

Critical Assessment of the Tate Britain and Tate Modern's approach in digitising their art collection

Within this paper I aim to make a critical assessment of the Tate Gallery's attempts to digitise their art collection. I will look specifically at the Tate Britain, Tate Modern and the Tate Online. Within this assessment I will look at the digitisation of the gallery and the features that have been added to augment the viewing experience, paying close attention to online features that make up for any failings of the digitisation process. I will also look at features that have been added as a by-product of digitisation such as the introduction of computers to the gallery, and also universal features created to solve issues raised during their project. I will aim to introduce and describe important features and then discuss what they manage to achieve and how they manage to achieve it. I will assess the success of the online experience by highlighting a number of individual artworks and discussing how well the essence of each piece has been captured online. I will conclude by discussing whether it is possible for art galleries to be successful online and whether the Tate gallery can build on its strengths from their project as it stands. Before we look at how effectively digitisation has been used at the Tate it is necessary to show the differences between the Tate Britain and the Tate modern.

The Tate gallery digitisation project is also known as Insight. Insight have made a breakdown of the numbers and types of works found at the four galleries:

- Paintings: 4000 paintings from the 16th Century to Present Day
- Sculptures: 1,500 works from late 19th Century to Present Day
- Prints: 11,000 works of all periods
- Paper: 8,000 items from all periods
- Turner Watercolours: 6,500 Works
- Turner Sketches: 25,000 studies, pencil drawings, sketchbook pages

Tate Britain represents a large proportion of the two-dimensional works such as paintings, prints, watercolours and the majority of Turner's watercolours and sketches. The Tate Britain also has a number of sculptures. The Tate modern however, also represents a large body of two-dimensional works, but one thing that is apparent in the Tate modern is that it holds a number of works made in many different materials and many different styles. There are many more sculptures being exhibited in the Tate modern there are also a number of multimedia features such as video or sound features, and combinations of both, there are also a number of works that cross all types of materials and styles. From their outward appearances the Tate Britain is a much more traditional type of art gallery, the Tate Modern on the other hand is much more varied and in some ways very experimental in its layout and the methods it uses to exhibit its artwork, this is reflected in the online version of both galleries.

The Tate website, Tate Online is the centre of the Tate's digitisation project. With the underlying motive for the digitisation of artwork being to provide access to it, the results of the Tate's research can be found online. Out of the 65,000 pieces owned by the gallery they have managed to digitise the majority. 50,000 pieces are accessible online, works that don't feature are those that still have copyright laws preventing them from being made available.

Exploration of the site begins with what can loosely be described as a web portal. Although access through this portal is to Tate's own services and its sponsors, the range of features that can be accessed are extensive:

- Galleries/Collections
- Research
- Learning
- Language Selection
- Publishing
- Members
- Online Shop

Also there are links to frequently asked questions, jobs information, copyright documentation and various other menus highlighting important exhibitions for the month and other such information. It is immediately obvious therefore, that the Tate endeavours to make as many features as possible accessible to the user from the moment the website is accessed.



Fig 1. Tate Online Welcome Page

To access the artwork it is necessary to choose either of the links to the four galleries, or the collections link. Each of the galleries have colour coded tabs along the top of the Tate website. Each gallery site has a colour scheme based around this colour code accordingly.

Tate Britain

The Tate Britain page loads and presents the user with a headline page detailing what is on in the Tate Britain gallery at the present time. It also presents the user with a link to a map of the gallery that allows the user to explore its contents. The map of the gallery that is bought up has been created using macromedia tools such as flash and allows the user to see a floor plan of the exhibition rooms and click on each room they wish to visit. The user could click room through room linearly or any other way they so choose. They can place every room they visit on their own personal tour list¹. The next time they visit the Tate online they can take their pre-determined tour and view new works and works that have moved around since their previous look at the exhibits. There are also pre-programmed tours for users that might not know what they wish to look at but are willing to see what is being exhibited. To help attract attention the first of these tours was a personal selection by a British celebrity.

