Say Cheese!

Taking Pictures in the Rijksmuseum

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Graduation Thesis, August 2014
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Abstract— Technology is strongly mediating museum visits nowadays. The usage of interactive installations, social networks, tablets, touch screens, smart phones and applications are just some tools used to enhance the museum experience, while at the same time they are considered as efficient vessels for transmitting knowledge. In this case technology is often seen from an utopian point of view as something that would solely be beneficial, and thus fosters the museum experience. However, the usage of certain devices may produce unintended distractions. The museum experience is not only shaped by the information and activities provided by the institution, but it is strongly molded as well by the use of personal devices — like smartphones, that are used to take pictures. This last issue is something that has not been deeply analyzed. It is for this reason that this paper seeks to answer the following research question: How is the making of pictures mediating the museum experience in The Rijksmuseum Amsterdam, and what happens with the images after the shooting?

Index Terms— Museum, Instagram, Digital Collection, Photography, sharing museum experience, museum education.

I. INTRODUCTION

Technology is strongly mediating museum visits nowadays. The usage of interactive installations, social networks, tablets, touch screens, smart phones and applications are just some tools used to enhance the museum experience, while at the same time they are considered as efficient vessels for transmitting knowledge. New media have become a familiar aspect of exhibition design, and they have changed the way contextual information and explanations are given to the spectators (Karp & Kratz, 2007). The impact that digital media has upon cultural institutions has then become a central point of discussion in museum design (Stuedhahl & Lowe,2013). New definitions have been created in order to address the visitors' roles in the new type of encounters that these institutions trigger through different media, such as: integrative museum, the engaging museum, the participatory museum and the social inclusive museum (Stuedhahl & Lowe, 2013). However, the meaning, nature and mission of museums have been constantly examined since their beginning — these institutions have suffered transformations throughout their history, even in a pre-digital era. But the advent of the word wide web and digital media have helped to precipitate some changes, which have permitted new ways for approaching cultural institutions.

This paper studies one of the shifts that have been triggered by media technology. The present research focuses on how the museum experience is being mediated by the usage of mobile devices, but even more specifically on how the pictures taken with smartphones or tablets are molding the museum experience in the Rijksmuseum (case study of this research). The research question of this study is then: *How is the making of pictures mediating the museum experience in The Rijksmuseum Amsterdam, and what happens with the images after the shooting?*

In order to tackle such question this paper is divided in eight sections. Section II provides a background of the intersection between technology and museum experience. Section III delves into the problem and section IV identifies the related work. Later on section V describes the methodology, and section VI explains the results of four studies that were done. Then section VII provides a discussion, section VIII rounds up the paper with the conclusion, and section IX outlines future work.

II. BACKGROUND

Museums have been institutions that have changed since their beginnings. These establishments react to social and cultural aspects, and thus their missions and visions have been under constant scrutiny. The purpose of museums in the past was to craft statements according to their interests, which were then transmitted to the visitors as given truths. This meant that ideas about aesthetics, science and culture were imposed to the spectators, who were considered as entities that would learn without questioning the authority. This approach has changed now, and museums are much more aware about including the visitors' thoughts, experiences and expectations. The previously described *authoritarian* view shifted to a *mutual* one, where visitors are taken into account within museums' matters, and are not considered anymore as passive entities (Hooper-Greenhill, 2000). Technology has played an important role in this transformation, new media have been

used as tools to create communications channels between museum staff and the visitors.

The idea of mutuality has become quite popular within museum studies. Various researches refer to this change, and theory has been written about it. The museum expert Eilean Hooper-Greenhill (2000) summarized the dualism between the authority and participation with two concepts: the modernist museums and the post-museum. The former refers to the role that these institutions followed during the nineteenth-century for consolidating the nation-states, whereas the latter acknowledges the different interpretations that objects may trigger. Post-museums are institutions that do not direct their efforts entirely for the collection and accumulation of objects, but rather strive to create strategies to incorporate the visitors' points of views. Social Networks, digital collections and museums' apps are strongly used for this purpose, with the idea of bridging the visitors' voices with that of the museums'. For this reason media technology have a high influence in museum nowadays.

It must be highlighted that the previous shift of perspective is not something that occurred solely in the museum field. The pillars of Human Computer Interaction (HCI) are built upon similar premises: the system should adapt to the user, and not the other way around (the museum should adapt to the visitor, and not the other way around). The definition that Jef Raskin (2011) gave for the Human Interface (HI) concept evidences that previous statement: *An interface is humane if it is responsive to human needs and considerate of human frailties*. HCI seeks a goal that is not that distant form what the post-museum pursues: place the human at the center. Computer interfaces have become user driven, and museums became visitor driven.

