New Researchers

No Proper Books about It – As a new researcher if anyone want to do any new research on a new topic they need to get information from books which is one type of ref. document. But unfortunately there are lacks of proper books for new researcher on Tapa Putul.

No Specific Information or Pictures on Internet – In this modern era most of the new researchers are using modern technology for their research work such as computer, internet, etc. But on internet, visual and information of Tapa Putul are not available. So it's really difficult to do research work with efficiency and reliable way on Tapa Putul from internet.

Local Potters

Slowly losing its Popularity – According to (*The Daily Independent*, September 29, 2003) the demand for pottery products has fallen in the local markets due to availability of plastic, stainless steel and aluminum products to a considerable extent.

Local Potters slowly stopping its production – According to (*The Daily Independent*, September 29, 2003) and (*The Daily Independent*, November 11, 2004) high prices of necessary raw materials like kiln clays, dice, dye, fuel and dearth of capital have affected the industry adversely. Besides, the availability of plastic, stainless steel and aluminum products in the markets are making the pottery products to lose their popularity.

Changing Originality (Shape, form, color) – According to this article "*Dolls - Our Heritage by Abanindranath Tagore*" taken from <http://www.sos-arsenic.net/lovingbengal/patchitra.html>, our old dolls are no longer keeping the originality; some have even changed their forms and decorations to suit modern taste.

The problem statement of this research is poor documentation (visually) on Tapa Putul, based on the researcher's research, there are some documents (theoretically) on Tapa Putul but those are not enough for proper visual documentation.

Aim of this research is visually compiling information. And objectives of this research are:

1. To preserve the making process of Tapa Putul for next generation
2. Identify the role of visual documentation for the making of doll
3. Identify the importance of photography for culture preservation
4. Collecting Information about it, the Types and the History.

Significance of study will be future generation will get valuable information about their Heritage and Culture; new researchers will get valuable information and perhaps local potters will get involved again to recover its popularity.

2. Literature Review

Culture

A lot of people define culture only as it relates to the heritage

and art of Indigenous or Native People. On the other hand, culture has better meaning and should be useful to both minority and dominant populations in both developing and developed countries. At the World Conference on Cultural Policies in Mexico City (1982), participants' defined culture as a society is the entire complex of spiritual, material, intellectual and emotional features. (UNESCO, 1982) This explanation of culture extends beyond heritage and art, and identifies the intricate tapestry of culture that defines societies.

Background of Culture

Social character is vital for the every of civilizations. On the off chance that individuals have a solid feeling of self-personality through society, they will probably associate gently with different societies, with deference for the differences of quality frameworks and religious convictions and in addition the substantial parts of society. As various societies turn out to be more interwoven, these social personalities may change. The liquid way of society can be certain, prompting more grounded societal structures and values, additionally can destroy minority or less-intense societies, prompting the breaking down of basic human qualities.

One noticeable case of the decimation of society is the obliteration of antiquated Buddhist statutes in Taliban-ruled Afghanistan. In any case, dangers to culture are clear in all nations, whether nations are developed or developing, or self-administered or controlled by power. North American Native Peoples battle to keep up their language, art and religious practices and numerous Native North American kids are losing their social way of life as they join the financial structure of the predominant society. In all parts of the worldwide group, differing people groups battle to keep up their social character notwithstanding globalization, improvement, struggle and participation with the universal group.

Protecting and preserving society incorporates parts of human rights, resistance, advancement and securing social sites and artifacts, and additionally licensed innovation rights for socially particular language and art. The protection and preservation of the differing societies of the world is one of the establishments on which the United Nations was constructed. The United Nations Education Scientific and Cultural Organization (UNESCO) is the essential body of the UN to secure and protect society.

Culture and Development

Development is both a chance and a risk to the cultures of the world, and economic globalization is at the centre of the civil argument of how to protect the social character of various populaces while attempting to give the advantages of globalization to all individuals. Worldwide exchange regularly brings material products into nations that dislodge customary merchandise, yet it likewise gives chances to improve the economies of different populaces through the natural estimation of traditional art and practices.

During the World Decade for Cultural Development (1988-1997), UNESCO set up four key targets of its culture and development plan:

- To recognize the social measurement of development;
- To confirm and improve cultural identities;

- To widen cooperation in cultural life; and
- To advance global cultural co-operation. (GA, 1986).

Preserving Culture and Its Importance

Dr. Phil Bartle compares “preserving culture” to preserving dead bodies in his “Preserving Culture” article. He compares culture to a living life form that changes, reacts and grows. In a nutshell he carries out the ineffectuality of the whole exercise of preservation of culture itself.

The best way to preserve traditions and culture is in the form of text, photo, video, animation, drawing and to place them in a museum.