Clicking on a room will bring up the artwork that is currently exhibited in that room. The page that is bought up is also accessible through the collections search. Exploration through the map allows new users to gain experience of the layout and organisation of the main gallery, it also allows users experienced with the physical gallery to access a piece of art through locating a position on the map that they are familiar with. Fig 2. Shows the Millbank Entrance is selected, it is highlighted in orange on the map.

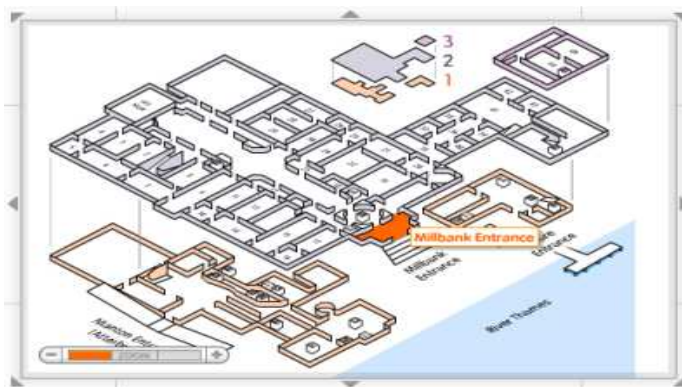


Fig 2. Map Overview of the Online Gallery

¹ Requires users to register and log into the website. This requires an email address but only requires information in 4 fields for registration to be completed. Access is immediate.

Instead of looking at individual rooms within the gallery, I have highlighted a number of individual pieces to help review the digitisation process.

Edward Dayes | Bedlum Furnace, Coalbrookdale

- Gouache, pencil and watercolour on paper
- Support 316 x 440 mm
- On paper, unique
- Turner Bequest: 1856
- Theme: Turner Collection
- Room: Turner and the Modern World



Fig 3. Bedlum Furnace, Coalbrookdale

Joseph Mallord William Turner | Caligula's Palace and Bridge

- Oil on canvas
- Support 1372 x 2464
- Painting
- Theme: Turner Collection
- Room: Exhibiting Turner (Room 41)
- Exhibited 1831



Fig 4. Caligula's Palace and Bridge

For both pieces I have included additional information about the works that is provided online. Figures 3 and 4 are the overview pictures that are shown on Tate Online for these particular works.

For each two-dimensional artwork on the website there are three shots provided – A thumbnail an overview picture and the main image accessible to the public. If we look closer at the digitisation process used by the gallery we can clearly see a problem with the images that the public are granted access to online:

The digitising process requires the photography of the artwork. Specialists are bought into handle specific materials while the work is photographed. A specialised digital camera is used to complete this task. The camera is connected directly to an Apple Macintosh G4 computer that runs the interfacing software between the camera and the computer. The software allows for the control of the shots and shows a live video feed of the shot being lined up processing and displaying the effects of colour filters and tone changes as it broadcasts.

Two shots are taken. One photograph is a 34 Megabyte, 48-Bit master copy that is automatically written to two media types – CD-ROM and DVD-R. This file is neither compressed nor cropped before being written to ensure the accuracy of the image before archiving. The second image is a smaller 8-bit file that is around 16 megabytes. This file is imported into the image management software for compression. The image is turned into five separate compressed files of differing size ratio. Four of the compressed files are stored as a JPEG; one of the files is stored as a PNG.

The three digitised versions available to the public are low resolution and although they are sized to scale it is difficult, even with the dimensions listed to put each work into perspective. The Turner work above, as the dimensions point out is one and a third meters by nearly two and a half meters actual size. On screen the compressed version is 512 pixels by 338 pixels, this translates to 14 centimetres by 7.5 centimetres on a standard 14" monitor with a screen area of 1024 pixels by 728 pixels with 32-bit colour.