There are several examples that proof that museum work started to focus more on the visitors through the usage of technology. One of the forerunners is Frederick Kiesler's *Tele-museum* of 1930. This device, which remained as a design and never came to be real, intended to expand the museums' walls by broadcasting artworks into domestic space (Henning, 2007). This previous idea is nowadays materialized and surpassed with The Google Art Project, where the interiors and collections of major museums are just one click away. Electronic guidebooks that started to be used in the 1950's were another technological landmark within museums (Grinter, et al, 2002). It was specifically in 1952 that the Stedelijk Museum introduced the first audio-guide, which allowed spectators to have a more personalized visit according to their pace and interests (Weilenmann, et al, 2013).

These previous examples show that different technologies have been directed to nourish the visitors' experiences, though it must be mentioned that not all museums had the economical power to explore the benefits of new media (and still today). Nevertheless, technology has become more accesible and diverse. Computers and different devices became more affordable, and the advent of the web was a landmark that boosted innovation. New media gained more importance within the museum field over the past twenty years, and it started to broaden their reach and scope of activities (Karp & Kratz, 2007). These cultural institutions are strongly implementing digital based strategies nowadays in order to become more accessible and engaging (Holdgaard, 2012).

Online platforms provided by museums such as forums, discussion groups, and digital collections became innovative sources of knowledge, while at the same time they have broadened the sources of learning (Russo, et al. 2009). Museums have explored the potential of the internet, by designing web-sites that support their educational purposes through digital collections and multimedia information. These digital strategies are expanding the museums' reach, as they are open to potentially anyone that would have access to the Internet (Karagöl, 2014). Apps that can be downloaded to mobile devices, such as smartphones and tablets, have also gained popularity within cultural institutions. These intend to enhance the visitors' learning experiences by providing multimedia information while they wander around the galleries (Euconomou & Meintani, 2011).

Directing the focus upon the visitors has had several implications within the museum's work, and with the definition of the visitor in itself. The meaning of the spectator as some one that just visits and walks throughout exhibitions and galleries is being revisited. The media expert Jay Rosen (2006) explains in the article *The People Formerly Known as the Audience* that the audience were the ones receiving a certain message at the end of a media system, whereas the users are the ones that are able to start dialogues with that system. He addressed specifically the audiences of media such as television and radio, but this idea can be considered as well in the present discussion about museums.

The premise that the participation in the distribution, transmission and creation of information is what makes the conversion from audience to user feasible is happening in the museums as well at a certain degree. Spectators need now to sign up in different sites to gain access to digital collections, to retrieve information spread over the social networks, and to start discussions. Visitors may even also curate personal collections by using services such as Flickr (Stogner, 2009). The audience is interacting with the cultural institutions in a more effective way through these communication channels, and are engaging in the distribution, transmission and creation of content. It is for this reason that the transformation of museums' visitors into museums' users can be considered.

But these considerations may only apply when addressing digital strategies designed by these cultural institutions. Other issues arise when visiting physically these types of establishments. Visitors are users of certain media technology that are external to the museums, and that cannot be controlled by these. It seems that the spectators are using personal devices at their own will.

III.   PROBLEM

Museums are aware of the benefits that technology may provide for their missions and visions, and constant discussions are made upon issues related to the following question: How do new media and media technologies may enhance the museum experience? Technology is often seen from an utopian point of view as something that would solely be beneficial, and thus fosters the museum experience. However, the usage of certain devices may produce unintended distractions.

Anyone that visits a museum can be aware that the making of pictures is one of the most common activities exercised by the spectators — it is noticeable that the museum experience is nowadays heavily molded by smart phones. Areti Galani (2010) points out that the amateur image making has been revolutionized by the web 2.0 and mobile devices, as people are empowered to manipulate the pictures and manage how these are published. This reality is something that has permeated the museums. One can deduce with simple observation that visiting a museum has become, for a considerable number of people, a matter of shooting photographs. The museum experience is not only shaped by the information and activities provided by the institution, but it is strongly molded as well by the use of personal devices. It is true that there are still some museums where taking pictures is not allowed, but in major institutions cameras are allowed (with flash restriction).

The usage of smartphones prevails in museums. It is hard to make a visit where there is no one with a personal device in his or hers hand. Images are indiscriminately made within these places, and the problem is that neither the institutions or the visitors analyze this issue; which seems so natural nowadays. There are people that fiercely oppose to this practice, such as Eric Gibson (2013) whom publicly manifested his point of view in his essay *The Overexposed Museum*. Photography, for him, has shifted the whole museum experience, as before it was a matter of "I have seen" and now is a matter of "I was here". According to him art became a "sight" rather than something that its explored and admired, reason for which museum photography banishes the art experience. The shooting of digital reproductions competes with the originals (Gibson, 2013), because it seems that the original is not important any more — what is more relevant is the copy that works as the proof for the "I was here". The craving for making pictures in this sense has an impact upon the museum experience. It is not a matter any more of contemplating, liking or learning but it just becomes an urge to shoot.

