

“As with all art forms, we must accept the limitations of the medium as we revel in the advantages.”

Ansel Adams, July 1978
about the Polaroid process of
instant photography.

Introduction

It’s been a year since the publication of my first article for the *WAAC Newsletter* on the condition reporting of artworks using tablet technology [1]. In that article I mentioned, “The time is right to experiment with newer technology and deliver in the promise of a truly portable solution that would allow for freestanding image marking and note taking while doing condition reporting in front of an object.” Well, experimentation has turned into implementation, and the promise is fulfilled. This article intends to review the development and approach followed by the Conservation Center at LACMA in the use of iPads for producing not only image-based condition reporting, as defined in the previous article, but its integration to a paperless document environment.

Over the past year I observed how my colleagues in the Conservation Center embraced the use of the iPad, from the day to day operation in the labs to condition reporting of various large outgoing exhibition loans.

In some cases the iPad was used as a large repository of reference images, including high-resolution multiple view images for almost all the objects in a show, allowing for de-

tail examination of artworks by conservators at the time of departure and arrival to and from different venues.

Case in point was the *India’s Universe* exhibition with more than 200 Southeast Asian objects on tour through Mexico and South America. Having the ability to access hundreds of images on an iPad was of great value. Each object was represented, on average, by four views at a resolution of around 2100 pixels on the long side, allowing for zooming into an area of interest in the image and thus enabling comparison and the determination if any changes had taken place in the condition of an object.

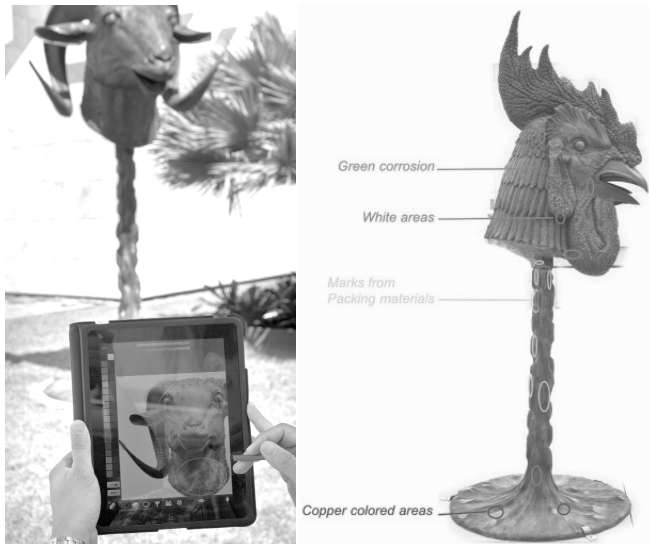
This approach becomes even more attractive when several conservators each have their own iPad at the time of performing the condition reporting. Each iPad can have the same amount of information without any extra cost and very little extra effort. It goes without saying that this approach avoids the bulky, costly, and cumbersome (and some would say environmentally unfriendly) use of binders. Binders contain a limited amount of fixed images and have shortcomings that are well known by anyone reading this article.

Another objects-heavy exhibition was *California Design* with over 150 objects. Since a multi-venue tour of exhibitions is programmed for this show, a large amount of photography was made during its deinstallation. Images will be placed on iPads that will supplement the traditional loan binders that had already been generated by the Registration Department and used during the inaugural installation. The images on these iPads will then be used to track changes, if any, on the objects and generate layered mapping information if needed on an object’s image.



iPad Condition Reporting 2.0, continued

As a separate example the iPad was also used to track and document the condition of loaned artifacts to the museum, like in the case of Ai Wei Wei's *Zodiac Circle*. These large bronzes presented conditions that were of concern to the conservators. In order to keep track of any possible changes, detailed imagery was generated and augmented with the addition of condition mapping using the iPad, in this way facilitating the artwork's periodic inspection and monitoring.



In the past year we have been able to corroborate the assumption, made in the previous article, that the iPad had an organic nature to its use. Having our finger, and the sense of touch, as the main means of inputting information into the tablet makes the transition from pen and paper to digital documents a very natural one.

The use of the tablet very quickly becomes second nature, so much so that many colleagues (including myself) find ourselves touching, unintentionally, the screen of our laptops hoping to move, open, pinch, or interact in any way with the inanimate screen. So, yes we are the touchy-feely kind even if we don't like to admit it. Due to the easy transition, the migration from paper forms to digital ones was satisfactory even from the most traditionalist at the Center.

The Logistics and Hardware

To get the necessary hardware, we need to spend money, and the good news here is that the costs listed in last year's article remain about the same for the iPad and peripherals as well as for the applications. Additionally, the fourth generation iPad (the current device at time of publication) has more than double the computing power and almost quadruple the screen resolution of the first generation iPad. In effect this constitutes a reduction in price if viewed from the technological standpoint.

