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“Digital collections of photographs: valuable memories or digital clutter?”

Master thesis in Communication Science

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Title:

“Digital collections of photographs: valuable memories or digital clutter?” The creation and collection of digital photographs

Note from the researcher: *”Taking pictures is one of my favorite activities when I travel and in my everyday life, because going through them afterwards enables me to relive the captured moments. Yet when sorting the huge numbers of photos I regularly take with my digital camera, I often remember the excitement of developing only a few photos taken with the family analogue camera back in my childhood. And I find myself wondering whether the way in which we value and perceive photographs (and the way we remember life moments) today has changed as a result of the possibilities offered by new technology”*

Abstract

This research explores one significant part of the digital identity of the modern human - digital collections of photographs. Two main aspects of the digital collections of photographs concept have been manipulated in this work: the creation and collection of photographs. These two aspects were chosen because they embody the main changes that distinguish digital from traditional photo collections: change in quantity and change in format. Having the opportunity to take an unlimited amount of photographs of an event, and to store these files in a digital format, is a time and storage advantage. This study, however, investigates whether these opportunities present threats at the same time. More specifically, this study tested the effects that the acts of creating and collecting digital photographs (increased quantity and digital presentation format) have on the memory of individuals, the influence they have on the value of the photo collections and on the overall experience of an event. An empirical study with 123 participants was conducted for the purpose of this research, featuring a 3 (digital creation: quantity) x 2 (digital collection: presentation format) factorial design. The results indicate that the digital creation and digital collection of photographs do have a negative effect on the value of photo collections. Regarding memory, the results were mixed. It was found that unlimited creation of photographs diminishes the memory of an event, whereas the opposite is true for digital presentation format, which has no negative effect on memory. Lastly, experiencing an event through the loop of a camera which creates digital files was proven to emerge positive feelings and experiences in individuals, contrary to the previous expectations. The findings of this study have both theoretical and practical implications. The study extends the scientific body in this area, and on the grounds of its findings, improvements to increase the value of digital collections and their contribution to memory are now possible.

Keywords: Digital collection, digital creation, digital photographs, memory, value;

1. Introduction

Nowadays, as in the past, people's identities are shaped in part by their material possessions (Belk, 1988) as well as by their memories and experiences. Photo collections have an important place in personal identity because they are material possessions and embodied memories at the same time. Digital collections of photographs (private and the ones a person creates and shares on the various social networks) are a significant part of an entity's digital identity. The creation of personal identity in the new virtual reality is a question addressed by Belk (2013), where he underlines the existence of a need to update the concept of the extended-self in the digital world. Belk introduced the concept of the extended self for the first time in 1988, where he posited that we regard our possessions as part of ourselves, suggesting that, among others, the persons, places and objects we feel attached to are extensions to our individual self (Belk, 2013). However, according to Deschamps et al. (1998), many of the things that we refer to on a day-to-day basis (even minute to minute) are changing and according to Belk (2013), the biggest environmental change in the last decades has been brought by technological changes, which have dramatically affected the way people communicate, create memories, consume products and present themselves (Belk, 2013). As Windley (2005) states in his publication entitled *Digital identity*, the Internet as a place for interaction and building and rebuilding identity is radically different from the physical world. Digital collections are not immune to these technological changes and one of the arguments why digital collections are a sensitive component of personal identity is because collecting has long been focused on material things (Belk, 1995). Today, the convergence of social and cloud computing, along with the growing presence of mobile media players and networked mobile phones/computers has produced a world in which people both carry and ubiquitously access large collections of virtual possessions (Odom et al., 2011). This fact imposes a question of how nonmaterial things are being collected and how they contribute to the person's sense of self (Belk, 2013).

Individuals create and collect photographs of themselves, friends, family, special moments, and these collections have a high personal and emotional value because of the precious moments-of-life memories they preserve. This high value of photo collections,

and its connection with memory, should be the standard, and a logical explanation of why individuals engage in producing and keeping photographs. However, as the following citation illustrates, in today's digital society some relations have been significantly changed. "A century and a half ago few books contained illustrations due to the enormous cost of printing images and those that did were almost exclusively monochrome. To the average person strange lands or world changing events were understood primarily through words or at best in black and white. Fast forward to today and by 2013 Facebook was home to more than a quarter trillion photographs with over 350 million more added each day.", states Leetaru (2016) in his article *In an era of unlimited photos, what are we really capturing about the world?* One important fact that Leetaru (2016) underlines is the enormous amount of digital images people are enabled to produce and save today, with the help of several advanced technology devices (smartphones, digital cameras). As a consequence, a modern trend of capturing and storing every moment is evident, which sometimes results in individuals forgetting to enjoy that very same moment.

The creation and collection of digital collections of photographs are the main topics of this work. However, unlike the question stated above, this research will try to answer a slightly different question: how modern technology, as a photographic engine that saturates our modern world with imagery (Leetaru, 2016), adds to or reduces how much people value their personal digital collections. In addition, it will address the question of how the possibility for unlimited creation and storage of digital images today (Belk, 2013) influences the memory of the event being photographed and how it impacts the overall experience of attending the event.

This work elaborates on the creation and collection of digital photographs (as one of the most robust non-material collections of the modern human) and quantifies the contribution of these collections to the person's sense of self, by measuring the relation between the increased quantity of digital images and the digital presentation format. The results indicate how much people value their digital collections of photographs compared to traditional hard-copy album photograph collections and how they experience a certain event today while digitally recording it. Even more importantly, the results shed light on the question: what are people's memories built of today and will they remember them?

In order to measure the relations between the mentioned concepts, an explorative framework was used by simulating a tour in an experimental setting. A short video tour of popular tourist destinations was compiled and introduced to participants, who in the role of tourists were able to follow/take limited/take unlimited amount of photo shots of the tour they were attending. A subsequent questionnaire was used to measure if there was any difference in the value, memory or experience evaluation of the tour between the different groups of participants.

Specifically, the following research question was addressed: *"To what extent the quantity and presentation format affect the digital images' value, their impact on memory and their impact on the overall experience?"*

2. Theoretical framework and research questions

2.1 Digital collections

When it comes to enabling a truly virtual world that can accommodate the breadth and depth of human endeavor, nothing is more important than identity (Windley, 2005). According to Belk (1988), possessions comprising the extended self and our identity serve not only as cues for others to form impressions about us but also as markers for individual and collective memory. These memory markers prompt recollections of our prior experiences and possessions, linkages to other people, and our previous selves (Belk, 1991), forming individual and collective memory. In the past a significant part of this personal memory was the forming of personal collections and relationships, whereas today the dematerialization and digitalization of the modern society we live in enforces the formation of digital collections and digital relationships (Belk, 2013). Therefore, as Rose et al. (2012) state in their work, today people are living a double life: on one side is our physical, everyday existence, and on the other our digital identity, as the sum of all the digitally available information and possessions. However, it is questionable if these intangible virtual possessions successfully portray the process of individuals extending their sense of 'who they are' through 'what they have' (Siddiqui and Turley, 2006).