Viewing artworks in major museums where taking pictures is allowed can be difficult sometimes. Crowds rush with their cameras to make pictures of certain art pieces rather than observing them in detail, as Gibson proclaimed. Amelia Gentleman (2004), a writer for The Guardian, analyzed these situation by studying the behavior of people when looking at The Mona Lisa. In the article called *Smile, Please* she explains that it is hard to believe that the Louvre's visitors really enjoy the painting under the conditions in which they see it. According to her, spectators just have a few seconds to view the painting, or better, to take a picture of it. Many visitors of this Museum have the goal of capturing the highly advertised mysterious smile, but yet many of them get disappointed with the size. Nevertheless, the spectators don't loose their goal of making a photography of *"one of the ugliest women in the world"*, as someone expressed to Gentleman. The fame of an artwork can overshadow its true physical dimensions, but visitors still shoot the picture despite this.

It is true that photography is not something new in museums, as this medium has been used since its analogue days. The difference between analogue photography and the one done with smart phones is that the result of the former is static, while the latter is dynamic — it can be easily and instantly edited, altered, manipulated and shared. Smart phones, with their built in cameras and data connection, are rapidly molding the museum experience and even the museums' messages. One of the most famous statements from the media theorist Marshall Mcluhan (2001) is that the medium is the message, as the nature of the medium is the one shaping societies (rather than the content of the communication). It could be said, following this idea, that smart phones are media that mold the museums' messages, specially because of their technical properties that allow to manipulate content. In this sense the message that a museum seeks to convey is mediated by the way pictures are done with mobile devices.

The usage of smartphones to make photographs within museums is not something that has been deeply analyzed, and either the reasons behind or the consequences of this act. It seems so natural that museums are places where photographs are made that this is often ignored by the cultural institutions. However, this research intents to tackle the mentioned problem, in order to start reflecting upon how museums could design strategies to promote a more meaningful manner of making pictures — different from the queue and shoot behavior that is easily identified within these institutions. The making of pictures within museums is something that affects all the visitors, even though not all engage in the photographic process. Visitors have to wait, sometimes, for others to press the shutter in order to observe an artwork. It is for this reason that this issue concerns the overall museum experience.

Amsterdam's Rijksmusem was selected as the case study of this research for the following reasons: It holds the biggest collection of Dutch cultural heritage, it is a museum that is visited by hundreds of visitors of different nationalities per day, its online Rijksstudio is a landmark for the design of digital collections, high quality images of the museum's collection can be downloaded for free, and pictures are allowed within the galleries. The present research reflects upon the digital strategies used by the Rijksmuseum, and it is discussed how visitors approach towards these. The added value of this thesis is that considerations about the making of photography within the institution are done, which is something that seems still neglected by the museum.

IV.   RELATED WORK

Different researches that revolve around similar topics to the one addressed in this paper have been done. However, analysis regarding the making of pictures in museums is not common. Researches that relate to the topic of this paper belong primarily to three domains: smartphones' apps, social networks and memory in the digital world (all these under the scope of cultural institutions).

Most of the works that study the usage of mobile devices within museums focus on the development, analysis and evaluation of apps. One of the most complete studies that has analyzed different apps from museums around the world was done by Economou & Meintani (2011). They studied the effect that these tools have upon the museum experience, while examining as well how these affected the museum staff,

internal policies, and working practices. The authors also mention in their paper the existence of skepticism regarding the usage of apps in museums environments, as these can overshadow the actual exhibited content. One study that specifically addresses design matters and HCI issues regarding museums apps was done by Olav Røtne and Victor Kaptelinin at the University of Bergen, Norway. They inspected the apps because these may add more value and content than the one provided traditionally through text and booklets, and because they are slowly transforming the concept of museum guides (Røtne, Kaptelinin, 2013). Usability issues regarding museums's apps were addressed as well by Mette Houlberg Rung and Ditte Laursen, who analyzed the National Gallery of Denmark as a case study. Their mayor intentions were to understand the visitor's attitudes, reception, and motivations for using or not the app. (Rung & Laurse, 2012).

