What Makes a Great [Mobile | Digital] Art Exhibition?

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Abstract: *Passive reception and consumption of art is a given, in our times. Artists produce. Spectators consume. At the nexus stands the curator who chooses the product and the exhibitor who provides the space for consumers. This natural hierarchy also tends to colonize the digital space. But, in the digital world, much of the functioning of the hierarchy has become democratised. The meeting place of exhibited art moved from the physical to the virtual online. Not everyone can visit, say, Istanbul Modern museum. It ought to be possible in principle for everyone to be able to visit "Istanbul Modern Digital" museum. The next stage of digital democracy, already upon us since early 2010, is the mobile art lover, mobile in the sense of being free from being tied down in one place and being able to choose what to see, where to be, and when to do it: early morning, late at night; in the plane, on the train, in bed, in class.*

Learning is for everyone. It is what makes us human, to continue to learn. Learning takes place best when one is active. In the context of the Mobile Digital Art Exhibition, we have explored ways in which to enhance the experience of the curator as "everyman" and everyman has potentially the opportunity to construct a mobile digital art exhibition, even one such as the "Museum of Innocence" in the manner as described by Orhan Pamuk. Our hero in this story is the self-curator.

Keywords: *Flickr Gallery; GoGo; Google Goggles; mobile devices; QR code tags; self-curator.*

Introduction

In the modern world of the digital cultural heritage, it is to be taken for granted that one will want/need to organize an exhibition, to show off some particular collection of art works. There are three principal types of such exhibitions. The first type is organized along classical lines. The art works are arranged in a physical space. Often such a space is a building, an art gallery for instance. The Trinity College Dublin (TCD) Art Collection was recently exhibited in such a manner. But it is also possible to arrange an art exhibition outdoors, in an unconfined physical space. Thirdly, in our times, one can facilitate a mobile digital art exhibition ***(MDAE)***, accessible to any interested party anywhere in the world. A fundamental research question for the (self-)curator of such a mobile digital

art exhibition is simply this: How can I prototype my ideas and get feedback? A second fundamental research question is at the heart of this paper: How can I facilitate and augment self-curation in the mobile digital world? For example, one might imagine a graduate/staff member of TCD who participated in the TCD College Art Hire Scheme (Trinity College Dublin, 2010), wishing to self-curate those works of art which formed the backdrop of her/his academic life time in the College. This, of course, can only be done via the (mobile) digital art exhibition, presuming, of course, that the art works are digitised.

One can see how this fundamental idea extends to all those who ever visited an art gallery, bought exhibition catalogues, marked mentally/physically those works to which they were attracted and who would dearly love to have the facility to look over them again. Such a person potentially belongs to that category of the digital art self-curator. The technology now exists to make such (mobile) digital art self-curation a real possibility. *En passant*, it is noteworthy that the recent magnificent Gauguin Exhibition – "Gauguin: Maker of Myth", in the Tate Gallery London, turned out to be, for some, a complete disaster, leading to a neologism: "Gallery Rage" (Thorpe, 2011). One could also imagine a visitor to the Gauguin Exhibition having a personal mobile digital art exhibition selection with her/him and an indication of current crowd size around any specific piece at any given place and time. This might facilitate access to the artwork and avoid what has been termed "art kettling."

Our current research follows on directly from the work done in an earlier paper concerning four art galleries presented under the theme of "Social networks and the national art gallery (Dublin | … | Sofia)" (Mac an Airchinnigh & Strong, 2010). The galleries, in order, were "The National Gallery of Ireland" [**NGI**] (Dublin) ("National Gallery of Ireland," 2011), "The National Art Gallery" [**NAG**] (Sofia, Bulgaria) ("National Art Gallery Sofia," 2008), "Museo Nacional del Prado" (Madrid, Spain) ("Museo Nacional del Prado," 2010), and "The Ateneum Museum" (Helsinki, Finland) ("Ateneum Art Museum," 2010). Of these, the NGI did not afford any opportunity for the folk on the WWW to see the full range of the digital images of the art collection (April 2010). Now, one year on, the NGI compares well with state of the art digital facilities worldwide. However, in the context of a ***mobile digital art exhibition (MDAE)***, there is much yet to be done, and we will *assume* that any remarks made, may apply, *inter alia*, to the Ateneum and El Prado. Our discussion on MDAE will apply to all four galleries, precisely because of the nature of "state of the art" digital art galleries in 2011. On the other hand, there seems to have been one major change in the digital status of the NAG in Sofia. Hitherto, the small exhibition of the images of paintings online had been served by both Bulgarian and English pages. At the time of going to press the English pages are no longer accessible. We will make some suggestions on how one might make the leap from the NAG status quo to some sort of rudimentary mobile digital art exhibition. Paradigmatically, this will apply to all others.

