

Study on Digitization of Special Materials

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Abstract – Digitization has removed physical barriers to the discovery and application of rare and fragile resources and those recorded in a format which is difficult to access. Access to rare manuscripts, photographs, maps, archival documents, and museum objects sometimes limited because of their value and/or fragile nature. Digitization not only expands the reach of these materials to researchers, students, and the general public, but also enhances the visual quality of faded and illegible documents to a readable form.

Keywords – Digitisation, Manuscripts, Heritage, Community.

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1. INTRODUCTION

The UNESCO project called 'World Memory' was based on the idea that the cultural community is responsible for preserving knowledge about its heritage and making it accessible to future generations as well. This aims to promote a responsible approach to the sources from which our historical knowledge grows and to contribute to the general availability of our history and culture information.

2. DIGITIZATION OF MANUSCRIPTS:

Manuscripts form an important part of our cultural heritage. Great ancient scholars have devoted their lives to producing written knowledge documents. India's most cherished and venerated gift to mankind is its rich and eternal heritage. This heritage covers nearly every element of human enquiry, discovery, and life including science, culture, language, literature, metaphysics, art, dance, etc. Today this legacy is distributed in library texts and in person roles. Because of the improper treatment, this precious gift slowly decays and vanishes. In reality, maintaining this heritage poses a huge challenge. The information technology, however, provides many options not only for preservation but also for enhancement and wide-scale access. Many attempts are made to conserve the manuscripts and today, several organizations are interested in manuscript digitization. Some programs are completed while others are in the initial stage. A number of Indian manuscripts are found to be available in international universities. Some colleges have manuscripts

digitized, which are available on their website. For example, the manuscript is an indivisible union of the medium, the parchment and the information registered. The medium itself is also a carrier of essential and fascinating knowledge. Although very little damage to the medium causes an irrecoverable information loss in this situation. It is advisable to realize what kind of information the manuscript contains for further thinking. Stanslove digitization[3] makes it possible to retain the basic image data and part of the secondary image data fully. Only information regarding the brightness and colors of the original can be preserved from the physical data. However, the attributes of as of the techniques used deform this material. Certain accuracy can be achieved by digitizing along with the originals the calibrated areas with specified colours. The digital facsimile of this original of its image can be regarded as a certain archival dimension of protection.

The world's first disc Memory, was in fact a test to see if a manuscript could be made available. The basic images were created in a very high resolution, by digitizing high quality slides. These images are now stored in a TIFF (CMYK) on 37 CDROMs, where each page is recorded in a file of about 40 MB. How to make those images accessible on standard computers was the main problem solved. It is found that it takes ten minutes to display these higher-quality images on a computer monitor; that is the biggest drawback of high-resolution scanning images.

3. DIGITIZATION OF RARE BOOKS: -

The digitization of rare books involves several issues, including the selection of photographic equipment, image processing expertise, and copyright acquisition. In a number of ways:

- a) Rare set of books differs from the general set of libraries) objects are unique and thus not suitable to common quality or value assumptions.
- b) Rather of listening to the audience's unique needs, collections are more likely to be produced and maintained in order to adhere to some abstract concept of quality or completeness.
- c) Rate of usage cannot be considered a fair indicator of the value of a rare book to the collection.
- d) Relatively small size and relatively high cost per item within the can set can involve attention to detail that is not possible.

There is a need for the application of conservation knowledge and practice due to large scale handling of original material. From the beginning, it was clear that conservation would be a necessary player in a successful digitization program, particularly for paper, book and photographic materials. Due to its uniqueness the rare books should be handled carefully. Before scanning these books following type of preparation work should be undertaken.

- a) Generally, it is observed that the corners of books are folded sometimes this folded part may contain some important information. Therefore it is important to carefully remove foldouts which require page flattening.
- b) Cello tapes can be used to stuck pages with big tears around the picture region.
- c) Folios bound by over-sewing or stapling in pamphlets should be carefully unbound or unstapled.
- d) Pages dog-eared or produced in a way that should be treated with care to obscure text / image.
- e) Due to humidity and other reasons it is found that pages are stuck together. . Sometimes it becomes very difficult to separate these pages. Special treatment is required for these types of books. .
- f) It is difficult to scan bound books which cannot open even to 90 degrees, for these books, support should be given the sides of books that appear to have weak bindings

and/or are designated for an opening of less than 180 degrees. Never apply force on a spine to open the book it may damage the book.

Many organizations have undertaken the digitization of rare books. They have adopted their own guidelines and policies regarding the selection of rare materials and use of adequate technology. Digitization is a boon to the study of rare old books because it allows researchers to manipulate data without disturbing the original work. Digitisation continues to be discussed for the Library of Congress as a preservation technique for items that require reformatting or converting.

4. DIGITIZATION OF PHOTOGRAPHS:

Measures to preserve photographic materials cannot be avoided or postponed, since their life span is relatively short. Some types of photographs may start losing quality after only a few years' time due to intrinsic processes. This occurs also with very common and recent types, like color photographs and polaroids, of which institutions hold large quantities. The visual content of a photographic item is in addition easily affected by external factors like fading or mould. Managing photographic collections demands an active and decisive approach, for what one has today might be lost tomorrow. Developing conservation strategies for photographic materials includes special expertise in storage, climate, packaging materials and treatments for conservation. Many photographic digitization projects developed out of a project dealing primarily with the text. This created to problems because images have to be treated quite differently when digitized. The main goal of text digitization in its legibility. However, many different aspects of quality have to be considered while digitizing images and photographs.