Questions regarding how social media are affecting the museums' communication, and how cultural institutions are creating strategies for inviting communities to participate in the process of content creation have been also analyzed in different researches (Russo, et al, 2006). Other studies that measure the participation in Museums' social networks have been done as well. For instance, researcher Nana Hoolgraad, from IT University of Copenhagen, examined the participation of users in Danish museums' Facebooks pages, and she also analyzed the genders, ages, and nationalities (Holdgaard, 2012). Nowadays, there is a high motivation for making such studies because the usage of social media by museums is incrementing, and it's not anymore in an infancy stage (Russo, et al, 2006). Facebook, MySpace, and podcasts accounts related to museums have been analyzed, and it has been pointed out that social media enable participatory forms of learning, that may subvert the conventional authoritarian channels of communication (Russo, et al, 2009). One example of innovative and subversive strategies of creation and transmission of knowledge regarding museums are the ArtMobs (http://mod.blogs.com/art_mobs/), which are platforms where anyone can upload home-made "unofficial guides" (Russo, et al, 2009).

Researches that focus specifically on photography social networks take Instagram as a case study in most of the cases. Analysis on how certain institutions create and manage accounts an promote hashtags in order to share content has been done. For instance Stuedhahl & Lowe (2013) examined Instagram as a distribution channel where both users and museums could upload, share, documented and tag images. Other example where the photography sharing platform was evaluated in the museum scenario was done by Weilenmann, et al (2013) at the University of Gothenburg. In this research the communication aspect of Instagram was examined under the idea of *photographic* conversations: where someone uploads one picture and then some else answers with another picture, and so on.

But perhaps the research that relates the most to the issues discussed and examined in this paper was done by Linda A. Henkel (2014) at Fairfield University. She analyzed the repercussions and consequences that the making of pictures has upon the memory of the visitors, and her findings show that visitors tend to forget easier objects that were photographed rather than objects that were only observed. In

order to conclude this she conducted two set of experiments where the participants had to follow instructions: photograph certain objects and observe others, and photograph only details of certain pieces. Afterwards some questions regarding the objects were asked, and the results showed that the act of taking pictures had a *detrimental effect* on the capability of remembering them (Henkel, 2014).

V.   METHOD

Four studies were done in order to answer the research question. One focused on the Rijksstudio (a digital tool developed by the Rijksmuseum), other analyzed the visitors' behaviors while looking at artworks, another helped to describe how the pictures are done and shared in social networks, and the last helped to explain what happens with the images once the visit is over.

An overview of several Rijksstudios was done in order to measure user activity, and analyze how the participation of online users and visitors differ. Observations within the museum's main hall were done in order to analyze the visitors' behaviors, specifically when they were in front of Vermeer's Milkmaid and Rembrandt's Night Watch (two of the Rijksmuseum's masterpieces). The behavior of sixty visitors was analyzed. Images shared in social networks were contrasted with photographs taken inside the museum. For this reason a study was done with a disposable camera, in order to gather examples of how pictures are taken within the museum. Surveys and interviews were done site specific in order to analyze the nature of the photographs and the reasons for which visitors took them.

These studies may seem quite broad and distant from each other, but the nature of the research question demanded for different approaches. These different measurements and studies were done as well because gathering verifiable and reliable data was a challenge. Museums are not labs were data can be collected in clean conditions (and that can be tested over and over again), because there are many cultural and social aspects that have an impact on experiments done within these cultural institutions.

However, the findings of the measurements and studies relate, and they help to provide a better understanding of the problem. The methodology of this research consisted on gathering data from different sources. The findings of these are analyzed in the discussion and merged in the conclusion.

VI.   RESULTS

A. Rijksstudio

The Rijksstudio is quite an innovative platform regarding digital collections: users are able to create their own set of collections, when at the same time they can 'like' artworks during a physical museum visit. Using the Rijksstudio is quite simple: you just have to create an account and you can start surfing through a rich library of high-resolution images. You can create your own groups of images (sorted by any topic, as sports, flowers, landscape, or whatever category you want to
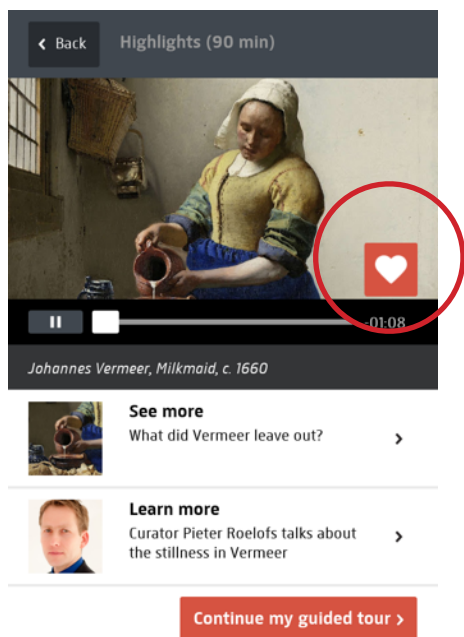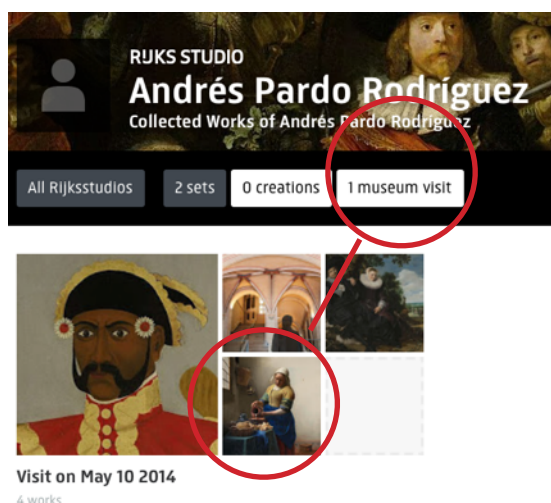
Fig.1