Prown (1988) describes the first stage in an analysis of a material object as a 'Substantial Analysis'. The substantial analysis is an account of the physical dimensions of the object including weight and size. While it could be argued that interpretation of art can be achieved without knowledge of its physical nature, a print for example is not the same as its original and may sit behind a piece of glass in a frame, it could also be argued that the entire experience has an effect on the individual viewing it.

Prown looks at the study of material culture as a way to understanding the mind of the great majority of non-literate people, past and present. However he also describes the physical analysis, stylistic analysis and looking at iconology of a piece as fundamental analyses when looking at a new piece of art and therefore looking at art goes beyond the interpretation of the message within the illustration. Ultimately the concept is that there is a reason for the physical appearance of a piece of art, we may not interpret this reason correctly, but for one to gain the full visual and sensory experience of a piece, one must be able to appreciate it in its full form.

This causes a fundamental problem for the online experience, but with access to a full size version of the painting, and a full resolution image that has no loss in detail it could make a big difference. It is also important to note that the JPEG is encoded using Huffman encoding, the loss in resolution (i.e. scaling of the image and appearance on screen) rather than the compression technique used is the reason for data lost within the object².

The final two pieces I shall look at within the Tate Britain are the Turner Sketches and the Donald Rodney Sketch books.

As mentioned in the introduction the Turner Bequeath left 25,000 sketches. These sketches are described by the gallery as being an invaluable source of information about Turner's influences and workings. Online it is possible to access the majority of these sketchbooks, with more being added to the archive constantly. In the gallery there are a small number of these sketch books on show within glass cabinets, but the sketches can only be open on one page at a time so on any one visit to the gallery it is not possible to see all of the sketches. It is of great significance to the gallery and to the public that these works can be digitised because it represents a large body of British art history.

Many of the Turner sketches are difficult to decipher using just the human eye. Therefore while the sketchbooks can be represented in their natural form in the gallery, online they can benefit from image enhancement techniques. Figure 5. Shows a page from the Bristol and Malmesbury Sketchbook:

Although it is difficult to make out too much detail on the page, the aim of this illustration is to show how the image enhancement techniques have been used to highlight the writing around a third of the way down the page. Before the enhancement techniques were applied the page of the sketchbook was difficult to read. Now with the enhancement technique applied it hasn't just managed to highlight the text a third of the way down, but it has managed to bring out more artifactual information on the page. This view of the sketchbook is not available within the Tate Britain gallery.



Fig 5. Page from the Bristol and Malmesbury Sketchbook

² Huffman encoding is a lossless image compression technique

Another set of sketchbooks that the Tate gallery have exhibited in the past are the Donald Rodney sketchbooks. A past exhibit in the Tate Britain these books are no longer on show within the gallery³. They are an important piece of British artwork, but more importantly they show the prospects for further digitisation of projects and enhancement of existing features. By taking the Donald Rodney online exhibit as a model for the digitisation of sketchbooks it could eventually be possible to make the Turner sketchbooks fully interactive. Below is a description of what has been achieved with these sketches:

This series of shots in Figure 6 (left to right) describes the opening of a page in the third of 48 sketchbooks, three of which are currently digitised and interactive.

The work on these books was completed again using macromedia flash. Instead of an in house team completing the project the Tate gallery hired a freelance designer to make these sketchbooks what they are.

Giving the freelance designer access to three books he has managed to create what are fundamentally interactive online sketchbooks. Using the mouse the user can open the book page by page and see the movement and growth of thoughts and ideas as they progress through the presentation as they would with a regular book.



Fig 6. Opening of a Page

Using the book has a surprisingly organic feel about it and in many ways it draws you in as you read it. The user can become immersed in the experience and the ideas being portrayed.

Again the Tate Britain gives users access to a full body of information about the background and the idea behind these sketchbooks. Being from a past main exhibit it delves deeper into the timeline and life of the artist.