The term 'digital collection' refers to the processes whereby users select, collect, organize and describe objects of personal significance, such as photographs, music and books, in the form of digital data (Feinberg et al, 2012). In his work *Digital Collections, Digital Libraries and the Digitalization of Cultural Heritage Information*, Lynch (2002) saw the beginning of the formation of digital collections and predicted their rise very presciently: "We are starting to see a set of technologies evolve that basically provide people with individual portable libraries. It is starting to get quite reasonable to think about people running around with a couple of thousand digital books on their laptop." Just over a decade later, what in 2002 was an imaginative prediction is now reality - people possess vast collections of digital data on their electronic devices.

One of the most emphasized advantages of collecting digital data is the unlimited storage possibility, which means that consumers can create and keep large collections, which was not previously possible (Belk, 2013). In the digital era of today, people can

take thousands of photos with their digital cameras or mobile devices (it was not so long ago when traditional analogue cameras were still being used, offering only a very limited number of photographs), and then store those files easily on their computers, their external hard disks or cloud storage services, with the latter being recently a strong trend of preference (Odom et al., 2011), thus creating folders with memories. Moreover, consumers create vast digital book libraries and read their e-books with the help of their electronic devices, being able to transform virtually every small corner of a coffee shop, or a train seat, into their private library. The same goes for movies and music collections. Digitalization has minimized the space and cost of objects of personal interest, and expanded their life span, but this fact brings along the question whether the value of the different digital collections has also been minimized. As, Belk (2013) states, although the potential permanence of the Internet promises a sort of immortality, to date it appears that ease of storage has resulted in a so called digital clutter. It has been proven that currently consumers create digital collections with great speed, enjoying the ease of acquiring, arranging and sharing their collections with others online. Nevertheless, it is questionable if consumers ever go through all the photos they have taken, ever listen to all the digital music they possess, or their collections are vastly formed of digital clutter, which relates to the efficiency/inefficiency and fulfills/creates needs technology paradoxes found in the literature (Belk, 2013) (Mick and Fournier, 1998). As the efficiency/inefficiency paradox explains, technology can facilitate less effort or time spent in certain activities, while leading to more effort or time in certain other activities (Mick and Fournier, 1998). For example, speaking in digital photography terms, technology enables users to take a bigger quantity of photos in less time, but it also creates the need for more time to go through the vast amount of digital photos taken. The second paradox states that technology can facilitate the fulfillment of needs or desires, such as the need to capture one event digitally from beginning to end, but at the same time, technology can lead to the development or awareness of needs or desires previously unrealized. One type of a previously unrealized need in this case could be the need to secure additional back up for the digital files, because of the possible loss or damage of the current storage device.

2.2 Digital collections of photographs

Out of all the different forms of digital collections mentioned above, this study has chosen to explore digital collections of photographs in greater depth. Digital photo collections form a vital part of an individual's identity, primarily because of the ability of photographs to revive memories, values and experiences.

Digital collections of photographs are memory markers and prompt re-collectors of our prior experiences and our previous selves (Belk, 1991) in the new digital era. According to the literature, two intriguing aspects of digital images are the process of their creation and the process of their collection. By means of taking and storing photographs, people are trying to give eternity to the special moments of their lives and the lives of their valued others. Therefore, a person's photo collection is perhaps one of the most valuable collections they possess. Nevertheless, compared to the past, in recent times there has been a drastic change in how photos are created and collected.

2.2.1 Creation of photographs: ***Quantity*** change,from limited to unlimited number of photo shots;

Modern technology has brought several alterations to the creation of photographs. A prominent one is the "creation tool" change. The evolution of the old fashioned camera with a limited number of shots into a sophisticated smartphone camera, extended with an accessory called selfie stick, which can even create artificial light and wind in order to enable the creation of a perfect photograph, is a case in point(Lopez, 2016). The new high-tech creation tools have brought an enormous rise in the quantity of photos created. The ease of acquiring the tools and the possibilities for unlimited storage that modern technology creates (Belk, 2013) motivate people to take thousands of photographs. This resulted in a prediction that in 2015 alone there would be a photo abundance of around 1 trillion photos (Schneider, 2014). The changes in the creation of photographs have both positive and negative consequences. On the positive side are the ease and comfort of capturing every moment, the possibility to capture different perspectives, movements, surfaces with limited lighting (Odom et al., 2011), to name but a few. However,

according to previous studies, two of the most significant negative consequences are the effects the digital creation of photographs has on the memory and value of an event (Henkel, 2014), (Newman & Garry, 2014), (Belk, 2013).

Quantity of photographs is a segment of the process of photo creation which has perhaps undergone the biggest changes thanks to technological development and the resulting creation tool change. Therefore, it has been selected as one of the independent variables in this research study. Quantity of photographs will be manipulated in a no creation/limited creation/unlimited creation condition to further assess and supplement the known findings regarding the effect of the quantity of photos on the memory and value of an event, and to additionally investigate how the increase in the quantity of photos influences the experience of an event.

2.2.2 Collection of photographs in the present: *Presentation format* change, from physical to digital presentation format of the photo files;

Equally apparent, several constituents of the act of collecting photographs differ greatly from their previous equivalents. To begin with, when looking at the presentation format and storage place or the memory casket of a person's photographs, there is an evident transition from the old-fashioned scrapbook photo albums with hard covers to online photo albums, private and public. Whereas the generations before us would choose wisely and develop only a few photographs capturing unique moments, or even earlier, possessing personal photographs was the luxury of the privileged ones, today people own thousands of gigabytes of photographs. Some of these photographs are never looked at again after their creation, which according to Belk (2013) results more in digital clutter than in careful and valuable self-memorializing. Taking into consideration this equation of digital collections with digital clutter, this study attempts to explore to what extent collecting digital files weakens the connection of these files with value and memory. However, research done among teenagers reveals a positive side of the digital collections of photographs, showing a strong preference for storing digital photographs on a range of cloud services because of the unlimited access, possible at any time from any place (Odom et al., 2011). Despite the previously documented positive attitude and experience

with digital collecting among certain groups, this study will try to find out if digital collection has some negative aspects as well.