Fig.2

Rijksstudio is a proof that museums' websites and digital collections expand the museums' walls, and that they reach people that don't have the opportunity to got to Amsterdam. This is an excellent example of how a museum directs efforts in designing tools that would bridge its collections with people from all around the world.

The museum indeed expanded its walls with the Rijksstudio, but it seems that there is no proper balance between the visitors and the digital tool offered by the museum. The issue at this point is that visitors that use the app while they wander around the museum don't use the Rijksstudio, wheres people that cannot visit the museum indeed use the digital tool. Digital visitors can view the artworks in high resolution, whereas the museum's spectators that may see the artworks in real life are not using the app to 'like' the art pieces. This result also show that the idea of 'liking' the artworks through the museum app is not something that is common or popular amongst the visitors.

B. Visitor's behavior

Observation was the predominant method for analyzing this aspect. The time visitors queued in order to see an artwork, the time they spent taking the picture of it, and finally the duration they stood in front of it looking was measured. Three types of visitors were identified for this purpose: visitors with audio-guide, visitors with no audio-guides, and visitors with information plates. The measurements were done with two of the museum's highlighted paintings: Vermeer's Milkmaid and Rembrandt's Night Watch. In total 60 visitors were observed, which means that there were 10 visitors per target group (Fig. 3 shows the result of the six measurements). The intention of this experiment was to analyze how different media have an impact on the time that visitors spend looking into the artworks. The goal of the experiment was not to measure how photographs were taken, but rather how the spectators behave under the three premises of queuing, observing and taking pictures.

Visitors that used no audio-guide spend on average of 30 seconds queuing in front of the Milkmaid, around 5 seconds to take a picture, and other 5 seconds to observe the paintings. Visitors with audio-guide spent an average of 30 seconds queuing as well, 5 seconds taking the picture and around 90 seconds observing the artwork (the main audio that provides information for this painting takes 1:08 minutes, while the additional audio and video that provide further information last in total 2:16 minutes). Visitors that used the information plate had similar behavior while queuing and taking the pictures, while on the contrary they spend around 120 seconds observing (in this case they contrasted the printed image and the original painting).

The spectator that didn't use audio-guides when looking Rembrandt's Nigh Watch queued in average 15 seconds, made pictures for around 10 seconds and observed the painting for 30 seconds. The ones that used audio-guides queued for 20 seconds, took pictures for around 10 seconds, but observed the painting for 120 seconds (the main audio that provides information for this painting takes 1:32 minutes, while the additional audio and video that provide further information last in total 1:47 minutes). Last, but not least, the visitors that used the information plate queued and took pictures in about

create). The 'liking' of artworks can be done with the Rijksmuseum app (fig. 1) just by clicking on a heart during a museum visit, and immediately this will synchronize with the Rijksstudio account (fig. 2). The museum's website explains how to accomplish this in three simple steps: 1) Download the app. 2) Click the heart that shows next to the artworks 3) Check the Rijksstudio to view the selected favorites.

It seems that the aim is to bridge the real with the digital, as the visitor may choose his or hers favorites during a visit. However, the gathered data shows that this is not the case: it seems that the app is not being used as a support of the Rijksstudio. Forty accounts were examined for this purpose, and none of them showed information of museums visits. One assumption that can be inferred with this result on mind is that the Rijksstudio is mainly used by people that may not have the chance to visit the museum in person. In this case the

