

Image Selection

For the Digital Image Capture assignment I selected an image and a newspaper clipping to scan. The image was of my great-grandfather holding my father in front of their home in Bristol, Virginia dated March 1945; the newspaper clipping was from my parent's wedding announcements in the Bristol, Tennessee newspaper dated January 31, 1982. My purpose for scanning was to protect the vulnerable originals by creating a rich digital master, also known as preservation (Cornell University Library/Research Department, 2000-2003, Section 3). A formula, created by Cornell University Library Research Department, will be used to ensure resolution, or clarity, is not lost when the document is scanned.

Conway (2000) developed a set of fundamental principles that have become essential when transferring analog materials to the digital world, also known as digitizing. These concepts are: longevity, choice, quality, integrity, and accessibility (Conway, 2000, p.22). Brown (2008b) found that over longer time periods, obsolescence of media storage and the technology used to read the medium will play a more significant factor than physical deterioration of the storage medium itself (Brown, 2008b, p. 5). In other words, the storage format is crucial to the longevity of the project, and must be re-evaluated at least every 10 years. The third concept, choice, has become reoccurring process in the digital lifecycle. According to Harvey (2012), "Choice is an ongoing process that is intimately connected to the active use of the digital files" (Harvey, 2012, p. 15). The fourth concept, quality, can be described in terms of the cost for creating a high quality digital image. Cornell University (2000-2003) explains the key to image quality is not necessarily to scan images on the highest bit depth possible for every single scan, but to match the conversion process to the information of the original content. As the resolution increases the

image quality will begin to level off. This will result in a, “no more no less effect” (Cornell University Library/Research Department, 2000-2003, Section 3).

By managing the intellectual property rights to the digital images I am ensuring the integrity, Conway’s fifth concept, of the digital images (Harvey, 2010, p.57). Additionally, by managing the rights to the images I am guaranteeing the authenticity, or truthfulness, of the items. Both the image and the newspaper clipping that were scanned are part of a larger family collection that was found in my grandmother’s shed after she passed away. Lastly, by persistently assigning identifiers to the digital items I am ensuring the information will be easily accessible in the future. Furthermore, by producing digital images in open, well-supported formats (e.g. TIFF and PDF) I am ensuring the accessibility to both current and future users (Harvey, 2010, p.57). According to Cornell University Library’s Moving Theory into Practice: Digital Image Tutorial, “a digital master should be capable of supporting a range of users’ needs through the creation of printing, display, and image processing” (Cornell University Library/Research Department, 2000-2003, Section 3). In other words it is important to make the digital master the highest quality possible to accommodate future applications and higher user demands.

Scanning

For this assignment I used a Canon CanoScan 9000F Scanner. Cornell University Library’s Moving Theory into Practice: Digital Image Tutorial, (2000-2003) created a methodology for determining the conversion requirements which are based on the following assessments: document attributes; current and future users’ needs assessment; characterizing relevant variables; correlating variables to each other using formulas provided; and confirming the return on investment through evaluation (Cornell University Library/Research Department,

2000-2003, Section 3). The first requirement, the document attributes, affect the resolution, or clarity, of the image. For the newspaper clipping I used Cornell University's adopted and refined Quality Index (QI) formula for scanning Grayscale Printed text ($\text{dpi}=2\text{QI}/0.039\text{h}$). I chose to scan the newspaper clipping in grayscale versus black and white since the clipping was badly stained due to aging and improper preservation techniques. QI is based on a quality assessment table given in Cornell University Library's Moving Theory into Practice: Digital Image Tutorial Section 3: Conversion (2000-2003). I wanted my end result to be of "excellent quality" (QI=8.0). The character size (h) of the text on average was 6 millimeters; thus the dpi needed to scan the text with excellent resolution would be 68 dpi. Cornell noted, "to avoid an item-by-item review, all books are scanned at 600 dpi" (Cornell University Library/Research Department, 2000-2003, Section 3). I decided to scan the image following Cornell's standards of scanning at 600 dpi, since the newspaper clipping was brittle and contained only text.