The important thing to take away from the digitisation of this set of sketchbooks however is what it could mean for turners sketchbooks. The quality of the images used in this presentation, combined with a very well put together set of animations, and level of interaction means that if the same could be provided for the Turner sketches then it would create a very interesting experience, it could be beneficial for researchers and learning, and the casual viewing public alike. If it is possible to create a digitisation of Turners sketchbooks such as these it might fit in with Conway's (2003) concept of transcending the original documents. Because of the fragile nature of the Turner sketchbooks, to make them into something that could be utilised in the same way as the Donald Rodney sketchbooks would allow them to be used in ways that they could never have been used before.

³ They are however owned by the gallery

Tate Modern

In selecting to explore the Tate Modern online in the same way we did with the Tate Britain we are greeted with a cross sectional view of the gallery from the perspective of someone at ground level. Clicking on this view brings up the following map that can be used for exploration of the gallery in the same way we used the map above:

It is important to note that the exploration maps are fundamentally just an interface. Clicking on any of the rooms will take you to the same pages on the site that can be accessed through a collection search for a particular piece of art and/or artist.

Within the Tate Modern there are three pieces that I wish to highlight before summarising how well digitisation of artwork has been achieved at the Tate. The three pieces that I wish to highlight are:

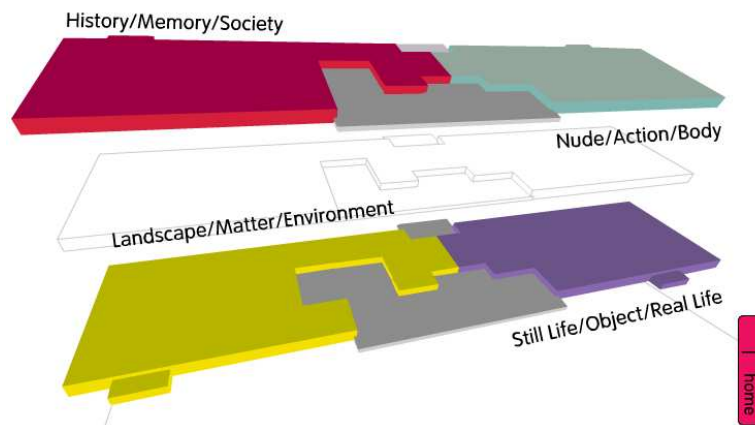


Fig 7. Tate Modern Exploration

Michael Landy | Scrap heap Services, 1995

- Video and mixed media
- Duration: 11 min., 20sec
- Installation

This piece is an installation that fills an entire room of the Tate Modern. The individual is allowed to access everywhere in the room and almost explore for him or herself whatever they wish to look at. The room is filled with paper men cut out of newspapers. The paper men are within bins, in heaps on the floor, in a chipping machine and other such items. There are also a number of mannequins on the floor to walk around that are holding sweeping brushes. On the ceiling is also a video presentation.

The extent to which this has been represented online is a simple picture from one view towards the back of the room.

Mark Rothko | Murals, 1958, 1959

- Oil on Canvas
- Various Sizes, average 2.5 meters x 1.5 meters
- Installation

This is another entire room installation. Mark Rothko's murals were originally a set of artworks for a friend's restaurant, however he decided that the restaurant wasn't the correct setting for them to be exhibited and wanted somewhere where they could be looked at and studied and the individual observing them could go into quiet contemplation about themselves and the artwork.

Within the Tate modern the room is filled with a number of these murals with benches facing each piece. Mark Rothko conceived the room and it is his intention that the works be viewed in that setting.

In this case context is important, as the entire room becomes the artwork not just the individual paintings. Unfortunately this hasn't been preserved online and all we have access to, as users are the individual murals taken out of context.

Jesus-Raphael Soto | Cardinal, 1965

- Mixed media
- Object: 1562 x 1060 x 254 mm
- Relief

This is a three dimensional piece described as kinetic art. It is described as follows, “This is a visual illusion generated by the spatial relationship between horizontal rods and the hand-painted lines of the background. Originally, the suspended bars could be swung by hand, generating musical sounds. The work is now in a very delicate state and it is not possible to touch the elements.”