Another fundamental issue is the determination of the nature of a mobile device. That said device is mobile, i.e., it can move around (whether autonomous or not), is a given. But, in the context of this paper, the mobile device must be able to connect to the internet wherever it finds itself, whether on the move or at rest. For example, any laptop, such as a MacBook Pro, is by definition such a device. On the move, say on a train, the aforementioned device can connect to the internet, if *tethered* with an iPhone. The concept of tethering means that the mobile phone (such as the iPhone) provides the internet connection (3G) to the laptop (such as the MacBook Pro). The iPhone and iPad are, by definition, such devices. Such interconnecting of multiple mobile devices determines the platform for total stability of mobile dynamically digital self-curated (and otherwise) art exhibitions. We will have more to say on this matter of a mobile device later in the paper.

Curator, Self-Curation

One of the significant prototyping tools for the would-be mobile digital art self-curator is the Flickr Gallery (Flickr, 2011). The Flickr developers "specifically limited the number of photos … that can be added to each gallery to 18 … [in order] to give our members an opportunity to engage in activity that is similar to what a curator of a gallery or museum might undertake." To illustrate this significant and easy to use Gallery feature we have constructed two, one with the title "ElPub2011 Mobile Digital Art Exhibition" (Orela, 2011a) and the other with the title "ElPub2011 National Gallery of Ireland" (Orela, 2011b). The mechanics are simple: "To create a Gallery just go to a photo or video that you want to add and click the "Add to a gallery" link within the Actions menu. From here you can create a new gallery or add the image to an existing one." However, the would-be self-curator

clearly needs some idea, some theme, even to begin. There are millions of photos on Flickr. The first author has a Flickr account and is administrator for the "ЖЕНА (woman) pool". At the time of writing, there are 1153 members and 14,322 photos. To construct a well-themed "Gallery Exhibition of 18 images" from such a pool is a daunting task. One needs to have some significant guidelines on how to choose those 18 images. A good starting point is the essay "Show and Tell" by Robert Storr, artist and critic who serves as dean of the School of Fine Arts at Yale University (Marincola, 2006, p. 172).

Group Exhibition

"Selection is the initial, and, in many ways, the touchiest, stage…" (Storr, 2006, p. 21).

Shall we pick the photos from one individual Flickr-ite or shall we pick one photo from 18 Flickr-ites in the group according to a specific theme or idea? How shall we find the 18 photos among the 14,322? A typical gallery might feature "woman as dancer" (Orela, 2011c). Clearly, if the photos are tagged appropriately with "dancer", ("танцьорка" in Bulgarian), then we have a much smaller pool to choose from. Currently, on Flickr, there are 92 photos tagged with танцьорка and 1,177,382 photos tagged with "dancer". One does not presume that English is to be the sole linguistic access mechanism. "Google translate" does a reasonably good translation for a large variety of languages and in the first stage of our research, translation of typical Flickr tags is more than adequate. However there are other technical issues still to be resolved. Currently, at the time of writing, the Flickr app for the iPhone, does **not** recognize Bulgarian tags such as "танцьорка." Nor does there seem to be a way in which to view a Flickr gallery on the iPhone. One presumes that this is also currently the case with the iPad. It is clear that the first wave of certain apps for mobile devices are crude from the point of view of universal (language/feature) access in comparison with the apps for laptops. On the other hand, Google Goggles (GoGo, a useful needed neologism) is now built into the Google search app for the iPhone (and presumably for all other mobile platforms). One takes a photo of an image such as might be found in an Art (Exhibition) Catalogue or online, say Flickr. GoGo then analyses the image and returns the result of an internet search. Either an exact match will be found or, more interestingly for our purposes, other images which match certain criteria. For example, using GoGo to photograph the image of "Virginie" (1883) by Albert Edelfelt (Edelfelt, 1883; Mac an Airchinnigh & Strong, 2010) from a catalogue will return online versions and other related material. But we can do much better with the GoGo technology.