Because of its importance and proven connection with quantity, the presentation format (as a segment of the concept of collection of photographs) was selected as the second independent variable in this study. By manipulating with both digital and physical presentation format of photographs, at attempt to measure the outcome presentation format has on value, memory and experience will follow.

2.3 Value

Several explanations about how value in the digital photography world is negatively harmed by technology can be found in the literature. The value of the digital collections for consumers is often smaller when compared to physical collections (Lehdonvirta, 2009), because when consumers spend less time in acquiring an object they place a lower value on it (as cited in Belk, 2013). In addition, digital goods are more easily replicable which lowers their rarity and uniqueness, and their ownership is often questioned because of their server storage, which further results in consumers feeling smaller attachment towards their digital possessions (Zhao et al., 2008).

In addition to the stated change in storage "infrastructure", another important aspect of digital collections, especially digital photo collections, that has been reshaped by technology is the sharing of digital albums. In what follows, the concept of sharing is being discussed as equal to collecting, because research shows that the majority of collected digital images are also shared in narrow or broad online social circles. The concept of sharing is not assessed on its own, but its influence on value is being analysed under the broader scope of digital collection of photographs.

Before the digital revolution, an individual would share her collection of personal photographs only within narrow circles of close people, usually in the comfort of her own home, in an attempt to deepen a certain relationship by means of sharing personally significant memories. Today, social media is the equivalent of the living room sofas and it has become a way of communicating both an individual's thoughts and her visual references (Henkel, 2014). Digital collections of photographs are no longer a private possession. The digital presentation format allows for showcasing the photo files to a

larger audience, which has resulted in the emergence of an obsession with recording and sharing every moment (Newman & Garry, 2014). Therefore, the value of the digital collection of photographs created and stored (where storing means sharing on the social media) yesterday declines or disappears the next day when a new collection of photographs has taken over.

This discussion answers one important question: why a significant amount of the current digital collections of photographs has less value for the owners and is being considered digital clutter? It can be assumed that capturing all the moments/events lowers the value of each unique moment/event and makes it negligible. Therefore, even though digital images as a person's possession are numerous in quantity and are a main form of interaction, at the same time they have less value and are not so unique, which leads to weaker extended self-identification (Belk, 2013). In addition, according to one study, one characteristic that affects value negatively is that digital photographs are infinitely reproducible and lack an inherent ability to gather a patina from age and use - which makes these collections less meaningful and less valuable (Odom et al., 2011). On the basis of the previously stated theoretical sources, one of the primary goals of this research is to investigate whether unlimited quantity of photographs and photographs in digital presentation format have less value for individuals. Therefore, the following two hypotheses are being formulated:

H1a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, leads to lower value of the created digital files.

H1b: Digital presentation format of photographs, as opposed to physical presentation format of photographs, leads to lower value of the collected digital files.

2.4 Memory

Previous research has shown that digital creation and digital collection of photographs of an event negatively impact the memory of this event. A study done by the psychologist Henkel (2014) links the vast creation of digital photographs with the existence of a so called "photo-taking impairment effect". According to her, if people

take a photo of something, they are less likely to remember it than if they would look at it with their own eyes (Henkel, 2014). Addressing this paradox, Henkel found that "People so often whip out their cameras almost mindlessly. Counting on the camera to record the event and thus not needing to attend to it fully themselves – it can have a negative impact on how well people remember their experiences" (Henkel, 2014). Mick and Fournier's (1998) efficiency/inefficiency technology paradox is closely connected to the newly formed photo-taking impairment effect. In this paradox, the efficiency the new technology provides, by creating photographs faster and with less effort is confronted by inefficient memory results because taking too many photos may prevent the formation of detailed memories (Henkel, 2014). Furthermore, Siddiqui and Turley (2006) studied the role of "virtual possessions" as replacements for physical possessions and found that some participants were hesitant to relinquish a physical possession (a letter, photo, song, etc.) for a purely digital one, because they considered that this dematerialisation would have a negative influence on maintaining, retrieving and remembering information. Taking these findings into account, this research makes an attempt to elaborate further the influence that the present-day increased quantity of photographs and the digital presentation format of photographs have on memory. In accordance, the following two hypotheses are being formulated:

H2a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, leads to lower memory of an event.

H2b: Digital presentation format, as opposed to physical presentation format of photographs, leads to lower memory of an event.

2.5 Overall experience evaluation

One variable not previously researched scientifically is the overall evaluation of the experience of a digitally captured event. This topic has been chosen to be part of the analysis performed in this research because it is closely related to the concepts of value and memory of an event, which have been previously stated. It can be assumed that how

much value and memories an individual will add to and have from an event depends on the experience the individual has had during the attended event at the first place. The interrelation of these concepts has been noted in several studies (Odom et al., 2011), (Newman & Garry, 2014). According to a group of psychologists, today people have a need to create instant mementos from an experience (event, moment) and showcase them immediately in a way to almost verify their very existence, which shows that imagery and memory are now inextricably intertwined - people seem not to be able to disentangle them from each other (Newman & Garry, 2014). Hence, humans feel that if they don't make and they don't store and share the images, they haven't experienced the event, which leads psychology professor Marianne Gerry (2014) to conclude that by being dedicated to constant capturing and sharing "people are giving away being in the moment" (Woolf, 2014). This behaviour can also lead to negative "self-obsession" (Odom et al., 2011), where instead of focusing their attention on experiencing fully an event, individuals are focusing on themselves, which may harm the experience of the event itself. The ease of taking unlimited amounts of photographs, which the digital creation of photographs allows today, enables the desired capturing of every experienced event, and the digital presentation format permits the wanted showcasing of the experience. That said, unlimited quantity of photographs and digital presentation format are connected with the overall evaluation of the experience of an event. In order to assess the direction of these connections the following two hypotheses are being formulated and tested, in compliance with the stated theoretical findings:

H3a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, negatively influences the overall evaluation of the experience of an event.

H3b: Digital presentation format of photographs, as opposed to physical presentation format of photographs, negatively influences the overall evaluation of the experience of an event.

2.6 Research model:

This work will focus on the Quantity of created photographs, as part of the creation, and the Presentation format of photographs as part of the collection of photographs. These two extracts from the creation/collection concepts clearly impersonate the effects of technological advancement and they will be considered independent variables. The dependent variables are the Value of photographs, their impact on Memory and the Overall experience of a specific digitally captured event. The main aim of this study is to test how these dependent variables are influenced by the quantity and presentation format of photographs.