"Without language there is no culture. Without culture the body doesn't have a soul," said Arsenio Cordova, educator, lecturer, historian and musician. Cordova spoke on Friday, October 17, 2003 about "Culture, Traditions and our Responsibilities to Preserve them," as part of that year's national Hispanic Heritage Month closing event at the Laboratory.

So, by preserving a culture, one keeps the traditions, family values, sociological standards and mores, and language. One keeps their personal identity intact.

The preservation of cultural heritage objects through the use of computer modelling techniques has attracted considerable attention in geometric modelling, computer graphics and virtual reality communities. This is a particularly important issue in the realm of cultural heritage, since objects may be easily demolished, as the recent destruction of the Buddha images in Afghanistan has powerfully demonstrated (Vilbrandt *et al.*, 2004)

As per Petros Patias, (2006) ^[27]. Cultural heritage is an affirmation of past human movement, and, all things considered, Cultural heritage articles display awesome assortment in their size, nature and complexity; from little artifacts and museum items to cultural landscapes, from historical structures and old landmarks to downtown areas and archaeological locales.

Hylland Eriksen (2015) ^[16] describes that ‘culture’ which is significant to the discipline, originates from the Latin ‘colere’, which means to cultivate. Cultural anthropology thus means ‘knowledge about cultivated humans’. This knowledge is about those aspects of humanity which are not natural, but which are related to that which is acquired.

G. France, Fenella (2015) ^[13] mentioned that in order to preserve our cultural heritage sufficiently for future generations is it imperative to establish and apply advanced knowledge of materials science to protect our collections in relation to tolerances & actual damage and to control of deteriorating factors rather than bulk parameter control.

To achieve this we need to focus on international research collaborations that allow the implementation of consensus standards optimized for protection of cultural heritage buildings and collections.

The significance of Cultural heritage documentation is very much perceived and there is an expanding weight to record our heritage both nationally and internationally. This has alarmed international associations to the requirement for issuing rules portraying the gauges for documentation. Contracts, resolutions and announcements by worldwide associations underline the significance of documentation of cultural heritage for the reasons of protection works, administration, evaluation, appraisal of the auxiliary

condition, chronicling, production, publication and research. Important ones incorporate the International Council on Monuments and Sites, ICOMOS (ICOMOS, 2005) and UNESCO, including the popular Venice Charter, The International Charter for the Conservation and Restoration of Monuments and Sites, 1964, (UNESCO, 2005). This suite of documentation necessities, as expressed by the international agreements, imposes important technical restrictions and dictates specifications, which should be always borne in mind when recording strategies are designed and followed.

In the critical situation, Architects and Designers are the important persons who can preserve the culture. Zaha Mohammad Hadid, DBE, (2013) describes that for culture preservation Designers can work in a team to resolve the urgent challenges that are the defining questions of our era. With real collaboration at the local and international level architects and designers are able to acquire the skills and tools to tackle any critical issues in their communities.

Even digital libraries has very important role in preserving culture for the communities. Monica Setshwane and Oats (2015) ^[34] mentioned that Effective cooperation between public libraries and their communities is critical as it covers to a smooth working relationship. If libraries have good relations with their community it will be easier for them to collect cultural information from them and can educate community on the importance and roles in preserving culture. All public libraries are playing good roles in documenting and preserving culture for posterity. Here everyone in the community can easily access for the information. As public libraries keep cultural information sources, community history will live long and also help to preserve the memory of the society being served.

Protecting the Tangible and Intangible Product of Culture

The sites, arts and artifacts, language and intellectual property of numerous cultures all through the world are in risk of destruction or exploitation. The obliteration of sites with both cultural and historical significance is an essential worry amid times of both clash and peace. Artifacts from both ancient times and the contemporary world are now and then exceptionally esteemed by gatherers and are once in a while exchanged legally or illegally. Ancient practices, knowledge and language are subverted for the advantage of those outside the culture of starting point, undermining the privileges of the individuals from that culture to safeguard their heritage.

Furthering the Protection and Preservation of Culture Laws

Protection of and preservation of cultural rights must be viable if UN part states separately try to ensure the privileges of social gatherings inside their own particular limits. Part states can be urged to set up laws to characterize and implement human rights, fight hate crimes and ensure the licensed innovation privileges of different cultural groups. These laws should likewise be satisfactorily upheld and rise to access to the standard of law ought to be accommodated women, children and minority cultures. With the foundation and implementation of far reaching laws to secure and protect culture, part states reaffirm to their populaces the significance of cultural legacy, and can serve as case to the universal group, advancing the attention to cultural differences.

Education

As confirm by the educational efforts of UNESCO, education is an essential key to advancing comprehension and resistance of cultural differences. Education prompts accord on the issue of protecting and preserving the cultural personalities of all people. Community education, education in the school system, education to achieve country populations and education about one's rights and duties are all important strides toward appreciation for cultural differing qualities. Information to precisely depict diverse cultures and their conviction frameworks encourages mindfulness that can prompt acknowledgment of the qualities.