This piece is represented online by a main view of the work from the front and an alternate view from an angle around the side of it.

Unfortunately with the nature of this work being kinetic art and only two views of it been represented online, it fails in some way to achieve its objective as a successful digitisation. The reason being is that this artwork takes on a different persona on a 180-degree arc around the face of it. It will also seemingly change its appearance for any height variation you make as you are looking at it.

Also, a piece that is not represented online:

Gilbert and George | Nature of Our Looking, Video Presentation

Although not online, the experience of this video within the gallery itself creates a very interesting sensation within the viewer. Fundamentally the video is an observation of two people looking at something in the distance, the video runs on loop over and over. Within the gallery you sit down to watch this video and you soon become aware that not only are you watching people looking at something, but yourself and others around you are also just looking at the screen, at people looking at something. Depending on interpretation and the individual, it can create a feeling of self-consciousness in you even though no one is actually looking at you.

This particular piece is not online due to it not being owned by the Tate, but were it to be put online, which it could be done very easily as a downloadable/streaming video, would the piece have the same effect on its viewers.

These four artworks represent a number of failings on the Tate galleries behalf to provide an effective online version of a number of pieces of art.

Sculpture

Sculptures are represented online as one or two-dimensional photographs. While there may not be a perfect solution to represent three-dimensional objects yet, software such as QuickTime VR and Holomatix Blaze 3D are seen as acceptable solutions. By stitching two-dimensional scans together it would be possible to keep the original 2D versions as master copies while the QTVR was used simply to give a more accurate representation of the exhibit. If access is an objective of digitisation for the Tate then it should be necessary to provide an accurate representation of a sculpture or sculpture/room installation as possible.

Multimedia

Multimedia is not represented on the website either. Some works that I have come across seem to be affected by copyright laws, but those that aren't are represented by a screenshot of the video in its installation and a short description of the purpose of the video.

Scale and Interaction

The scale of features at the Tate modern is not something that has been represented online either. The rooms that you can find Rothko's murals and Landy's Scrap heap services are large rooms and there is a large floor area accessible to the public. There are also other exhibits in the gallery where their enormity has to be seen to comprehend.

The size of certain exhibits creates another issue that hasn't been represented online. As mentioned above this is the way you interact with the art. For every position you view an exhibit from you perceive something different. To view a large sculpture from above and below and 360-degrees around the exhibit as much as possible allows users to see the work in its complete glory. This is likely to have an effect on interpretation and appreciation, and it is also likely to have an overall effect on how you may view other pieces of art within the gallery as you move along from that point.

For the failures of the Tate digitisation online it does manage to provide access to the majority of its collection. Regardless of the failings of the sculptures also the digitisation does manage to adhere to three pointers as a rationale for digitisation as described by Conway (2003). The three reasons for digitisation are as follows:

Protect Originals – A digital copy has been made of all works. Master works exist that have captured the original artwork at the best possible image quality. The masterworks have limited access while the files stored online and in the Tate database serve as reference objects that permit identification of the originals, and to some extent with the lower quality versions allow further study.

Re-Present Originals – The Donald Rodney feature is a re-presentation of the original sketches that allows full interaction. They have been photographed and re-presented online in such a way that preserves most if not all of the research and learning potential of the originals.

Transcend Originals – Again the Donald Rodney online version transcends the originals. This exhibit, through digital imaging techniques and the combination of those techniques with other methods of presentation have created a product that can be used for purposes impossible to achieve with the original sketchbooks because of the priority for preservation of documents.

To the Tate gallery Preservation IS access. In digitising their artwork they can allow users to view it online in the best way they feel is possible. In some cases the natural circumstances of the materials means that preservation OF access is also a goal for the gallery. In the case of Turners works and the Donald Rodney sketches, Turners sketch books deteriorating with age and Donald Rodney's although much more recent will eventually do the same – by digitising their work it means that users can still see the work. In the case of Donald Rodney, the three sketch books digitised allows users to access and interact with the works, which, could never have been allowed so freely before.