On the basis of the theoretical framework and in order to represent the research question and test the hypotheses, the following research model was developed (Figure 1):

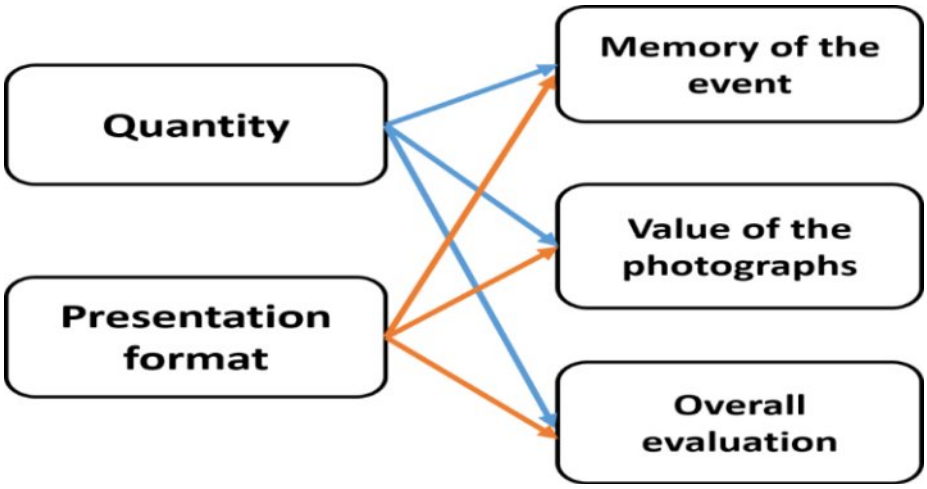


Figure 1: Conceptual framework

3. Research design and methods

Quantitative research techniques were used to conduct this study. The study utilized a 3 (Unlimited creation vs. Limited creation of photographs vs. No creation) x 2 (Digital format vs Physical (traditional) format of photographs) factorial experiment, in the form of a presentation of a digital video tour, followed by a survey.

Table 1 includes a schematic representation of the research design.

Format / Quantity	***Unlimited creation***	***Limited creation***	***No creation***
Digital format	X	X	X
Physical format	X	X	X

Table1: Schematic representation of the 3X2 design

3.1 Participants

Resulting from the 3x2 design, the study features six cells. The sample size was calculated using the statistical program G*Power, which predicted a minimum of 120 participants (Faul, Erdfelder, Lang & Buchner, 2007).

In total, 123 participants completed the survey. Macedonians made up the majority of the sample (n 110, 89.43%), and the rest of the respondents have 7 different nationalities, but they were all currently working or travelling (being physically present) in Macedonia (n 13, 10,57%). From the total number of participants, 71 were female (57.7%) and 52 were male (42.3%). The age of the respondents varied from 18 to 30, with (M = 24.91, SD = 3.52) years old. The distribution of gender and age among the six experimental conditions is demonstrated in Table 2.

Characteristics		Unlimited creation vs. Digital format (n=41, 33,3%)	Limited creation vs. Physical format (n=41, 33,3%)	No creation (n=41, 33,3%)	Total (n=123, 100%)
Gender	Male	12 29.3%	10 24.4%	30 73.2%	52 42.3%
	Female	29 70.7%	31 75.6%	11 26.8%	71 57.7%
Age	18-30	M=23.02 SD=4.01	M=25.5 SD=2.55	M=26.32 SD=3.01	(M = 24.91, SD = 3.52)

Table 2: *Direct comparison of age and gender among the experimental conditions.*

3.2 Research design and procedure

The complete digital video tour experience was composed of a video of a tourist site with a duration of five minutes, which was followed by a ten minutes photo presentation.

Before the start of the experiment all the participants were informed that they would have an opportunity to watch a video tour on their computer screens, in which famous tourist locations would be presented (supplemented by an audio narration). In addition, participants were divided into three groups, one group was instructed to create an unlimited number of photographs from the video tour while watching it, the second group was instructed to take a limited number of photographs (10 photographs, number determined according to a pretest), and the third group wasn't instructed to take any photographs.

After watching the video, a photo presentation followed, where the participants were confronted with the photographs they made during the tour. The group of participants that fulfilled the condition of taking an unlimited number of photos looked at the shots they took during the tour, going through them on their computer screens. For the second group that fulfilled the condition of taking a limited number of photos, the researcher printed the image files that this group made, and the participants went through the collection of photographs looking at the files on traditional photo paper.

After the photo presentation, the researcher distributed an online survey to all participants.

3.3 Materials

The materials used for this experiment were a video tour compiled for the purposes of this research, collections of images developed on photo paper, a pretest session and an online survey created with the online survey tool Qualtrics.

3.3.1 Video tour:

The video used for the experiment was compiled by the researcher, using an open-source drone video database and text compiled by the researcher and narrated by a volunteer. More specifically, the video contained three world-famous tourist locations: the capital of Brazil, Rio de Janeiro, the wine district Lavaux in Switzerland, and the Great Wall of China. All three locations were allotted the same amount of time in the video (approx. 100 seconds for each location). The reason why the locations chosen are on different continents, with different characteristics (historical, gastronomic, entertainment and pleasure) and different levels of eminence was to avoid getting biased answers (e.g. correct answers on the memory questions because of a previously known fact about Rio de Janeiro, or the Great Wall of China). The video was programmed in a way that a right click on the mouse, while watching, would take a screenshot of the video and automatically save it in a folder on the desktop of the computer used.

3.3.2 Pretest:

I) Procedure: In order to decide on several details connected with the final research experiment, a pretest was conducted with six people from the target group (aged 21-27). The pretest consisted of watching a video tour on a computer screen, followed by a writing task and a survey. Half of the respondents were instructed to follow the video and take as many photographs as they felt like (by pressing the right click on the computer's mouse), while the other half didn't take any photographs. These instructions were aimed to help with the decision of how many photographs the group with limited amount of photographs would be instructed to take later in the final experiment.

After watching the video, the respondents were asked to write down three facts they remembered about each of the three locations presented in the video on a blank piece of paper, as an attempt for the researcher to obtain general guidance concerning the memory questions in the final questionnaire.

As a final task, the respondents filled out a survey which contained questions about the general experience of the event and questions measuring the memory and value of digital photographs. The aim of the survey was to additionally assess if the questions in the draft version of the questionnaire worked as intended, were unbiased and structured properly (Hilton, 2015) and were understood by those individuals who were likely to respond to them. Furthermore, the purpose of the pretesting of the questionnaire was to eliminate unnecessary and add necessary questions and to estimate the time needed to conduct the whole experiment.