Continuous advancements in both the operating system by Apple (iOS), and the Apps we use by its developers, have made the use of the iPad a less cumbersome experience and a more practical one too. The iPad since iOS v5.0 has become a computer-independent device (meaning that its set-up and use never require a computer) capable of running various programs simultaneously in the background, known as multitasking.

An important part of the logistics is dealing with the administration and maintenance of the tablets in a multi iPad environment like the one at our Center.

The creation of an account under a credit card and email address, as explained in the first article, became impractical the minute we bought our sixth iPad. This is because Apple allows the sharing of Apps on a maximum of five iOS devices (iPad, iPod, and iPhone all included in this policy) in what they refer to as, "sharing in a household among family members." Although, yes, we are like a big family, this was not the right way to be managing our iPads.

Right about the time I was faced with the dilemma of the extra devices and providing them with the necessary software, Apple came up with a possible solution. Realizing that many corporations and institutions were adopting iPads as working tools and that all were facing the same problem of administration, Apple started offering the option of corporate accounts. These accounts are designed to be managed by the institution's Information and Technology Departments (IS) allowing for the purchasing, licensing, and distribution of the Apps for more (way more) than five devices.

So I tried enlisting the help of our IS department to establish a corporate account; a process that should have taken a week to get accomplished dragged on for months. This resulted in a worse situation, as we had now lost control over the iPads, and we were tied to the availability and motivation of the IS personnel to help with our needs. Needless to say this approach was a complete debacle and was abandoned.

In an effort to regain control over the iPads, I took a page from a recent change in policy regarding mobile phones at LACMA. The institution had given phones to managers, providing a fixed monthly stipend to help cover the monthly expenses. In that same spirit I suggested to the head of the Conservation Center, Mark Gilberg, that we mimic this policy for the iPads and conservators.

In this way we could assign an iPad to a specific conservator, and in lieu of a recurrent monthly expense, the Center would reimburse the conservator for the onetime cost of purchasing the necessary Apps needed for work. The only commitment from the conservator would be to have the iPad ready and available for work by all in the lab. We are moving forward with this initiative, and it should make life easier. At least I hope so.

iPad Condition Reporting 2.0, continued

The Apps

The *Artstudio* App continues to be at the center of our image-based condition reporting, or image mapping. This App, though, has gone through a complete overhaul at the user interface level with the release of version 5.0. This version also changed the inner workings of the program and the amount of memory and computing power that it uses. (This meant for us that our first generation iPads would not be updated and would remain running *Artstudio* v4.6.) This latest version of *Artstudio* allows for higher resolution images and editable text, but at a cost in the number of layers that can be created for an image.

We had gained a good amount of experience working with and using images for over a year, but when it came to working with condition report forms, we were lagging behind. The LACMA Registration Department provides the conservators with the condition report forms on paper, and until recently this remained unchanged.

A few months ago I established a workflow based on the use of a second App called *Notability*. This App lets us import a blank PDF form that contains only the tombstone information for the object that needs to be conditioned. This form is generated directly from our newly established collection managing software, the well known TMS (The Museum System).

With *Notability* we can fill out the form as if we were doing it on paper. (I was going to say “by hand” but actually that describes the iPad method much better). We can check boxes and mark diagrams using the pencil tool. We can also

type editable text (which beats handwriting). We can insert images from a variety of sources which can be resized, marked, and captioned. We can also add extra pages to the document and record voice annotations and other useful functions. The end result is a professional looking condition report form in a PDF format that we can export, print, email, or archive.

Sharing and Managing Information

Having figured out the working logistics (Apps, workflows, etc.) inside the iPad, the next big challenge was getting information in and out of the iPad. For many, these two operations are the bottlenecks in the process of using the iPad.

In general we are used to physically moving information from one device to the other, and the iPad is designed to function mostly untethered from any device. Moving information wirelessly through the air is something we needed to adapt to since this is a new way of transferring data.

One of the easiest ways to share information with the iPad is via email, but this really works only when a limited number of documents or images are being transferred. It becomes more complicated when we need to deal with a larger amount of information. However with the use of different strategies this process has improved, although not flawlessly.

The methods I will discuss involve the use of a wireless connecting device called *Airstash*, the use a cloud base system like *Dropbox*, the attachment *Camera Kit*, and the *iTunes* program. Depending on whether we are working with images or documents, we will need to use different approaches.