Figure 1. An iPad layout for a mobile digital art exhibition (Mike Brady)

Showing is Telling

"The primary means for 'explaining' an artist's work is to let it reveal itself. . . Space is the medium in which ideas are visually phrased" (Storr, 2006, p. 23). This forthright principle has been put into practice by devising a simple online exhibition (hosted on Flickr) whereby only the image is shown (Orela, 2011d). All other telling aspects are only accessible by means of a **Q**uick **R**esponse (QR) code tag (Mac an Airchinnigh & Strong, 2010). The original precursor for such a QR tagged exhibition was a 3-person MSc Research Project, with the title "Smartphones Let Loose—The Museological Potential of Wireless Technology" (Aggarwal, Molines, & Wei, 2010). For a variety of reasons, the experiment/exhibition had to be conducted in the Lloyd Building of Trinity College Dublin. Full high-resolution prints of a selected number of paintings from the National Gallery of Ireland were bought, mounted behind glass, and made visible to passers-by (students, academic-and-other staff, visitors). Each print was tagged by a shortened URL (bit.ly) and also by the corresponding QR code of that URL. At the time (in 2010), GoGo was in its infancy. One year on, we note that there is no longer any need for the URL. The QR code tag is fully sufficient.

One of the major concerns that we still have is in the general field of aesthetics. This concern may be described in connection with the document shown in Fig. 1 below. Does not the juxtaposition of a QR tag "interact" with the image to which it relates? Does not this interaction "detract" from the image? Is there an appropriate location for the QR tag with respect to the kind and dimensions of each image?

Mobile Devices and Art Apps

Apple's iPad (Apple**,** 2011) (which we imagined might be called iTablet (Mac an Airchinnigh & Strong, 2010) in early January 2010) paved the way for the newly realized generation of tablet devices. In the context of the Trinity College Art Collection Exbibition, discussed below, an iPad Art Application — the TCD ART APP — was designed with a main image pane to show the specific art work and side panel to the left giving a variety of information on the piece, for example, location, provenance, and so on. The iPad application is a general purpose media-presentation 'app' that can display high-quality images, text, video and audio. Briefly, the app presents the user with a selection of images of a fixed size. The images may comprise or contain video and audio sequences, as well as high quality graphic and textual elements. Media formats include H.264 movies (Wikipedia, 2011a), AAC audio (Wikipedia, 2011b), JPEG 2000 (Wikipedia, 2011c), GIF and TIFF images and PDF. In addition, pages can be laid out using standard HTML and CSS. It is also worth noting that there were issues with the performance of the JPEG 2000 interaction with PDF documents on iPad 1 ("Apple Discussions, Topic: iBooks on iPad not showing images in PDFs," June 26, 2010). One presumes the issue is resolved now on both iPad 1 and the newer iPad 2.

Compared with a web-based approach, the app offers the following advantages:

- All media—images, videos, audio, text, graphics—are contained in the app. The user has instant access to any of the media in the app, without being at the mercy of a network connection. Artists are free to concentrate on providing the highest quality media, unconstrained by network speed or capacity considerations.
- The app presents a fixed format for the presentation of media.

For distribution, iPad apps must be submitted to the iTunes App Store, and must then be approved by Apple Corporation. It is understood that apps are vetted for compliance with technical guidelines and for general suitability and utility. They also require an audience suitability rating. Generally speaking, the time from submission to approval is less than two weeks. The submission process is fully automated from the developer's point of view.