II) Materials: The materials used in the pretest were a video tour compiled by the researcher (the same video tour which was used as a stimulus material in the final experiment) and an online survey created with the online survey tool Qualtrics.

III) Results: The results from the pretest were summed up into the following three conclusions:

1. Number of limited amount of photographs. On average, the group of respondents that was instructed to take as many photographs as they wished during the video tour took 19 photographs. Taking this information as a reference, for the final experiment, the researcher decided to assign 10 photographs as the upper limit (half of the average of 19 photographs), for the group of respondents that would be instructed to take a limited amount of photographs while watching the video tour.

2. Memory questions adjustment. Summing up and analyzing the results from the writing task clearly underlined a number facts, which were mostly remembered by the respondents. Several parts of the memory section of the survey were adjusted according to the found memory facts (The adjustments are explained more extensively in Appendix B), in order to achieve more relevant memory measurement.

3. Need for creation of two different questionnaires. The pretest additionally showed that there is a need for creation of a second version of the questionnaire, adjusted for the group of participants who would not be taking any photographs during the video. Therefore, a new version of the questionnaire, slightly different from the first one, was compiled.

3.3.3 Survey:

For this study, a survey consisting of 32 questions (psychometrics and demographics) was developed. Two slightly different versions of the survey were created, the first version was used for the groups of respondents that met the Unlimited/Limited creation condition, and the second version was used for the No creation condition group of respondents. All measurement items were collected from a previously conducted pre-test and additional previous research and slightly modified to ensure that they would adequately represent the underlying constructs of this study.

3.4 Measures

Memory of the event as a dependent variable was tested through specific open and closed questions in the survey. The closed questions were in a yes/no format and they tested the participants' memory of the factual information given during the tour by the audio tour guide. (Example of a yes/no question: The statue Christ the Redeemer is the tallest statue of its kind in the world.) The section of open questions aimed to measure the connection between the act of taking photos and the subsequent memory about the objects of which a photo was taken. (Example of an open question: How many visitors does The Great Wall of China attract every day?) The analysis and comparisons of the answers to the two different groups of questions clearly indicated whether and in what direction the act of creating and collecting digital/hard copy photographs influenced memory. The memory measurement item had a satisfactory individual performance for reliability, with Cronbach's alpha .76 for the 9 question items used.

The influence that the independent variables had on how much the respondents ***value*** the photo collections was measured by a set of specific closed questions in the form of statements. These statements measured how much value the respondents assigned to the two different collections (digital and physical photo collection), concerning the uniqueness, quality, genuineness of the photographs/the presentation format itself, using a seven point Likert scale (Entirely disagree/Mostly disagree/Disagree/Neither agree nor disagree/Agree/Mostly agree/Entirely agree) (Example of a closed question: The images I captured from the video were the most outstanding sequences). In addition, a set of open questions gave participants the opportunity to include their personal opinion and to mention factors that were not mentioned in the closed statements. These questions aimed to discover facts that are related to and increase/decrease in a certain way the value of the different photo collections (Example of an open question: Will you keep the photos from this event, and why?). The value measurement item had a satisfactory individual performance for reliability, with Cronbach's alpha .81 for the 7 question items used.

The ***overall evaluation of the experience*** during the video tour was measured by a set of closed questions using a seven point Likert scale (Entirely disagree/Mostly disagree/Disagree/Neither agree nor disagree/Agree/Mostly agree/Entirely agree). The question items used were divided into two sections: Experience evaluation (Example question: I learned a lot about these tourist locations during this video tour) and Feelings evaluation (Example question: I felt absent-minded during the video tour). These questions assessed the participants' personal experience, satisfaction, enjoyment of the tour and measured the level of distraction, focus, irritation and absent-mindedness the participants felt during the video tour. The overall experience evaluation measurement item had a satisfactory individual performance for reliability, with Cronbach's alpha .74 for the 9 question items used.

4. Results

4.1 Test of homogeneity

To evaluate whether gender and age were statistically different among the different groups of respondents, tests of homogeneity using chi-square and one-way ANOVA were conducted.

A chi-square test was performed for gender and no significant difference between males and females amid the samples was found, X 2 (3, N = 123) = .76, p = .75.

Turning to age, the same trend was observed and the one-way ANOVA test revealed no significant difference between the sample groups, F (3, 123) = .95, p = .42.

Therefore, based on the previously presented results, it can be concluded that the sample groups are homogeneous in terms of gender and age, indicating that there is no need to perform any statistical control for such variables.

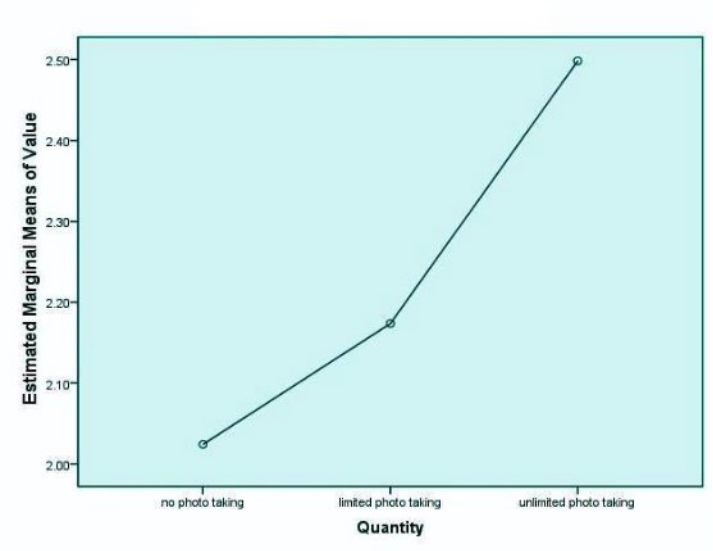
4.2 Main and interaction effects

4.2.1 VALUE OF THE PHOTOGRAPHS

Univariate ANOVA of the influence that the independent variables **Quantity** and **Presentation format** have on the dependent variable **Value of the photographs** was performed.