Local Solutions

Since any viable solution to protecting and preserving the cultural heritage of all people requires an appreciation for cultural diversity, any project or approach to protect culture will be powerful just on the off chance that it is actualized in collaboration with the very society these programs and arrangements look to secure. Programs, laws or education to protect and preserve culture must not just be delicate to the requirements of the culture that needs these assurances, additionally to the other cultural groups in the area.

Culture Preservation in Japan

The Cultural Heritage Online Plan

Study conducted in Japan, suggested to preserve culture online. In Policy of Cultural Affair in Japan, Fiscal (2014) mentioned that Cultural Heritage Online is a portal site of cultural heritage on the Internet, which enables viewers to survey information regarding tangible and intangible cultural properties recognized by national or local governments. In cooperation with museums, art galleries, and related organizations, as well as local governments, the plan aims to advance further with the collection of information on diverse cultural heritage of high quality, both tangible and intangible, to enhance the contents of this site.

Agency for Cultural Affairs (ACA)

It has been Established in 1968 in Japan to preserve culture, by merger of the Cultural Bureau of the Ministry of Education and the Commission, two major assignments • Promoting culture and arts • Preserving and utilizing cultural properties were assigned.

National Research Institute for Cultural Properties, Tokyo was established in 1930 as the institute of art research. Engaging the basic and applied research for preserving cultural properties (both tangible and intangible).

Functions:

- Documentation
- Consultation
- Collecting related materials
- Making databases
- Awareness rising
- International cooperation

National Theatres

- Put the traditional performing arts on stage
- Manage the successor-training course of traditional performing arts

Museums

National museums, local museums and non-governmental museums

Functions:

- Permanent exhibition of traditional art craft
- Special exhibition of traditional art craft
- Workshops and demonstrations of craft techniques

Characteristic of preservation activities in Japan

Encouragement

- Indirect support (financial, opportunity, place, resources, etc.)
 - Emphasis of documentation (Preservation and Utilization of Cultural Properties, 2015)
- H. Satoru (2007) ^[33] mentioned that don't disturb those people who are trying to preserve their culture. It's better to help them to preserve their heritage for the next generation.

Documentation

A document is a form of information. In general, a document is written, but a document can also be made with pictures and sound. A document is a record or the capturing of some event or thing so that the information will not be lost. A document can be put into an electronic form and stored in a computer as one or more files.

Documentation is like an efficient and reliable technique where is needed for collecting, preserving, organizing (arranging), representing (describing), selecting (retrieving), reproducing (copying). Even bibliography, scholarly information services, records management, and archival work, all these are Documentation.

Documentation is a common term for a variety of documents in a chosen mix of media and with a certain collection. Function of documentation is the use to support a tool or a process. Classical documentation is a set of documents printed on paper. Documentation (to document) also refers to the process of providing evidence.

Digital Preservation of Cultural Heritage

Digital archiving is immediately option and supplementary to the physical filing of cultural heritage objects, if the synthetic digital objects made from examined simple articles characterizing a culture are exactly point by point yet packed for optimal storage. In this area, we talk about digital cultural heritage preservation advantages, applications, and approaches. We raise with tirelessness a few huge issues and arrangements basic to the execution of digital archiving technologies and give particular usage points of interest.

Digitization activities, including participating in communitarian digitization extends and making digital collections, started at Colorado State University Libraries (CSUL) in mid 2000s. A hefty portion of the principal materials digitized were photographic materials, joined by textual documents and sound recordings. With the initiation of the CSU Digital Repository in March 2008, university productions, faculty papers, theses and dissertations, student research posters, archival images and documents are presently additionally accessible on the web. Documents and images put together by faculty and students are normally born digital; numerous others are digitized in-house; and once in a while we outsource our tasks (Liu, 2013).

3D Digitizing

Precise documentation of cultural heritage monuments status is essential for its protection and scientific studies. Cultural heritage objects and sites greatly differ from each other and a maximized fidelity of the 3D model is a core requirement (Calin *et al.*, 2015).

The use of 3D scanning technology has been more frequently

used in the last decade; however, it is still a new technology that requires experts and special procedures for their use. Some examples of 3D digitization are the Michelangelo's David (Levoy, 2000), and the scan of the very Sanctuary of Bom Jesus de Matosinhos, conducted by the Federal University of Paraná (UNESCO) that, in 2011, scanned the prophets site for preservation purposes.