Digitisation is naturally found quite desirable by institutions that keep photographic collections. Many organizations say preserving fragile originals is a big reason for digitization. When digital copies are available, users can browse through a collection without handling fragile materials. However, when they request a copy for their own use, institutions still often have to return to the original to make a photographic print. The growing appreciation of photography puts pressure on institutions in various ways. Photographs have been discovered as 'content' ideally suited for digitization, and institutions are urged to make them accessible in digital format. Around the same time, appreciation of the value of photographs has increased the use of originals, as well as knowledge of the need to conserve them. If one considers the large number of prints and negatives held in institutions and the usual problems inherent in

their preservation, it would be clear that institutions cannot meet new demands without policies to direct their activities. Developing conservation policies is critical not only in order to be able to prioritize, divide the work and share tasks, but also in positioning photographic collections as part of the cultural heritage. Knowledge of historical techniques is needed not only for specialized conservation work but also for material identification and preventive preservation actions.

Digitization of photographs has several preservation aspects, which are not always fully recognized. The state of materials can be one of the criteria in selecting materials for digitization. Damage to images can be avoided by careful care in the scanning process and selecting the correct equipment. Initial digitisation may also be paired with simple recycling and re-packaging steps. Creating an adequate digital representation of a (historical) photograph requires expert knowledge of imaging techniques as well as photographic processes. Therefore, ethical discretion must be exercised to arrive at the right decisions. Is the goal to reflect the photographer's purpose, or rather the picture as it now looks? Where can the photograph's intrinsic features be separated from the consequences of aging, and to what degree will strategies for improving photographs be used? Provided responsibility for quality assurance and authenticity, the capture process must be specifically recorded and the exact relationship between the digital image and its source must be indicated. Photographs can be divided into two classes according to whether reflected or transmitted light views the image. The most important difference in dynamic range between the two is. Reflection prints of any type usually have a smaller dynamic range than negative. Color transparencies have the largest dynamic range. Negatives are not used directly by users because their image content is not readily available. A printing process is needed to get a positive image. It has been proved that as soon as negatives are scanned and a positive image can be viewed, almost instantaneously their use has grown enormously. Images can be classified by color type. Depending on the color type, images should be scanned i.e. black and white or color. Most of today's photographs are taken in full color. However older photographs are black and white. Many photographs have monochromatic colors i.e. purple-brown color. Since large collection digitization is unlikely to be attempted more than once because of high costs, certain decisions regarding scanning and archiving processes are crucial. The term archival means that not only are all digitized images adapted for existing workflows and imaging tools, but will remain available in the future. One of the major problems to address is the planned use of their sets of digital images. In the preservation group there is agreement that a number of image files must be created from each photograph to satisfy a variety of uses first, an archive or master image should be produced.

Highest quality should be reflected by the archival master file. This should not be handled for any specific output and should be left uncompressed or compressed to a lesser loss. This also needs an intense analysis of efficiency. Various derivatives are to be determined from this archival paper. These derivative files are meant to be used. Speed of access and transmission and suitability for certain purposes are the main issues to consider in the creation of these derivative files. A decision has to be made whether to scan from the original or a duplicate. There are advantages and disadvantages to each approach. Since each generation of photographic copying requires some loss of quality, the use of intermediates immediately implies a decrease in quality. Intermediates can serve other purposes, too. This leads to the question of whether to use the negative or print for digitization. When the first iteration of an image (i.e. the negative) is used, output will always be better. Yet one should take the disparity between the print and the negative into consideration. The print copy is prepared by spending a lot of time in the darkroom. The efforts of the artists and the finest results are lost if the negatives are selected for digitization. Subjective visual analysis and objective tests conducted in software and on the digital file themselves are the best approach to digital image quality control. In the most cases the first evaluation of scanned image is done by viewing it on a monitor. Looking at images and judging their quality has always been a complex task. The viewer will decide whether the image on the monitor fulfils the goals that have been sated at the beginning of the scanning project. This is important because human judgment decides the final acceptability of an image As the image is viewed on the monitor, defects such as dirt, half images, skew, laterally reversed images and visual sharpness can be detected.

On the other hand, objective image quality parameters must be employed. One can accomplish this by scanning special targets and evaluating them in specialized software.

The targets and software to evaluate them are not just for vendor checking. They are to serve the guarantee for long-term usefulness of the digital files and to prefer the investment of the institution. Image quality is affected by the sequence of applying different image processing steps including compression. Image processing done before storing the images can affect the quality of future processing. It is recommended that the archival master file should not be sharpened before storing.

Tone reproduction is the single most important parameter for determining the quality of an image. Three dependent attributes effect tone reproduction i.e. Opto Electronic Conversion (OECF) feature, dynamic range, and flare. The OECF shows the relationship between the optical densities of an

original and the corresponding digital value of the file. Dynamic range refers to the capacity of the scanner to capture extreme density variations

5. DIGITIZATION OF VIDEO TAPES:

Video digitalisation is a dynamic process. Several factors influence the quality of the resulting video, including the quality of the source material (recording equipment, visual technology, lighting), digitization equipment (including digital video board, computing speed and hard drive), and digital film editing and compression applications. A digital video film consists essentially of a sequence of still images arranged sequentially one after another. A variety of factors affect the quality of a digital video and its playback fluidity, including the number of images (or frames per second) contained in the video, the degree of transition between the video frames, and the scale of the video frames etc. The essence of the transcription process also requires that each digital video frame should contain a clear image. Reasonable quality video of the sign language data can be made. The digitization process at different stages and generally provides a number of parameters which allow one to manipulate different aspects of the video in order to achieve the highest possible quality.

6. CONCLUSION:

Digitization has brought significant merits to the users of special collections. It will also possess challenge to the relative value given to paper originals of rare materials. Special collections will also require to justify their unique while preserving in library.

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