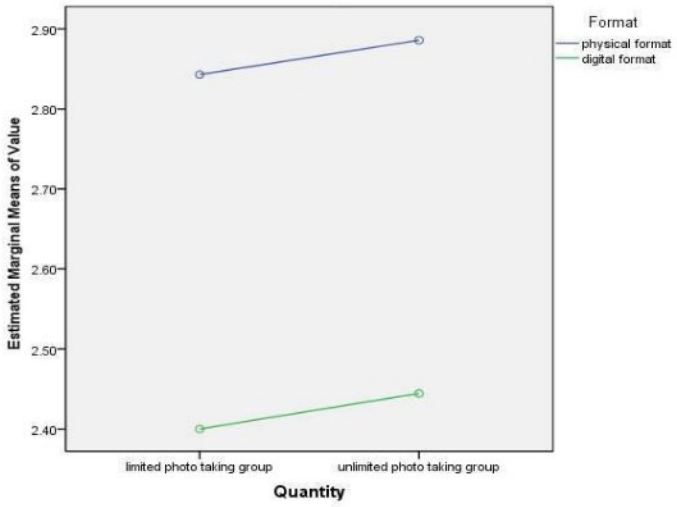
The main effect of quantity was significant (F (2,123) = 4.39, p =.01), showing that the No photo-taking group gives the greatest value to photographs (M = 2.02, SD = 0.66), while both, the Limited photo taking group (M = 2.17, SD = 0.85) and the Unlimited photo taking group (M = 2.49, SD = 0.68) value photographs less (Graph 1). These findings present that the unlimited quantity group has demonstrated the lowest value of photographs, **as expected in H1a.** Post hoc test using the Bonferroni correction revealed statistically significant values only at the relation between the No-photo taking group and the Unlimited photo taking group, p =.03. The main effect of presentation format was also significant (F (1, 82) = 3.59, p =.06), showing that photographs in

physical format have greater value for individuals (M = 2.17, SD = 0.85), over photographs in digital format (M = 2.49, SD = 0.68). This was **expected in H1b.**



Graph 1: Influence of Quantity on Value of photographs;

However, the interaction between quantity and presentation format was not significant (F (1, 82) = 0, p =.99). As it can be seen from Graph 2 increasing the quantity of photographs decreases the value people add to photographs they make, which means, greater quantity equals less value, in both unlimited and limited photo creation groups. Still, it was found that there is no significant interaction between quantity and format, over the value of photographs.



Graph 2: Interaction between Quantity and Format on Value of photographs.

Qualitative analysis of the open-ended value questions

I) *General value* open - ended question:

In order to analyze the answers of the question: *Any additional comments?*, a coding scheme was developed, and several coding categories were formed, depending on the content of the responses. The provided comments were grouped into four different patterns: *Habit of storing photographs in physical photo albums, Habit of performing a digital backup, Intention to store photographs in physical photo albums in future* and *Intention to perform backup of the digital photo collections in future*.

An interesting finding is that physical backup was stated to be performed two times more, than digital backup (60% of the respondents said they still store their photos in physical photo albums, and 30% said they perform back-up to their digital photos). Furthermore, the Intention to store photographs in physical photo albums was significantly bigger (70%), than the Intention to perform digital backup in future (10%).

This sample of comments shows that when it comes to photo collections, it comes more natural for individuals to state their habit to create and maintain, or intention to create, a physical photo album collection, as an appropriate standard for collection of memories. For example, the stated above has been illustrated by the following given comment: *"I prefer storing my photos in physical photo albums, that saving them on external drives, because I think that the photos are more reachable in this way, and the memories are refreshed more often and last longer"*.

Furthermore, there is the fear of loss of the digital collections, which motivates physical photo storage:

"I'm trying to store more photos in physical format, because I think digital photo files can be lost easier" or *"I think that we should have more physical photos because digital photos can easily be misplaced or even forgotten"*.

The given comments also show lack of habit to assure additional backup of the digital photo files:

"*I think I should start doing a backup of my digital photos, because I have tones gigabytes of photos, which I don't want to lose*" and "*I think I should dedicate more time in backing up my digital photos on external drives in future*".

The qualitative analysis of this question **confirms H1b.**

II) *Value of the taken photographs* open-ended question:

Part of the section assessing the Value the respondents assigned to the photographs they took of the tour, was the open question: *Will you keep the photos from this event, and why?/ If you had been able to take any, would you keep the photos from this event, and why?*

In order to analyze the answers of this question a coding scheme was developed, and several coding categories were formed, depending on the content of the responses. The majority of the respondents were positive about keeping the photographs of the event (55 respondents, or 76%), some stated they don't need to keep the photo files (14 respondents, or 20%), and a small amount were undecided and stated that they might keep the photo files from the event (3 respondents, or 4%).

An interesting fact, worthwhile mentioning in this part, is the content of the reasons given for keeping/discarding the photo files. Even though, a strong positive attitude on keeping the photographs is noticeable, some of the reasons behind it, ironically, to some point are connected to a certain awareness of creation of digital clutter (noticed at the comments of the Unlimited creation group). As the following comments illustrate: "*Yes, I keep everything in my computer*" or "*Yes, I like to have my computer filled with photos*". This comment shows that part of the reasons for including these photo files in their personal digital photo storage, for respondents are just because they are used to keep everything in their computer, taking advantage of the vast memory options electronic devices offer today.

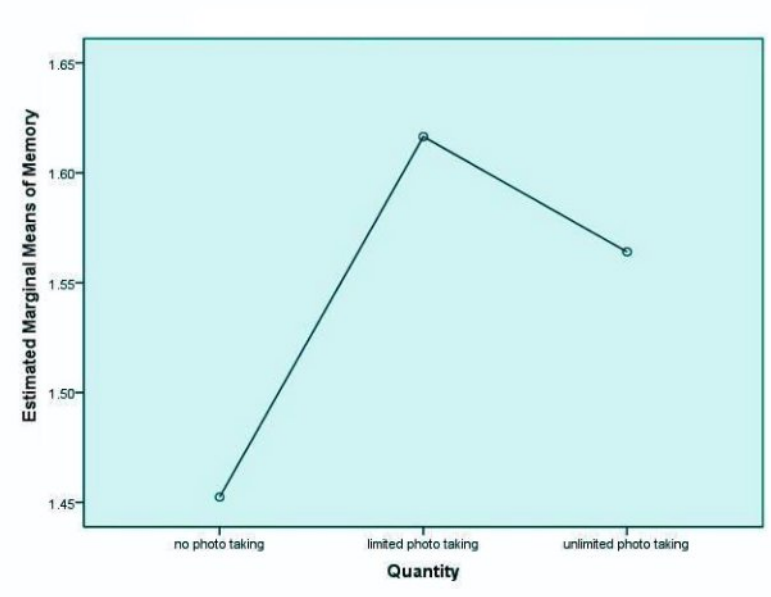
The qualitative analysis of this question **confirms H1a.**

Summing up the value section results: By performing quantitative and qualitative analysis of the items measuring the influence that the independent variables have on value, it can be stated that **H1a and H1b are confirmed.**