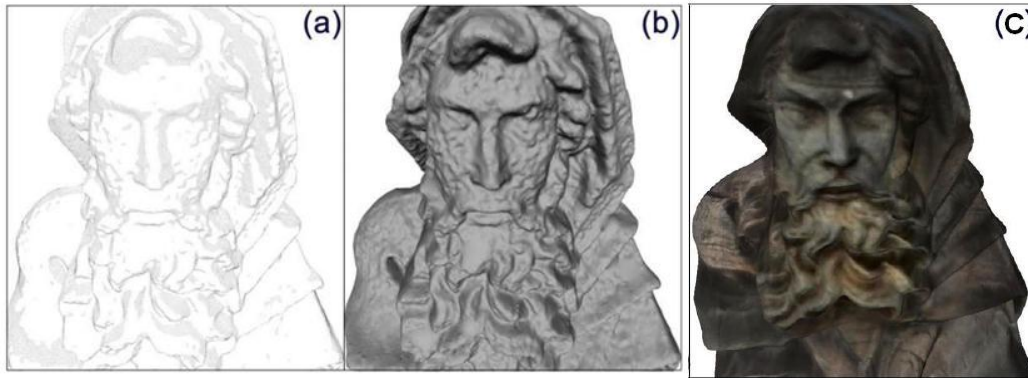


Fig 3: 3D Digitizing (a) 3D mesh of Prophet Isaias, (b) Mesh of Points after triangulation and Statue of the prophet Isaias before coloring. (c) Colored result. (Rodrigues Jr, Jose *et al.*, 2014) [31].

3D Reconstruction of the Great Buddha of Bamiyan

In the center of Afghanistan, the town of Bamiyan, is arranged around 200 km north-west of Kabul at an elevation of roughly 2500 meters. Bamiyan is viewed as an oasis in the center of a long valley that isolates the huge chains of Hindu Kush Mountains, and the city worked as one of the best Buddhist habitats for almost five centuries. In the colossal valley of Bamiyan, two huge standing Buddha statues and a

little situated Buddha were cut out of the sedimentary rock of the region. They were started in the second century A.D. under the support of Emperor Kanishka and most likely completed around the fourth and fifth hundreds of years A.D. The two huge Buddhas, which remained around one kilometre separated, were cut out of a high extend of bluff confronting the largest part of the valley. These monster statues were the biggest Buddhist models on the planet.

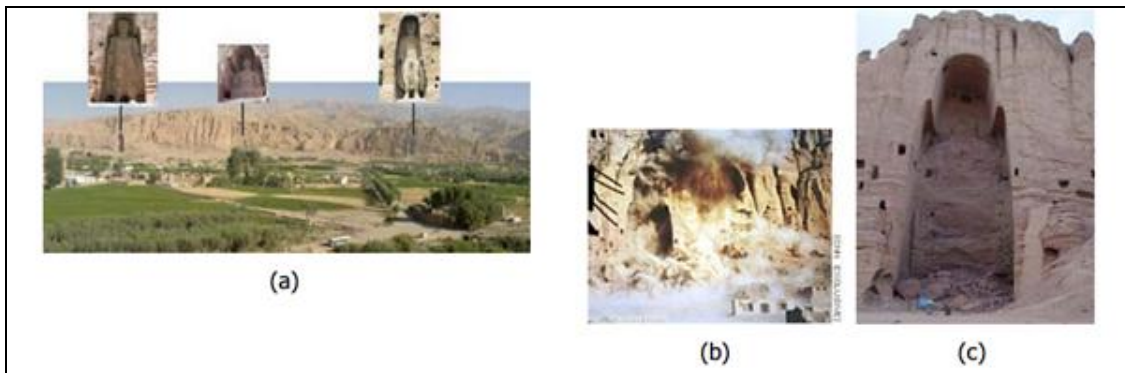


Fig 4: the Great Buddha of Bamiyan (a) The Green Valley of Bamiyan with the two large standing Buddha statues and a smaller one in the middle; (b) the explosion of March 2001 and (c) the empty niche where the Great Buddha once stood, as seen in August 2003. (Petros Patias, 2006) [27].

The two giant Buddha statues carved into the sandstone cliffs of Bamiyan, and additionally numerous other Buddhist statues of the range, were crushed by the Taliban militia on March 8, 2001. After the obliteration, a battle was propelled to recreate the Buddhas in their original shape. (Petros Patias, 2006) [27].

Advantages of Digital Preservation

The preservation of cultural objects of significance by method for digital processes is hypothetically conceivable as well as exceedingly attractive for the accompanying reasons: subsequent to each digital reproduction copy is a perfect copy, digital reproduction can possibly permit secure

documenting of information into the far off future; in little measures of physical space, large amounts of data can be stored, making it achievable to have numerous duplicates in numerous areas, in this manner guaranteeing against misfortune because of unanticipated occasions; much chronicled information and numerous social items can't be gotten to openly (as a result of the expense and overhead of showcase, extraordinary areas, and so on.), though digital data can be freely gotten to on interest universally; straightforward learning through steady connection with cultural objects progressively recreations, both locally and globally, is maybe a standout amongst the most encouraging advantages from developing digital modelling technologies.