Cornell University also describes the importance for certain features to exist within a digitisation project. While as previously noted in the online and accessible version of the digitisations image quality is greatly reduced, in doing this it allows the Tate to achieve the majority of the rest of the digitisation characteristics described. The most important features is the delivery of resources is fast and effective and there is enough information about the pieces to be researched thoroughly.

Regardless of the failings to represent larger three-dimensional or multimedia works the Tate itself describes the first stages of its digitisation project as to 'simply' provide access from anywhere. On this the gallery cannot be faulted for it does so in an acceptable and extremely effective fashion for the casual viewer and a certain level of academic viewer. The Tate gallery have stated that Tate Online is no substitute for a personal visit to the galleries. Should access be needed to works of art for further study then individuals can go about gaining access in the same fashion they have done with curatorial institutions for a long time. And should the casual viewer be inspired by works online then hopefully it will make them want to visit the gallery, and possibly get more out of the experience by knowing what they are interested in, what is exhibited and what they want to see beforehand.

In terms of the archiving aspect of the digitisation project Deegan and Tanner (2002) point out that whatever digitisation methods are used, and however the created images and files are stored at the moment it is paramount to keep the originals for the future of existing file types cannot be chartered reliably, nor can they be regarded as unacceptable methods of preservation. For the current time the Tate gallery are on the right tracks in terms of keeping their digital versions up to date by staying away from proprietary file types⁴ and using open source techniques. They keep a huge body of documentation of their research, the majority of which is available to any user of Tate online. By

⁴ The macromedia content for exploration is merely an intermediary interface; the main interface that is open standard is currently HTML

keeping access to master copies to a minimum and storing files on two of the most current file storage techniques they are increasing their chances of avoiding a 'doomsday book' scenario. For this again they cannot be faulted.

Tate has stated that they are coming to an end of the first stages of their digitisation project. With nearly every piece of art having a record in a master archive and online in one form or another they are now beginning to research ways to improve on what they have completed so far. The Insight project are moving beyond the static 2D imaging techniques which I have described above has its problems, and they are looking at ways to represent their more challenging pieces. Two important projects are highlighted online:

Variable Light: The variable light project looks at the effects of variable light sources on an image. This is a very important project as it is variable light sources on any object that reveal hidden textures and hidden features such as colour and further detail that might otherwise remain un-noticed. The image is photographed on 180-degree arcs 360-degrees around the object, at each degree is a single light source illuminating the object. Certainly online to see texture is very difficult. In the gallery it might be equally difficult because of the static nature of exhibits. The example work they have online features a fully interactive light source that the user controls to see the textures on the artwork. Personally this is one of the most exciting features being researched as should the Tate embark on creating a variable light feature for every piece in the gallery and include it online, then in many ways the online experience would be more enriched than the gallery experience. Also should it be successful then there should be no reason that a digital screen should not be accessed within the gallery to allow users the same control of light on a digital version in the gallery while viewing the static exhibit. This project is in conjunction with the national gallery and could provide a very different gallery experience in future.

3D Sculpture Exploration: Henry Moores Recumbent Figure (1938) has been digitised and represented using Macromedia Shockwave. Using special photography techniques Tate have managed to accurately reconstruct the model in 3 dimensions to great accuracy allowing users to view the 500kg figure from all angles, virtually.

So it is obvious from the research being completed by the gallery that it continues to improve on its already powerful resources and aims to eventually make the online experience as enriched as the gallery experience. Statistics show the Internet to be around 83% commercial ventures, and 6% educational or informational; therefore for the Tate gallery to achieve what it has done already makes it one of the worlds foremost art resources.