Playbook is a very nice title for the RIM tablet (Halliday, 2010). Such a tablet is a general portable flat *universal* computing platform that generalizes the so-called e-book readers such as the Kindle (Driver and Vehicle Licensing Northern Ireland, 2006). A different case to the 'interactive gallery guide' previously imagined. Instead of using a camera to capture images and deliver descriptions (narratives, questions, whatever) we imagine an instructor-driven (classroom) environment. The larger surface of the tablet allows a smoother interaction with the documents, with greater ease of manipulation for small components. Using a network-based document share, the

instructors can publish individual documents (images, text, etc.) so that they appear on the students' tablets as needed, and a student's interaction with the document can be captured (either for student assessment or to guide the teaching process). Rich documents might be authored using the upcoming HTML5 standard and synchronized using a cloud-store model.

In the remainder of the paper we give four examples of self-curation and exhibit some of the problems encountered. The activity of self-curation was fun, from a technical point of view.

Case Study 1: The Trinity College Art Collection

QR tag 2

QR tag 1

In December 2010, the Curator, Catherine Giltrap, published a book, entitled "George Dawson: An Unbiased Eye" (Giltrap, 2010a) to celebrate 50 years (since 1959) of activities undertaken by George Dawson, the Professor of Genetics at Trinity College Dublin. A succinct account of this undertaking appeared in The Irish Times newspaper in October 2010 (Dunne, 2010). However, in conjunction with this classical activity, there was a special effort made to engage with the digital world at the same time. Three specific activities are to be noted in this respect: (1) the development of an App for the iPhone and iPad to illustrate some key art works from the collection; (2) the organization of a walkabout tour of art works whereby QR codes were used as digital links to information on the College Web about the art work in question (See Fig.1 below); (3) the hijacking of the classical Newgrange Winter Solstice (2011) spectacle by overlaying the event with a Digital Solstice of Art taken from the collection. The latter has been postponed until December 2011 (Giltrap, 2010b).

QR tag 3

To illustrate the "showing is telling" principle, a one-page art pamphlet was created (Fig. 2). There are four pieces of art shown, centred in each row: 1. *Le Diable* (Appel, 1956); 2. *Oiseau dans le Feuillage* (Braques, 1961); 3. *Study '66* (Farrell, 1966) and 4. *Kite!* (Scott, 1974). There is a short text giving some standard information on the artist, the year, the materials, the provenance and so on. There is a QR code tag associated with the piece of art. Anyone with a smartphone and QR reader will be able to access the full text associated with the artwork by taking a photo. Using the GoGo feature on the iPhone, each QR code tag (eventually) led to the appropriate web page in Trinity College Dublin (2011-01-04). Interestingly, GoGo produced alternative possibilities to the interpretation of the QR code tag. Nothing is perfect!

The display pattern of the alternating QR code tags on the art pamphlet has an aesthetic appeal. But, behind this façade there is a more serious purpose: 1. The minimum printed size is approximately a square of side 1 cm, and 2. There must not be another QR code tag within "half a tag width" (Brennan, 2010). Now that one can see the way in which to present art/images with QR code tags, one will be interested in experimenting for oneself. The basic (missing) link is, of course, the QR code generator. A typical search provides multiple possibilities. One choice leads to the Kaywa QR code generator (Kaywa, 2011). Any QR reader will (ought to) return the URL and web page of "2. Oiseau dans le Feuillage" above (Braques, 1961a, 1961b). On the other hand, one might start with the print of "Oiseau dans le Feuillage" as shown in "George Dawson: An Unbiased Eye", Fig.20, p.38 (Giltrap, 2010a). Application of GoGo returns the primary result as a web page of the Stadtmagazin Echo Münster (Stadtmagazin Echo Münster, 2011), a result which might seem to be surprising for the novice.

To the best of our knowledge, this was the first public experiment of the use of the smartphone to access more complete information on the artworks in an exhibition (in Ireland). Naturally, similar such undertakings might be expected elsewhere (Chu, 2010). The design was not perfect in the sense that there was readable formal identification printed alongside both small size (full-colour) images of the artwork and the QR tag. Specifically, given the identification of the art work there was no real incentive (other than technological curiosity) to use GoGo.