For my image a different formula was used to configure the dpi needed based on the quality index (QI). Since I used an image that was already a grayscale image, I used the QI formula for Grayscale for Stroke ($\text{dpi}=\text{QI}/0.039\text{w}$); this formula correlates QI with dpi and stroke width (w) (Cornell University Library/Research Department, 2000-2003, Section 3). The stroke, in this context, is the width of the finest line of detail in the image that must be captured. QI again was based on a quality assessment table given in Cornell University Library's Moving Theory into Practice: Digital Image Tutorial Section 3: Conversion (2000-2003), therefore QI=2.0. In other words, the dpi for my image using a Quality Index of excellent would be 512dpi [$\text{dpi}=2/((0.039)(.1))$]. My scanner, however, was unable to scan at precisely 512 dpi, so I scanned the image at 600 dpi.

Photo Manipulation

To manipulate the scans I used Adobe Photoshop, CS5.5 and Adobe Acrobat Pro. For the image, I added 2 filters (Low-Pass and High-Pass). The Low-Pass filter I used was a “Surface Blur” filter; this filter soothes out cracks and creases in the image without losing the edges. The edges of the objects in the picture are what define the image. In other words if the objects have fuzzy edges it will appear that the image is not clear or has low resolution. The High-Pass filter was used in Linear Light mode to help restore the tiny details without bringing back the cracks; this filter also helps effectively blend the layers.

For the newspaper clipping, I ran the Auto Color, Auto Contrast, and Auto Tone in Adobe Photoshop, to help darken the text and light the background. Though this helped make the text one color, versus part of the text being lighter due to aging, I still wanted more contrast from the background and the text. I then used the Brightness/Contrast tool found under Image>Adjustments menu to increase the contrast and adjust the brightness so that the text had more contrast from the background. From there I saved the newspaper clipping as a JPEG, and opened it up in Adobe Acrobat Pro. In Adobe Acrobat Pro I under Tools>Recognize Text>In This File menu I ran the text recognition. Though this is an optional extra step, I found it necessary, and important ease of use and accessibility. It allows the current and future users to easily retrieve information by searching the document. By recognizing the text in a document it also allows for accessibility to similar documents when keyword searching.

Saving & Storage

After scanning I had the option to save the files as either TIFF, JPEG, or PDF files from Cannon MP Navigator EX 3.1 Scanning Software. For the newspaper clipping I chose to save it as a JPEG, so that I could easily open it up using Adobe Photoshop. In Adobe Photoshop the

newspaper clipping was manipulated (as described earlier in this paper) and saved again as a JPEG. I was using Adobe Photoshop Creative Suite 5.5; in other words it was not newest version of Photoshop, which is the Creative Cloud. I wanted to save the newspaper clipping as a PDF to ensure its current and future use and access. When saving in Photoshop the file format choices listed did not include PDF. A question for needing more research would be if it is possible to save in PDF in the newest version of Adobe Photoshop?

I am extremely happy with how both of the scans turned out. The newspaper article was transformed from a brittle, stained, and aged document to a searchable PDF. The image showed signs of age and damage and can now be re-printed and easily shared with family members. I decided to save the image in a Tagged Image File Format (TIFF) file format, and the newspaper clipping as a Portable Document Format (PDF) file. Both of these file formats have metadata support, meaning the descriptions, or metadata, can be altered to include retrieval information (Brown, 2008a). I stored the items both on a hard disk, with DVD-R back ups. These methods comply with Brown's (2008b) methodology for evaluating and choosing a media for archival storage. According to Brown (2008b), "Any physical storage medium is, by definition, completely dependent upon very specific combinations of hardware and software for access" (Brown, 2008b, p. 6). In other words, having multiple copies on different archival safe mediums helps ensure the longevity of the item.

References

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