4.2.2 MEMORY OF THE EVENT

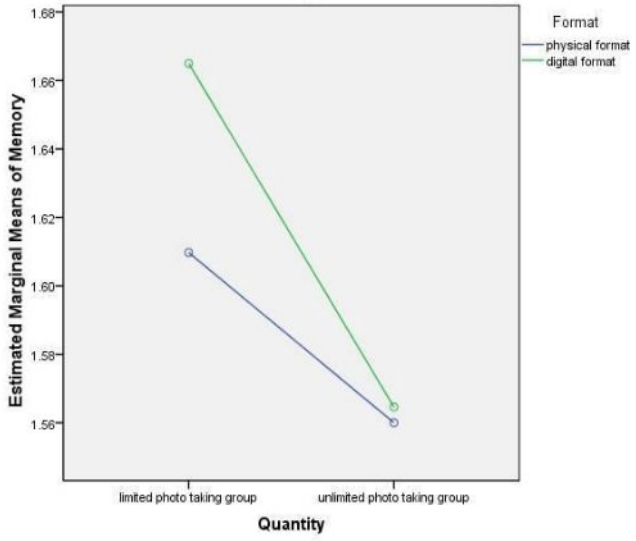
Univariate ANOVA of the influence that the independent variables **Quantity and Presentation format** have on the dependent variable **Memory of the event** was performed.

The main effect of quantity was significant (F (2,123) = 2.27, p =.01), indicating that the No photo-taking group scores best on memory (M = 1.45, SD = 0.19), followed by the Unlimited photo-taking group (M = 1.56, SD = 0.15), and the weakest memory results are held by the Limited photo-taking group (M = 1.61, SD = 0.15) (Graph 3). These findings **confirm the expectations stated in H2a.** Post hoc test using the Bonferroni correction revealed statistically significant values at the relation between the No-photo taking group and the Unlimited photo taking group, p=.01 and the No-photo taking group and the Limited photo taking group, p<.0005 The main effect of presentation format was not significant (F < 1, ns), and the results show that that respondents which were part of a photo presentation in a digital format, performed slightly better on the memory test (M=1.56, SD=0.15), than the respondents which went through the photographs in a physical format (M=1.61, SD=0.15). This finding is **contrary to the expectations, therefore, H2b is rejected.**



Graph 3*:* Influence of Quantity on Memory of the event

In addition, no significant interaction between quantity and format was found, in relation to memory of the event, F (1,82)=.23, p=.63. (Graph 4)



Graph 4: Interaction between Quantity and Format on Memory of the event;

The performed analyses form the bases to **confirm H2a** and **reject H2b**.

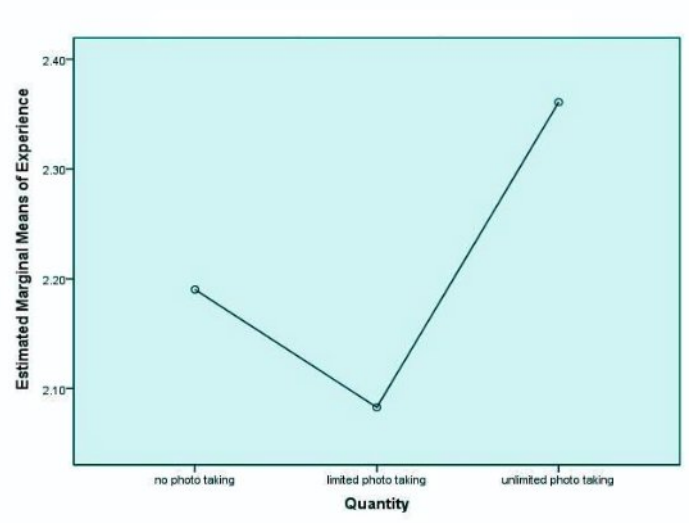
4.2.3 OVERALL EVALUATION OF THE EXPERIENCE OF THE EVENT

EXPERIENCE evaluation:

Univariate ANOVA of the influence that the independent variables **Quantity** and **Presentation format** have on the dependent variable **Experience evaluation** was performed.

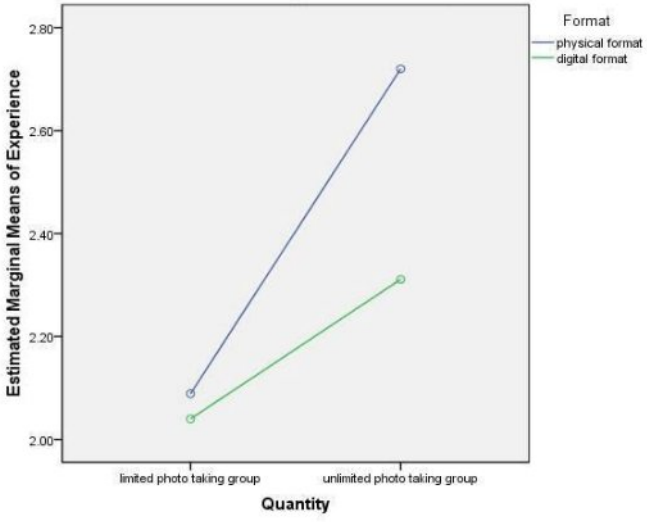
The main effect of quantity was significant (F (2,123) = 2.73, p =.103), inferring that the Limited photo taking group had the most positive experience while watching the video (M = 2.08, SD = 0.92), or in other words, the Unlimited photo taking group had the most unpleasant experience (M = 2.36, SD = 0.67), (Graph 5), **as it was expected in H3a.** However, post hoc test using the Bonferroni correction revealed no statistically significant values for any of the Unlimited / Limited / No creation quantity groups (p>0.05), which indicates that increasing the quantity of taken photographs might not

influence experience negatively. The main effect of presentation format also was significant (F (1, 82) = 4.65, p =.02), indicating that presenting the photos in Physical format created better experience (M = 2.08, SD = 0.92), than the Digital photo presentation (M = 2.36, SD = 0.67), **as it was expected H3b**.



Graph 5: Influence of Quantity on Experience evaluation;

However, there was no significant interaction between quantity and format, in terms of the evaluation of the experience of the event (F (1, 78) =.43, p =.51), (Graph 6).