George Dawson: An Unbiased Eye. Modern and contemporary art at Trinity College Dublin since 1959

19 November – 19 December 2010, The Royal Hibernian Academy, Ely Place, Dublin 2

SMARTPHONE INTERACTIVE EXHIBITION TRAIL - preview

Instructions: Smartphone users can download a free QR tag reader app to scan the following. Simply open the QR app once downloaded. This automatically opens the smartphone camera. Hover the camera over the black and white tags. Your phone will be directed to a page on the Trinity College Dublin Art Collections website where you can access more information on the artist and the work. Enjoy!

Direct access to the web pages is also available at www.tcd.ie/artcollections/exhibitions/index.php

Special thanks to Prof. Micheál Mac an Airchinnigh and Shane Brennan, School of Computer Science, TCD, for their friendly assistance and support – both creative and technical

Figure 2. QR code tags for smartphones

Case Study 2: The National Art Gallery (Sofia, Bulgaria)

QR tag 4

One might imagine the use of a smartphone camera on an original art image in a gallery. For obvious reasons (one of which is that of copyright), many galleries would not facilitate such a thing. But, even if allowed, there might be artworks which would resist recognition (at least in the short term). For example, using GoGo directly on the digital image "*Composition – Female Figure III*" circa 1950, by Nicolai Abracheff (Abracheff, 1950), does not result in an appropriate match. One hypothesis for the failure might be that the image is formally too abstract to be easily recognizable (as that of a woman in red).

There is a very simple and effective solution to this problem, now to be explained in some detail in the practical context of the recent Trinity College Art Collection exhibition, outlined above. One generates a QR code tag ("2D Code", 2011) for the URL of the web page on which the digital image of the painting is located. Then the image and the QR code tag are collocated, such as on Flickr (Mihal Orela (Orela, 2011a). Finally, use of GoGo will bring one to the web page in the National Art Gallery (Sofia). The results of this practical research are electronically published in the form of a Flickr Gallery entitled "ElPub2011 Mobile Digital Art Exhibition" (Orela, 2011a).

We can also turn this mobile digital art collection into a simple game: "Spot the odd one out." Specifically, one of the 18 images chosen for the Flickr Gallery does **not** belong to the collection of images on the National Art Gallery (Sofia) web site. The goal is to determine which one and then to determine where it is located. It is worth noting, *en passant*, that the number of images per web page of the National Art Gallery (Sofia) is 12 and 12 = 4x3 is a nice number (months of the year, hours of the day,…). The image paning of a tablet (iPad, iPhone,…) to facilitate a 4x3 or (3x4) exhibition has great aesthetic appeal.

Table 1. Construction of QR tagged art works

Table	URL	QR tag	Image	Image Tagged
NAG Sofia	http://www.nationalartgallerybg.org/index.php?l=55&id=21 [2011-03-31]	QR tag 5		
NGI Dublin	http://onlinecollection.nationalgallery.ie/media/view/Objects/6379/14653?t:state:flow=314462a0-8cf2-4e79-88c1-a50ec9de0b57 [2011-03-31]	QR tag 6		
Museum of Innocence	http://www.flickr.com/photos/mihalorel/5363085749/ [2011-03-31]	QR tag 7		

Case Study 3: The National Gallery of Ireland (Dublin, Ireland)

At the ElPub 2010 Conference in Helsinki we reported on the then status of the digitized collection of the National Gallery of Ireland ("National Gallery of Ireland," 2010). Now one year later ("National Gallery of Ireland," 2011) it is gratifying to see that it compares well with other world class "National" Art Galleries. One feature of particular relevance is the ability to create online one's own collection of images under the rubric of "My Collection" (National Gallery of Ireland My Collections, 2011).

Let us consider the art work entitled "The Meeting on the Turret Stairs, 1864" by Frederick William Burton (Burton, 1864), a popular piece. Use of GoGo currently gives a good variety of URL choices, and that which takes one to the National Gallery of Ireland website is currently on the 5th page of results. . . Undoubtedly over time, as people get used to exploring the NGI web site and using its "My Collection" feature, the NGI URL will rise further. But in the context of a Mobile Digital Art Exhibition, we can greatly augment the standing of the NGI. There is a large choice of images. It is possible to create an external Flickr Gallery (Orela, 2011b) where each image from the NGI collection is given a suitable precise QR tag. An example is shown in Table 1 above.