In this paper I have focused on the art itself what I haven't focused on is the less obvious features that enrich the online and the gallery experience, I shall look at a few of these features in bullet points here:

Signed Glossary and Standards: During the digitisation of the gallery and the indexing of items it was discovered that some of the standards used to describe important art concepts could not be translated into sign language correctly. Video is now available on the website for non-hearers that describe concepts in a much more intuitive way than previously existed. There is a large glossary on the website that provides a powerful reference tool for users who want to know more about art.

Ease of Navigation: An important part of the digitisation process at the Tate, is the navigation of the online gallery and the interface created to aid this navigation. The interfaces that have been created for the two galleries we have looked at have been very successful in interpreting the style of the two galleries. The Tate Britain is a much more traditional gallery this is represented by a conservative flash presentation for exploration. The Tate modern is much more experimental and has been created in reality on a very large scale. This has been represented online by creating perspective from entering the gallery exploration presentation at floor level and showing the three levels rise high into the air. Clicking on a floor causes the presentation to scroll upwards, zoom outwards and zoom into the floor. Choosing a particular section on the floor reveals the large number of rooms within the gallery. These macromedia flash presentations have been created to great effect, they are easy to use and responsive. Also the exploration of the HTML parts of the site is very easy too. The Tate have focused on quick response times and have managed to achieve it. A search will take a number of seconds and show results of the highest accuracy.

Art Texts and cross-referencing: For each artwork there is a description of the piece. This description is the standard description that is found online. Where possible the Tate have also provided texts from books for important pieces of art, this provides important insights into the artwork being viewed. Cross-referencing on the site allows the user to look for other works of a similar style or subject. The subjects are hyper linked for quick access. The site also allows the user to select similar works by multiple subjects. For example with the furnace described for the Tate Britain above you could search for landscapes, with the industrial revolution and you could also look for works that show similar architecture.

E Learning: Seeking to capitalise on the 2 million viewers of the online gallery every year Tate have provided e-learning facilities for children and adults alike. There are suggestions on the site for school material and how to teach children important art concepts and ideas. For adults there are courses that can be paid for and can be completed over a period of time that will result in the user of the facility getting a certificate to show they have completed a course with the Tate gallery. There are several levels to choose from and each course has been expertly designed to teach people as much as possible in as effective a fashion as possible.

Reading rooms: The reading rooms in the galleries have access to audio commentaries on important art concepts. In the Tate modern they take this a little further by providing touch screen access to concepts and selected art pieces. You can read about important ideas and about the history, memory, and the effect on or by society of a certain piece of art. You can view a high resolution image of the piece of art which you can zoom into and move around the screen by touch.

Pocket PC: Handheld tours are available for a small cost in the Tate modern and use Toshiba PDA's. The tour makes use of a bespoke interface design and is touch screen. These tours have a well-designed and simplistic interface that allows users with any level of expertise to use them. These tours allow users to access audio describing particular pieces from the history of a piece to the artist, and from the way in which the artwork was acquired by the gallery to the way it was conceived by the artist. There is jukebox facility on the PDA's that allow users to hear full pieces of music that were inspired by artworks or have inspired artworks.

Languages: It is important to note that the website and the tours in the galleries are in 9 different languages. In terms of providing access to people everywhere this is a huge step and a very important feature created as a product of the digitisation process.

Overall then the Tate digitisation project is resoundingly multi-dimensional. So far it has moved from stage to stage, completing the digitisation with single-minded dedication. While it seeks to correct issues in the display of challenging pieces from the kinetic art above to Rothko's murals, should it be successful one must wonder what is the future of the digitisation project. With 2 million visitors each year is it possible that Tate Online could become a complete and enriched gallery experience?

A project that has attempted to create this experience is the virtual museum of art el pais in Uruguay⁵. This 'virtual' museum is set within a virtual building that currently doesn't exist. The building is a piece of concept architecture for the building they want to build to house this gallery physically. Inside the virtual gallery has been created using a mixture of JavaScript and HTML. You explore the CAD designed interior using a number of hyperlinks. When you come across a piece of art it is hyper linked and clicking it takes you close into it, as if you wanted to view it in a real gallery. Once the artwork has been focused in screen it allows you to zoom into it and scroll up and down it. The only criticism is that you have to scroll the image to view it completely; the browser should change automatically as the versions online are not as large as the monitor viewing area. But while the image represented online is relatively small in size its resolution is far superior to the online versions at Tate Online and are a pleasure to view.