Q = queuing / P = picture making / O = observing

Milkmaid: non audio-guide / n=10

Milkmaid: audio-guide / n=10

Milkmaid : information plate / n=10

Night Watch: non audio-guide / n=10

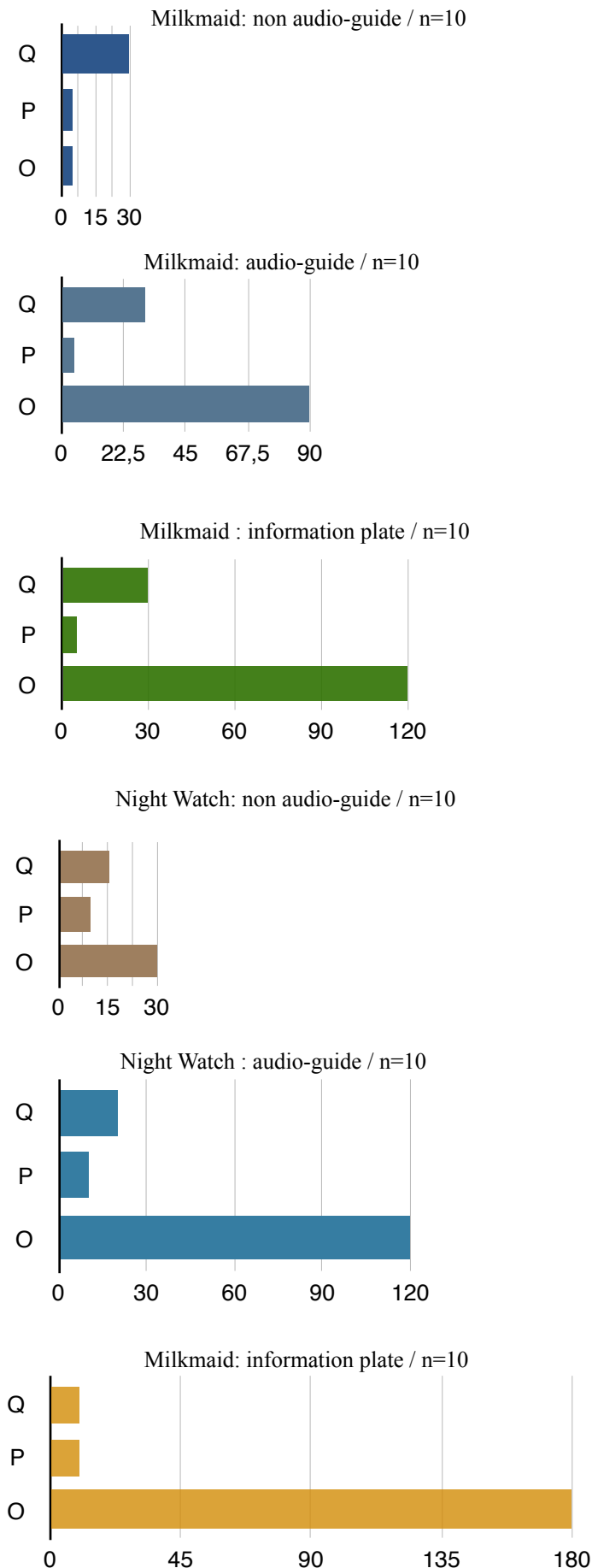Night Watch : audio-guide / n=10

Milkmaid: information plate / n=10

Fig. 3

10 seconds respectively, while they observed the painting for 180 seconds in average.

One preliminary conclusion is that visitors do behave differently when observing these two artworks, specially when taking pictures: spectators spend more time in front of the Night Watch than in front of the Milkmaid. It cannot be inferred that visitors admire more Rembrandt's painting than the one of Vermeer's just because one painting is more overwhelming than the other, external factors come to play in this aspect. One element that influences the amount of time that visitors spend in looking each artwork is the physical space. The area where the Milkmaid is located is quite smaller compared to the room where the Night Watch is situated.

The curious fact is that the spectators with no audio-guide spend more seconds queuing in front Vermeer's painting, and once the picture is done they turn around and walk away. On the contrary, visitors with no audio-guide stay longer in front of Rembrandt's painting. Usually they take more than one picture, and they actually spend longer looking the masterpiece. These observation says nothing about how visitors interpret the paintings, or if they engage with them at any level. The point is that it seems that people behave differently when taking pictures of these two icons of dutch painting, due the size of the picture and of the surrounding space.

After presenting these results one important issue must be clarified: the data set is not entirely verifiable. There are some limitations in the data and experimental set up that need to be taken into account, specifically because the analyzed behaviors cannot be scientifically and accurately measured. There are many external factors that cannot be removed from the set up, and that affect the results. The observation aspect of this measurement may not be entirely correct, for instance, as the spectators also observed the paintings (and other paintings) while queueing and taking the picture. As shown with the measurements, spectators that use the information plates tend to spend more time observing the paintings. But again, this information may be questioned for the following reasons: the plates usually bring information from different artworks, and visitors sit while reading and stand to observe closer at the artworks when possible. They do look at the artworks while reading and sitting, but it is not possible to measure to what extends they are really using the plates as a support to gain knowledge, or if they just sit and relax after having museum fatigue.

Nonetheless, the nature of the results highlight a certain pattern in the behavior: the usage of different media within the museum has an evident impact on the time visitors spend observing the artworks. It also shows that the museum experience is highly mediated by the act of taking pictures of the artworks. It is a common practice that affects the behavior while looking at artworks.