Documentation is necessary for: (Yilmaz *et al.* 2007) ^[43].

- Transmitting cultural heritage to next generation.
- Making the art or site alive by using it in contemporary manner.
- Obtaining correct data for future plans.
- Determination of the problems in historical art and in historical site or monument.
- Acquisition of knowledge about the history of the art or site.

Documenting Cultural Heritage

The perspective of cultural heritage is firmly predictable with that of UNESCO, articulated in the 1972 Convention for the Protection of the World Cultural and Natural Heritage (Callegari, 2003). UNESCO (1946) and the Council of Europe have shaped particular associations for preservation of cultural heritages. ICOMOS (International Council for Monuments and Sites) is the most vital one; additionally CIPA (International Committee for Architectural Photogrammetry), ISPRS (International Society for Photogrammetry and Remote Sensing), ICOM (International Council for Museums), ICCROM (International Center for the Conservation and Restoration of Monuments) and UIA (International Union of Architects) are all required in preservation undertaking of cultural heritages. Documentation is an unpredictable procedure that incorporates phases of data acquisition, interpretation, and production. It is the first and most essential stride before beginning to preserve projects and works. A short meaning of it is the recording of the existent state and surroundings of the working by reports, drawings and photos.

During the documentation and recording, information about the art or site can be promoted after utilizing old photos, old maps, old drawings and projects, civil and personal archives, pictures and gravures, archaeological data and travel notes.

For documentation of important historical art or site must be worth saving. For this, the art or site must have the elements like the accompanying.

- To testify to a historical event in the past
- To have the original and characteristic quality (authenticity)
- To have worth of continuity (maintain its original function today)
- To have a legitimate documentation from the past
- To be unique from the technical or structural point of view
- To have artistic or technical worth
- To have functional worth
- To have traditional worth

Visual Documentation

Visual documentation is actually doing documentation with combination of many different techniques like thumb nail sketches, motion media, still photography and audio recording, etc.

Digital Preservation

Digitization converts materials from formats that can be read by people (analog) to a format that can be read only by machines (digital), such as read-only scanner, digital cameras, planetary cameras and a number of other devices which can be used to digitize cultural heritage materials (Jones, 2001) ^[19]. The primary, and usually the most obvious, advantage of

digitization is that it enables greater access to collections of all types. All manner of materials can be digitized and delivered in electronic formats and the focus of the contents that are selected for digitization varies across institutions (Hughes, 2004) ^[15]. Mulrenin and Geser (2001) ^[22] concurs that the conversion into bits and bytes opens up a completely new dimension of reaching traditional and new audiences by providing access to cultural heritage resources in ways unimaginable a decade ago. Libraries, museums and other cultural institutions are committing increasing amounts of time and money to digitization in order to improve access to their collections. Jones (2001) ^[19] identified the benefits of digital access for collections as follows: Easy to be viewed from anywhere, at any time of the day. From the web can be readily printed. Viewers can find what they are looking for quickly and independently. Save staff reference time by answering frequently asked questions on the web. Electronically enhanced images can be viewed with greater legibility. Use of collections and facilitated learning and scholarship are increased. The preservation benefits for collections include: Objects do not have to be re-shelved or located by staff.

Applications of Digital Preservation

The advantages of computer applications for digital preservation above, we list the following ways computers may be used to preserve cultural heritage:

- Digitizing images and texts from existing documents;
- Restructuring lost cultural artifacts in digital form using existing documents (video, photographs, drafts, written evidence) or archaeological findings;
- Reverse engineering and digital representation of the shape and texture of existing three-dimensional physical objects (sculptures, buildings, natural environments, etc.) based on measurements and 3D scanning;
- Archiving digital representations of raw data and of reconstructed and reverse engineered objects.

Underpinning Theory

Restoration/Conservation Theory [Jukilehto (2006)]

A major reference for the hypothesis of restoration was distributed between the basic understanding of “restoration” as “any intervention that permits a producer of human activity to recover its function,” and the restoration of works of art, which he characterizes as, the methodological moment in which the work of art is recognized, in its physical being, and in its double tasteful and chronicled nature, in perspective of its transmission to the future.

Restoration, Conservation can in this way be characterized as a social way to deal with our acquired surroundings and comprehended as a system in view of critical judgment of the qualities and the identification of the significance and associated values of a heritage asset. The standards showed in restoration contracts can be kept in mid as general direction. Be that as it may, the procedure should essentially be founded on a critical judgment. Consequently restoration can't be a format recognized from miles away.