The reason for this resolution is that this exhibit has been created to show works that don't have a gallery to be exhibited in. It is hoped that the gallery we explore virtually will eventually be built in reality. As it is the only way to exhibit the art the better it is presented online the better the experience for the user. In Conway's three purposes of digitisation this is a Re-Presentation of the original to allow the learning and research potential to remain.

⁵ <http://www.elpais.com.uy/muva2/>

Although it is interesting to view this site, the response times of this site and the interface it adopts do not engage the viewer. It does however show promise.

The Tate already has an interface for the viewer to explore which is responsive and interesting. Should this be expanded upon for both the Tate modern and the Tate Britain there is a large potential for creating a complete gallery experience. Anthony Sowden⁶ of HP laboratories describes the PC as being set up for Multi-Tasking, and users can't help but use it in such a way, it is not necessarily suitable for a single focused task, which might be how one would view the gallery experience, picture to picture, quietly contemplating the features and its message. It could be argued that should a single experience be involving enough on a PC such as how a computer gamer will focus on their game; then creating a gallery that an individual could immerse oneself in is quite possible on the PC.

Indeed McCarty describes the concept of the end-maker with regards to a student of an engineering discipline. He describes the 'end-maker' as not being a consumer at the end of a chain of manufacture, merely using what others have fashioned, but rather the creator, who begins with his or her own practice⁷. While the intentions of the spectator of an art gallery are not as strict as those of an engineer, it is possible that the user being an end maker in the gallery experience will make up for the multi-tasking nature of the computer, even take advantage of it, and come out of using the experience on the computer with the same experiences as they would have had in the actual gallery.

The idea comes from the fact that the Tate Modern is so complex and involving in terms of the way you walk around it and the sheer impact of some of the exhibits and how you might interact with them, that you could head around it taking a hundred different routes, not only will the person at the end of the experience come out with different thoughts on the gallery but people from exhibit to exhibit are likely to interpret it with different prejudices depending on which direction and room they have come from to enter the new exhibit. Because of this I feel that should the Tate Modern wish to pursue the digitisation of the gallery further instead of 'simply' providing access to the works then it might be more suited to being online than the Tate Britain.

With a little guidance around an online gallery such as regulated beginning and end points, and the creation of an immersive environment and one that can be explored fully from a to z but not necessarily in that particular order or including all the letters, and the creation of online exhibits conveying the scale, and the interaction and feel of the actual exhibits then it is quite possible that by making the user of the online gallery an end-maker in much the same way they can be left to roam the actual Tate Britain then it could create a very realistic and very fulfilling experience for the user.

It would be possible to do this with the Tate Britain however the Tate Britain is not quite as dynamic as the Tate modern, and does not have as many varying works in the same way the Tate modern has, it wouldn't be impossible to create an online experience as enjoyable as the Tate modern or as enriching, but it wouldn't suit the media as well as the Tate modern possibly could.

Overall, whichever direction the digitisation process in galleries heads at the moment it is possible to aid the perseverance of works by exhibiting them digitally. Should digital storage prove to be an unacceptable method in future i.e. inability to interpret file types, we would merely end up back at square one. In the meantime while we can advantage from the digitisation process by bringing it into galleries and by providing access to millions of users, whatever the problems may be in translating a piece of art from analogue to digital form, then digitisation cannot be a bad thing. Should it improve with time then the future for art galleries and especially this rich resource, as it stands it should be very interesting indeed.

⁶ New Electronics – Spring 2004

⁷ McCarty, Willard. 2005. Humanities Computing. Basingstoke: Palgrave.

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