C. Nature of Photographs

In order to examine the nature of the pictures taken by visitors two strategies were used: On one hand an overview of images with the #rijksmuseum on Instagram was done, while on the other an experiment with a disposable camera was executed within the museum. The pictures that were uploaded

to the photography sharing platform correspond mainly to the building and to the museum's façade (this was checked out by browsing on http://iconosquare.com/tag/rijksmuseum/ , where the images tagged with #rijksmuseum can be viewed). One hundred images were measured, from which 56 corresponded to pictures related to the architecture. It is evident, after inspecting Instagram, that the building is the most popular theme. There are as well some selfies and pictures of the masterpieces but, as already explained, the museum's architecture is strongly highlighted. It is noticeable that the quality of these images differ considerable to the ones offered by the museum through the Rijksstudio.

An experiment with disposable cameras intended to give more material to study the way images are taken within the museum. One disposable camera with 27 exposures was used. For this reason, 27 different persons participated by taking one picture each (13 males, 14 females, mean age = 24.51). The main reason for conducting this experiment is that these type of cameras give the participants the chance of taking only one picture (no viewing or erasing is possible, so they had to stop and think twice before shooting). A simple instruction was given to the participants before hand: enter the main hall and take one picture. No further guidelines were given. The results showed that the participants tended to favor the masterpieces done by Rembrandt, rather than other types of paintings. The participants were enquired about their choice after making the picture, and the idea of shooting a picture of what seemed more representative or important was a common answer amongst all the participants. They photographed what was more significant, as they could only make one picture. The printed images show that the photographs had a similar type of nature: most of them framed the whole painting, and when possible the photograph was free of visitors crossing the way. Nevertheless, the quality of the images was not good, because the disposable camera needed flash (and the usage of flash is forbidden).

D. After the visit.

In order to understand what happens with the pictures taken in museums after the visit the 27 participants of the previous experiments also filled in a survey and were interviewed. At this point the questions didn't focus solely on the Rijksmuseum, but museums in general. From the total group 18 of the visitors were international, who confessed to have museum fatigue (they were on their way, or just came from, other museum). Dutch visitors had the tendency of only visiting the Rijksmuseum. The participants of the experiment visited on average three to four museums per year. The internationals went to the Rijksmuseum as part of their sightseeing agenda, and their intention was to visit the museum in approximately one hour and a half. They were not art experts, but had a curiosity to learn more about dutch cultural heritage and see paintings of the Dutch masters.

The following question was asked, and only one answer was possible to choose: *What do you do with the pictures you take in museums after your visit?: forgot you took them, create personal collections of artworks, share them in Social Networks , share them with specific friend(s), other or print them.* 33% of the participants forgot about the pictures, 27%

What do you do with the pictures you take in museums after your visit?

- Forgot you took them
- Create personal collection of artworks.
- Share them in Social Networks
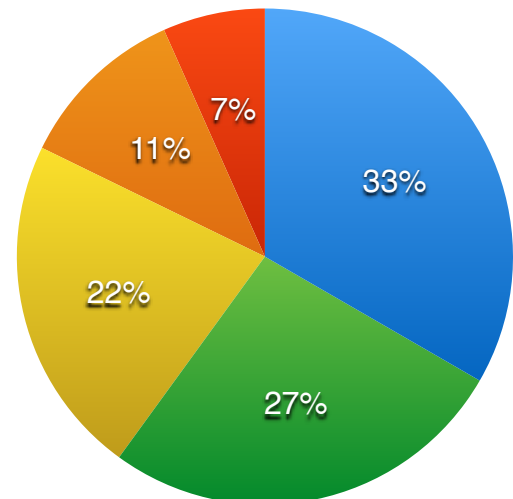- Share them with specific friend(s)
- Other
- Print them.

Fig. 4

created personal collections, 22% shared them in Social Networks, 11% shared them with friends, 7% other and none of them printed them (Fig. 4).

Beside taking pictures of the masterpieces, that are highlighted by the museums by location and display, the participants expressed that they took pictures based on a particular taste. There were not major plans with the pictures after the shooting — the main reason for shooting was to keep a memory of the visit. Making a record, a statement, a proof of having been there, were the intentions behind the photographs. Visitors also mentioned that they forgot about the pictures, but that they knew that they had them stored somewhere in their digital devices, and that they checked them when they wanted to show them to friends.