System Theory

Russell Ackoff's proposal that a system is an arrangement of two or more interrelated components with the accompanying properties: 1. every component affects the working of the

entirety. 2. Every component is influenced by no less than one other component in the system. 3. Every single conceivable subgroup of components likewise has the initial two properties. (Ackoff, 1981, pp. 15-16.)^[1].

(Chen and Stroup, 1993) expressed significant qualities of system theory:

1. Toward Integration
2. Engaging Complexity
3. Understanding Change
4. Relating Macro- and Micro-Levels
5. Functioning in a Human-Made World

General system theory, since its beginning, has had problems of design, goals, and purpose at the center of its analyses. GST is in an exceptional position to offer a sound theoretical foundation for society curricula, science and technology.

What is System Theory?

At the core of system theory are the notions that:

1. A "system" is a group of interacting parts, the sum of which exhibits behavior not localized in its constituent parts. (That is, "the whole is more than the sum of the parts.")
2. Modify is seen as a transformation of the system in time, which, nevertheless, conserves its identity. Growth, steady state, and decay are major types of change.
3. A system can be biological, symbolic, physical or social; or it can be involved of one or more of these.

4. Goal-directed behavior characterizes the changes observed in the state of the system. A system is seen to be actively organized in terms of the goal and, hence, can be understood to exhibit "reverse causality."
5. "Feedback" is the mechanism that mediates between the goal and system behavior.
6. Time is a central variable in system theory. It provides a referent for the very idea of dynamics.
7. The "boundary" serves to delineate the system from the environment and any subsystems from the system as a whole.
8. System-environment interactions can be defined as the input and output of matter, information, and energy. The system can be open, closed, or semi permeable to the environment.

Tepa Putul

Tepa Putul is one kind of traditional Bangladeshi terracotta sculpture mostly used as a low art toy doll or show piece in all over Bangladesh and few parts of India. In Bengali language, ‘Tepa’ means pressing and ‘Putul’ means Doll. So the name, Tepa Putul indicates that it is very ancient and has a simple making process where the dolls are made by simply pressing the raw clay using fingers only. Tepa Putul are crafted by local artisans as a symbol of good fortune & prosperity during Bengali new year’s.



Source: Own

Fig 5: Tepa Putul



Source: Own

Fig 6: Tepa Putul



Source: Own

Fig 7: Tepa Putul

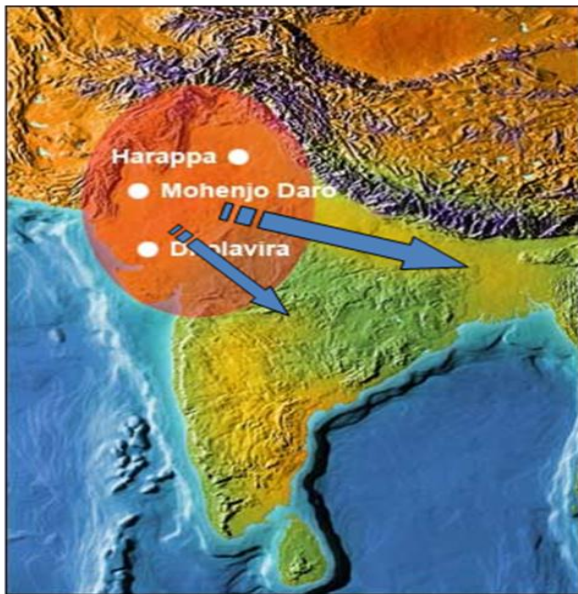
Talukdarin (2001) mentioned how Tepa Putul is made. Finely prepared soft clay is firstly kept in one piece according to size and shape of the form of, the figure. Then it is squeezed and pulled to be extended as hands and legs as well as bringing the formation of the figure. But sometimes for making hand and legs, the elongated clay forms are applied by pressing them on the shoulder portion and to the main body below the trunk. The Neck with head and face is similarly extended from the shoulder portion and then the Mouth and Nose are elevated and raised from the Facial form through delicate pinching technique. Eyes are either applied clay pellets or pricked. Details are made clear by the bamboo made blades and fine sticks with pointed heads. The dolls which are made by this technique is locally called ‘Tepa-Putul’ meaning pinch-doll.

Takir, H., Jamil, M., Zahangir, A., Shazu, S. and Mamun, A. (2011) written in The Daily Star newspaper that possibly the oldest toy, dolls are not just for children; they often symbolise prosperity and are considered sacred. In all likelihood, Tepa Putul or indigenous clay dolls have their origins in the images of deities, made by potters. They are shaped by hand, dried in the sun and fired in kilns. Originally, there were never painted. Tepa Putul were not made for sale. These dolls were generally gift items or for sacrifice. At some point, artisans faced financial crises and began looking for alternative means of earning money. Thus they started selling these dolls. Fakir (1985)^[7] mentioned that which dolls are smaller size and fully made by clay and hand and pressed by finger is named as Tepa Putul.