The collage consists of several elements:

- Top Left:** A LACMA Condition Report form for 'Los Angeles County Museum of Art' with fields for 'Inventory Control Sheet' and 'Conditioning Control Sheet'.
- Top Center:** A photograph of a framed artwork, possibly a tapestry or a complex drawing, with various markings and textures.
- Top Right:** A LACMA Condition Report form with a 'Form Annotations' section containing a list of checkboxes for various condition issues like 'Cracks', 'Discoloration', and 'Surface Damage'.
- Middle Left:** A LACMA Condition Report form with a 'Form Annotations' section containing a list of checkboxes for various condition issues.
- Middle Center:** A diagram of the artwork's surface with handwritten annotations and arrows pointing to specific areas of concern.
- Middle Right:** A diagram of the artwork's surface with handwritten annotations and arrows pointing to specific areas of concern.
- Bottom Left:** A LACMA Condition Report form with a 'Form Annotations' section containing a list of checkboxes for various condition issues.
- Bottom Center:** A LACMA Condition Report form with a 'Form Annotations' section containing a list of checkboxes for various condition issues.
- Bottom Right:** A photograph of a framed artwork, similar to the one in the top center, showing the frame and the artwork.

iPad Condition Reporting 2.0, continued

Let me first quickly explain what *Airstash* is. It is a small (comparable to a large pack of gum) device capable of connecting to a computer's USB port functioning as a thumb-drive.



Its memory capacity is defined by the SD card that is inserted into it, allowing it to function as a card reader as well. *Airstash* also has the ability to connect wirelessly through wifi to devices like the iPad. Not only that, it can connect to up to 8 devices at once all sharing information at the same time.

A persistent complaint among people regarding the iPad is the fact that it does not have a USB port to connect thumb-drives to. Well *Airstash* fills this deficiency letting us transfer images and documents to and from the iPad. *Airstash* works using a protocol called WebDAV (Web Distributed Authoring and Versioning) which allows for writing of files over a wireless connection.

I should also offer a short explanation regarding “cloud storage services” such as *Dropbox*. This kind of internet based service provides its members with a certain amount of storage space (the amount depends on the type of account we have). This is like having a virtual hard drive accessible from anywhere a wifi connection to the internet can be established. *Dropbox* is by no means the only cloud service out there, others are: *Box*, *Google Drive*, *SkyDrive*, *WebStorage*, etc. All work similarly. (Go to their websites for an explanation of their differences.)

To transfer large numbers of documents, like PDF forms, we can use *Dropbox* and *Airstash* (via *WebDAV*) directly from inside the *Notability* App. We should have previously uploaded all the documents that are going to be used on the iPad through our computer station using the *Dropbox* website via our internet browser. However, we can download the files to the iPad via *Dropbox* only when connected to the internet. *Airstash* can be used anytime the iPad and *Airstash* are connected directly to each other wirelessly, and the document should already be in the memory of the latter, just like we do with a thumb-drive.

To transfer images we cannot use the *Artstudio* App directly since this App does not have *Dropbox* or *WebDAV* capabilities. So if we have the images (uploaded via the website) in a folder within *Dropbox*, we can use the free *Dropbox* App to access our account and the folder that

contains the images we want. Unfortunately we can only download one image at the time. A better option would be to use the free *Airstash+* App and access the images in a folder inside *Airstash*. From here we can download the full content of that folder, making it easier to download a large number of images.

We can also download images directly from a camera using the *Camera Kit*. In all these cases the images are saved inside the *Photos* App (*Camera Roll*) on the iPad. Lastly, if we need to keep an arrangement of image subfolders organized by artifacts in which the iPad will create an album per subfolder inside the *Photos* App, we need to sync that folder via iTunes to the iPad. In this case we can physically connect the iPad to the computer using the USB cable included with the iPad.

Conclusion

This article is not intended as a step by step guide for condition reporting with the iPad. Its purpose is to give an overview of how we at the Conservation Center at LAC-MA have implemented a very satisfying workflow that is allowing us to move into a paperless condition reporting environment.

The advantages of moving in this direction, as I see them, are the following:

- the iPad can hold a very large number of images and documentation that can very easily substitute for the use of large, expensive, and cumbersome binders;

- the iPad can hold the information of several binders for several exhibitions;

- iPad generated documentation looks professional and, being in a digital format, makes it easy to share and archive;

- the iPad is “recyclable” and can be used by several people.

There are still things that need to be ironed out like standardizing the image size in *Artstudio* to get a fair number of layers; establishing an archiving protocol and workflow to include new condition reports in the repository of images; establishing protocols to connect and generate forms and information directly from TMS to the iPad.

The iPad has left the door wide open for allowing us to change practices that have been stagnant for a long time. It has helped us move condition reporting into the digital world, joining the ranks of all of the other digital assets used widely by the Conservation Center.

References

[1] “The iPad: Condition Reporting for the XXI Century or The use of the iPad as an image-base tool for condition reporting and location marking for scientific analysis” by Yosi Pozeilov (Posilev - in error), *WAAC Newsletter*, Vol. 33, Num. 1, Jan 2011.