VII.   DISCUSSION

In summary it can be said that the result of the first experiment shows that there is a gap between the Rijskmuseum's visitors and the digital collection, though the tool is intended to bridge this with the 'liking' of artworks during the museum visit. Why then to take a picture of an artwork instead of 'liking' it in the Rijksstudio and then

downloading the image in high resolution? Because downloading the image doesn't show that the visitor actually went to the museum, and because the spectator wants to keep a memory of the visit. The result of the second experiment show that the usage of media has an impact on the amount of time that visitors spend in front of an artwork. It also shows that some visitors focus just in the making of pictures, rather than engaging with the art pieces. Visitors that don't use any external media provided by the Museum tend to queue just to make a picture and move on. The results of the third experiment show that visitors tend to photograph more the pieces that are highlighted by the museum when having the task of shooting once, but that than in social networks more pictures of the architecture of the museum are shared. The survey shows that the visitors tend to forget about the pictures they take during the visit.

These four aspects can be merged in the following statements: The museum experience is highly mediated by the photography making, but visitors tend to forget about the pictures they take; despite the fact that they have the possibility to download the images in much higher resolution using the Rijksstudio (Visitors still take the pictures despite the fact they can download them). The shared images in social networks serve then as a proof that there was an actual visit, and in this case there is a predominance of the museum itself (the beauty of the building is highlighted when sharing pictures).   Visitors prefer to take pictures (that serve as a proof) and later forget about them, though they have better access to images of the artworks in the Rijksstudio. The making of pictures within museums can create unintended distraction, because visitors are more focused on queuing and shooting, rather than engaging with the artworks. Visitors are not using their mobile devices to download the app or search for further information of the art pieces —   they are using them for taking pictures.

Memory is being shaped by media technology. What we remember and what we forget is filtered by the technology we use. We tend to forget easier due to the vast memory storage that computers and the web are providing. People tend to forget things that can be retrieved later on through other devices and media, because we depend less on our inner works of memory and depend more on external storage (Sparrow, et al. 2011). These ideas support the previous findings, as some visitors tend to base their museum visit on the act of taking photographs, but then they forget about the pictures. Remembering may come later as a social act in the museum example, as spectators revise the pictures they took when they are going to show them to friends or relatives.

Museums should start analyzing these previous issues, and should start designing strategies and activities in order to make a contribution in the photographic aspect. Museums should start directing efforts to promote a more meaningful way of making pictures, and should start including the images the visitors make in their work. There are some few examples of institutions that have worked on this aspect, as for instance the Metropolitan Museum of Art, New York. This establishment started to use images taken by visitors in the campaign *It's Time We Met,* that was entirely built upon pictures uploaded to Flickr. Other example is the *Wiki Loves Art* Initiative *(*http://en.wikipedia.org/wiki/Wikipedia:Wikipedia_Loves_Art*),* where users were asked to upload images taken from museum or other cultural institutions.

VIII.   CONCLUSION

Museum experience is visitor-driven nowadays, reason for which strategies and activities are constantly designed in order to fulfill as best as possible the expectations of the different type of spectators. There is a common thought that technology is a useful tool that would help to accomplish the previous goal, and efforts are done in order to implement different type of media technology for enhancing experience and learnability. However, it seems that museums still ignore that taking pictures is one of the most popular activities done by the visitors, and that these tend to forget about the images afterwards.

Rijksmuseum's spectators have the possibility of accessing the digital collection, the Rijksstudio and the museum's app in order to enhance their visit, but the findings of this research show that there is a gap between the digital and the real, and that technology is not being used to bridge this. Other findings show that visitors tend to make their own pictures of the artworks, despite they may download images with better quality on the museum's website, for the fact that they are personal proofs of the visit.

The findings of this research may serve as a guideline of future projects of the Rijksmuseum, specially the ones related to the Rijksstudio and the museum's app. One suggestion that may rise from this research is that the Rijksmuseum should start creating activities related to the act of taking pictures, and start combining this with the digital collection. The museum has an interesting design competition, where designers may use material retrieved from the Rijksstudio in order to create an object, that would be eventually sold in the museum shop. The museum should expand this kind of initiatives to photography, by starting for instance a photo contest that would push visitors to make more meaningful images. The museum does indeed a great job, but improvements can be done by having in mind the findings of these research.

IX.   FUTURE WORK

In order to gather better data for these type of studies a partnership with museums is crucial. They can work with a bigger number of visitors, and can access more information regarding their visit. In terms of technical matters the disposable cameras should be upgraded, as the quality of the resulting pictures was low. The museums' apps could be improved by including a 'take picture' feature (for research purposes). A better measurement of both the behavior and the making of pictures can be gathered with a such an application (it can track how visitors move, how long they stay in front of the artworks, and how long they spend in taking pictures). Developing such digital tool would help to have a more precise measurement of how pictures are taken.

Future research may also delve into the difference between taking pictures in a museum for memory purposes or to register a proof of the visit. For this, a closer study with the

visitors should be conducted before and after the museum visit.

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