The History of Tapa Putul

According to Jahanggir (1982) [18] and Fakir (1985) [7], the tradition of Tapa Putul is more than 6000 years old. The Indian people make and used Tapa Putul for various purposes since the ancient Indus' Valley Civilization or probably since prehistoric era. If we look back to the ancient Indus' Valley Civilization, the way they used to make their terracotta sculpture at that time, still Tapa Putul is made following the same style and techniques. Therefore sometimes it is considered as a living archeological evidence of ancient Indian civilization. But this prehistoric form of art is not only important for its archaeological values rather the significances of Tapa Putul is hidden in its unique artistic quality which conveys the very original test of Indian aesthetics from prehistoric time to postmodern era. Therefore, in early 20th century, lots of the Bengali fine artists took Tapa Putul as their visual inspiration and at the same time Tapa Putul was used widely in rural areas as a form of toy.

How the Ancient Indus Valley Civilization moved towards Eastern areas like India and Bangladesh? According to Dr. Sanjeev Gupta, Royal Society-Leverhulme Trust's Senior Research Fellow Reader in Sedimentology (Imperial College London) - Nearly 3500 years ago the Ancient Indus Valley Civilization moved towards East because of weather changes and drying up of rivers. After moving to Eastern side, the Ancient Indus Valley Civilization started making the pottery again.



Ancient Indus Civilization

Source: <http://www.harappa.com/har/indus-saraswati-geography.html>

Fig 8: Indus Valley Civilization

Fakir (1985) [7] mentioned the ancient Indus valley civilization 'Harappa and Mohenjo Daro' are the ancient civilizations in Indian subcontinent. Until now, from this well planned Indus valley civilization we found many archaeological things and Terracotta dolls are the big part of archaeological evidences. Terracotta dolls did not stop producing after being destroyed by the ancient Indus valley civilization and still Terracotta doll's culture is running in different places in Indian subcontinent.



Source: http://en.wikipedia.org/wiki/File:Harappan_small_figures.jpg

Fig 9: Clay dolls in Indus Valley Civilization times



Source: http://www.indianetzone.com/6/images/terracotta_2591.jpg

Fig 10: Clay dolls in Indus Valley Civilization times

Jahanggir (1982) [18] mentioned that Clay doll is one of the big parts of Terracotta works. In ancient time dolls are also used in architectural work in Bangladesh. In many places of Bangladesh, cylinder types of women terracotta figures were found which are similar with the Gupta Period. The places are Saver in Dhaka district, Mainamati in Comilla district, Mahasthangarh in Bogra district, Bangarh in Dinajpur district, etc.

Gandhi (1980) the Former Prime Minister of India mentioned that the terracotta of Indus Valley Civilization technique is regarded as an old and one of the most primitive processes in the history of sculptural art, which was invented by the simple-hearted ancient people of those golden days.

Talukdarin (2001) mentioned that the archaeological findings of almost all the historical periods and sites of Indo-Pak-Bangladesh subcontinent have given ample evidences of terracotta toys & dolls. They were obviously used as toys for children, can often be identified the same as the representation of the images of gods and goddess evidently venerated in those good old days. The most important archaeological sites of terracotta toys and dolls of ancient historical periods of the Indo-Pak-Bangladesh subcontinent is the North-West side of this subcontinent viz. the Mohenjo-Daro-Harappa, Zhob, Kulli, Taxila, Mathura, Lothal, Kaushambi, Kayatha, Maheswar-Navdatoli, Dangwada,

Diamabad, and Tamluk, Tamralipta, Bangarh, Mainamati, Paharpur, etc: in Bengal.

The Indus-civilization is one of the most captivating yet mysterious cultures of the prehistoric world. This culture existed along the Indus River. Still today in the living monuments of this ancient society there are ancient pottery pieces, which tells us a lot about the life of the people. Similarly, Bangladesh has got thousands of years of rich custom in clay traditional pottery and sculpture. But with the current of industrialization these valuable elements of our traditions are on the edge of extinction.

From prehistoric times, dolls of various types fascinated children, women and men all over the world. Children in particular have found great fun and delight in dolls, which also help them to develop their imagination and intellect.

Current Situation of Tapa Putul

According to (*The Daily Independent*, September 29, 2003) and (*The Daily Independent*, November 11, 2004) current situation is local potters slowly stopping its production. The demand for pottery products has fallen in the local markets due to availability of plastic, stainless steel and aluminum products to a considerable extent. High prices of necessary raw materials like kiln clays, dice, dye, fuel and dearth of capital have affected the industry adversely. Besides, the availability of plastic, stainless steel and aluminum products in the markets are making the pottery products to lose their popularity. For these reasons local potters are now quitting their traditional job and adopting other manual jobs for their survival. People in general prefer plastic or silver articles to earthen pot considering their availability, durability, decency and reasonable prices. In a day a potter can earn Tk 70 to Tk 80 (Tk. 78 = one US Dollar) but it is difficult to survive with only Tk 80 a day by selling earthen materials.