Case Study 4: The Digital Museum of Innocence (Everywhere for Everyman)

Wanted! Curator for the Museum of Innocence! The most recent news concerning the "real" Museum of Innocence is that it will be in place by Spring 2011 ("Where is the Museum of Innocence?," 2011). One will see. Orhan Pamuk's Museum of Innocence is founded upon his earlier work, "Istanbul, Memories of a City," (Pamuk, 2005). His "prolonged study of these photographs [each one assigned its place in the museum] led [him] to appreciate the importance of preserving certain moments for posterity" (Pamuk, 2005, p. 13). And the Istanbul book is full of photographs. It is also full of his own personal memories up until the age of 18 when he abandoned the career of artist to undertake the career of writer. Taking the two books together one sees how memories accumulate in the things preserved. For our final mobile digital art exhibition we will construct a simple "game"/"play" based on a Flickr Gallery of 18 images. The theme will be the "Seven ages of man": infancy, boyhood, lover, soldier, justice, pantaloon, second childishness (Wikipedia, 2011d, 2011e). **Rule 1**: One will universalize the "ages of man" to apply equally to woman in our times. **Rule 2**: One of the ages will be dropped. It matters not which one. **Rule 3**: There will be three images for each of the six ages. **Rule 4**: Each image will carry the same Creative Commons license. **Rule 5**: Each image will carry the appropriate QR tag. **Rule 6**: Each image *may* carry the designated age of (wo)man in an appropriate aesthetic form. Such game/play may initially be considered to be similar to a game of solitaire. However, with a little more thought and corresponding rules and moderation, one can deduce that the game might readily evolve into a "distributed" family game played out digitally over the web.

Conclusions and Suggestions

Disappearing digital data: In the short space of time between the initial submission of the paper in late January 2011 and delivery of this, the reconsidered final form, to be published in early April 2011, that is to say in the space of little more than two months, some electronic publication (elpub) data have been invalidated. Experience of the digital world, since at least the millennium year 2000, has shown that digital data (web pages, for example) can and do disappear from public access. In our case, in the development of the Flickr Gallery entitled "ElPub2011 Mobile Digital Art Exhibition," we used the English form of the URLs to locate the images of the artworks in the National Art Gallery, Sofia and generated the corresponding QR tag encodings. We certainly did **not** expect that these Gallery pages would disappear, that is to say become inaccessible. Consequently, any QR tag encoding of such page addresses would become invalid. Therefore, use of Google Goggles on such QR code tags would not lead to the desired destination. For example, in exposing raw URL data in Table 1 above we discovered the need to replace the English page:
http://www.nationalartgallerybg.org/index.php?l=60&id=21
with the corresponding Bulgarian page:
http://www.nationalartgallerybg.org/index.php?l=55&id=21 [2011-03-31]

Contextuality of QR tags: For some, the QR tag, being machine oriented, and therefore intrinsically alien to humans, is ugly. Placed in proximity to an artwork, the QR tag has a jarring effect. One cannot be sure that the decoding will be "suitable" until the QR tag is decoded.

QR tag 1: still active ("Curator's Role, College Art Collections: Trinity College Dublin,") 2011-04-03
QR tag 2: still active ("Georges Braque 'Oiseau dans le feuillage' (1961) lithograph on newspaper edition 15 of 50, George Dawson: An Unbiased Eye,") 2011-04-03
QR tag 3: disappeared early 2011 (Stefan Ivanov, 1875-1951); Bulgarian version exists (Иванов, 1875-1951) 2011-04-03
QR tag 4: still active (Абрашев, 1897 – 1962) 2011-04-03
QR tag 5: is exactly the same as QR tag 3, 2011-04-03
QR tag 6: still active (Frederick William Burton, 1864) 2011-04-03
QR tag 7: still active 2011-04-03

Acknowledgements

We are very grateful for the insightful remarks of the referees. The first remarked specifically on the need to elaborate further on the context of the concept of the digital rediscovery of culture. The second showed us that we needed to emphasize the user-driven desire to curate one's own mobile collection. To make this focus clearer we introduced the term self-curate to designate the fact that it is the user who is at the centre, not the institution and not the seller/provider of fixed-content art apps. Happily, both needs are mutually supporting.

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