During the interview, Maran Chand (2012) is known as King of Clay in Bangladesh who sadly informed that none of his other brothers have learned pottery craft. Even his only son is not interested in this craft.

From the very start of our Bangladeshi traditions, pottery has represented our lifestyle and identity. The artisans' works include making earthen ware, clay-pots, toys of clay and different idols of gods and goddesses have been the custom of our traditions. But it is now disappointing that in current time, especially in the last decade potters have been in suffering. The demand for pottery products has fallen in the local markets due to availability of stainless steel, aluminium and plastic products to a considerable extent. So it is slowly losing its popularity. Local Potters are slowly stopping its production because of high prices of required raw materials like kiln clays, dye, dice, dearth and fuel of capital have affected the industry unfavourably. Besides, the availability of plastic, stainless steel and aluminium products in the markets are making the pottery products to lose their popularity.

According to this article "*Dolls - Our Heritage by Abanindranath Tagore*" taken from <http://www.sos-arsenic.net/lovingbengal/patchitra.html>, our old dolls are no longer keeping the originality; some have even changed their forms and decorations to suit modern taste. So it means it is losing originality (shape, form, color).

The Researcher found that some organizations are trying to save the potters and also their art works. The organizations

are helping to exhibit and sell the potters art works.

With the aim of saving the traditional pottery industry of the country, Harappa Art and Craft began its journey in 2006. A important amount of returns goes to the development of the potters and the preservation of their artworks. (*New Age Timeout*, May 1, 2009)

Nazmul Haque, Chairman of Harappa (2010) mentioned that they want to encourage people to buy the handicrafts in an reasonable price. And from this exhibition, they are working to create awareness about the preservation of traditional arts and handicrafts among the audience.

Afsar Ahmed, Marketing Director of Harappa (2009) who has worked as an important contributor in two cultural local dailies and mentioned that Harappa Art and Crafts promised to save the thousands of years of traditional pottery industry of the country from being almost extinct and somehow it was determined to save the fate of the potters. Harappa will train the potters and equip them with technology and make them more market focused.

Existing Documents and Visuals on Tapa Putul

In these journals and books this researcher found some of the information about Tapa Putul. But there are lacks of visual aids. The researcher cannot get the images about "what is the making procedure of Tapa Putul from the beginning until the end". There are some images which can only give this Researcher some ideas about Tapa Putul's characters. But the visual of the making process of Tapa Putul cannot be found in these books or journals. Most of the books and journals are written in Bengali language which is hard for International readers to know about Tapa Putul.

1. Md. Ruhul Amin Fakir, 1985 ^[7], *Bangladesher Putul*, Dhaka.
2. Dipok Kumar Das, 1988, *Matir Putul: Prekkhapot Bangladesh*, Dhaka.

And until now there is no website made for Tapa Putul. But there are some blogs and articles where this Researcher found some information and pictures about Tapa Putul. Like in these websites, the Researcher found some information and photos. But from there this Researcher did not get the images of the whole making process, types, characters and others. And another thing is, these potters and Tapa Putuls are from India and not from Bangladesh. Based on Bangladesh there are no blogs, online articles or websites on Tapa Putul.

3. Conclusion and Discussion

Culture preservation is need of the day due to rapid changes in our culture, volatile Information Technology and globalization, these changes creating hurdle for new generation to follow and maintain ancient culture. We need to do research to help next generation of Bangladesh to keep alive the culture for future. We need a digital documentation on Tapa Putul where everyone can access the information from anywhere. All the steps of the making process of Tapa Putul need to preserve with the help of visual documents which further present on a digital document to make it easy for access purpose.

The Ministry of Culture of Bangladesh and National Museum of Bangladesh need to preserve this ancient archaeological terracotta doll. In past, visual documentation has been used a source for culture preservation in many countries', therefore for Tapa Putul perseverance visual documentation can be

valuable source to preserve the making process of Tapa Putul. Websites and video, drawing, animations and photography can be various sources to preserve the culture; this can help to next generation to know how to make the Tapa Putul, and to know more about the history of Tapa Putul.

Regarding culture preservation in Bangladesh, visual documentation is not yet implemented for preserving Tapa Putul. Current study finds that visual documentation method can be reliable source for culture preservation in future.

Current study finds that culture preservation is an important source to keep alive the culture of nation for long time. Based on the literature review, this study revealed visual documentation is useful mean for culture preservation. This can help to next generation to know about their culture of Tapa Putul, and to learn about the making process of Tapa Putul. Major limitation of this research is based on the past literatures, in future empirical studies required to identify the methods to preserve Tapa Putul.

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