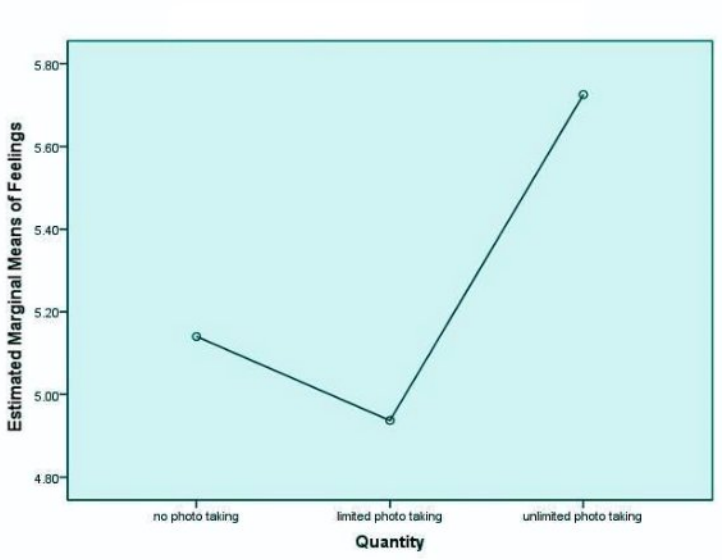


Graph 6: Interaction between Quantity and Format on Experience evaluation;

FEELINGS evaluation:

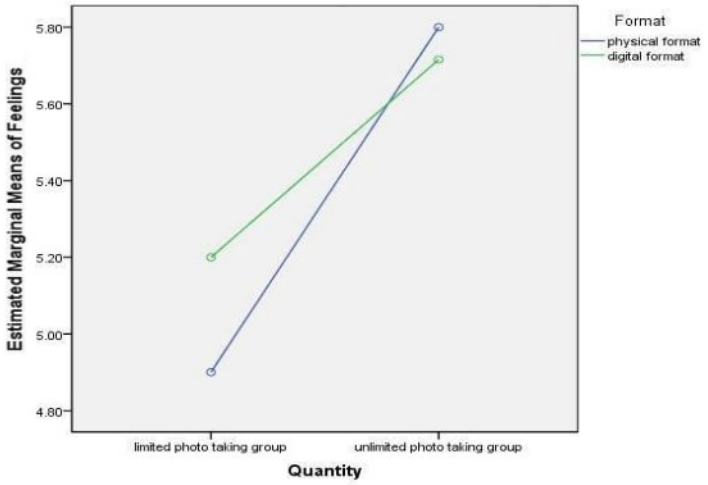
Univariate ANOVA of the influence that the independent variables **Quantity** and **Presentation format** have on the dependent variable **Feelings evaluation** was performed.

The main effect of quantity was significant (F (2, 123) = 3.24, p=.03), with the results indicating that the Limited photo taking group had the most negative feelings while watching the video (M = 4.39, SD = 1.42), or stated differently, the Unlimited photo taking group had the most pleasant feelings (M = 5.73, SD = 0.70), (Graph 7), **contrary to what was expected in H3a**. Post hoc test using the Bonferroni correction revealed statistically significant values only at the relation between the Limited photo taking group and the Unlimited photo taking group, p=.007.



Graph 7: Influence of Quantity on the Overall feelings evaluation;

The main effect of presentation format also was significant (F (1, 82) = 5.26, p =.04), showing that participants who looked at the photos they took after the video tour in digital format had better overall feelings about the event (M = 5.73, SD = 0.70), than the participants that took a look at the photos in a Print format (M = 4.93, SD = 1.42), **contrary to what was expected in H3b**. Lastly, although the graph seems to indicate an interaction, the interaction effect between quantity and format, in terms of the evaluation of the feelings from the event, was not significant (F (1.78) = .25, p =.62.) (Graph 8)



Graph 8: Interaction between Quantity and Format of Feelings evaluation;

The analyses of the main and interaction effects show that concerning the Experience evaluation part, both H3a and H3b are confirmed, yet for the Feelings evaluation part these two hypotheses were rejected. Therefore, a conclusion for **rejection of both H3a and H3b** has been made.

4.3 Summing up the results section

Formulated hypotheses	Results
Hypotheses 1a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, leads to lower value of the created digital files.	**Confirmed**
Hypotheses 1b: Digital presentation format of photographs, as opposed to physical presentation format of photographs, leads to lower value of the collected digital files.	**Confirmed**
Hypotheses 2a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, leads to lower memory of an event.	**Confirmed**
Hypotheses 2b: Digital presentation format, as opposed to physical presentation format of photographs, leads to lower memory of an event.	**Rejected**
Hypotheses 3a: Unlimited quantity of photographs, as opposed to limited/no quantity of photographs, negatively influences the overall evaluation of the experience of an event.	**Rejected**
Hypotheses 3b: Digital presentation format of photographs, as opposed to physical presentation format of photographs, negatively influences the overall evaluation of the experience of an event.	**Rejected**

5. General discussion of results

To begin with, when observing the first dependent variable assessed in this research, value of the photographs, it can be stated that the experimental results completely confirmed the previously stated expectations. Unlimited quantity of photographs (digital creation) does lead to lower value of the created files, and photo files observed in a digital format (digital collection) are valued less than photo files observed in a physical (hard-copy) format. Another interesting finding here is that there seems to be no interaction between the quantity and format variables. This means that regardless of whether photographs are being created to be observed in digital/physical format, creating a bigger amount of photo files lowers the value of the photographs taken. This imposes the question whether in today's digital society in an attempt to document a valuable event, individuals are losing the opportunity to notice and experience the instant value of an event in the moment when it happens?

When looking at the general value of photographs, a trend of it being negligible is noticed. Individuals commented that they attach great value to their digital photo collections, however a lack of habit to assure additional backup of the digital files was discovered. Besides this, a certain rise in the creation of digital clutter is detected, where individuals take advantage of the unlimited storage possibility that digitalization offers, and almost never filter their digital collections of photographs.

To round up the discussion of the results connected with the value of the photographs, one comment which carries a deeper perspective will be cited. When asked about keeping the photos from the video tour, one respondent wrote: "Yes, I would keep only those photos that remind me of the best emotions, not the others taken by chance and not conveying meaningful emotions... But sometimes we lack the time for this selection unfortunately... I'll keep these relevant photos to relive those great emotions, but sometimes it may happen, because of not having chosen what images to actually keep, that photos taken by chance may hinder the remembering of those beautiful experiences". This statement further underlines the need for photo selection, as an attempt to avoid the creation of digital clutter and to increase the value of the digital photo collections.

Concerning memory of the event, the second dependent variable in this research, digital creation of photographs proved to have a negative impact on how much people

remember about an object/event while taking photographs of it. More specifically, the results from the performed analysis show that having the opportunity to take an unlimited amount of photographs during an event negatively influences learning and memorizing facts about the event. In this particular study, this finding was especially true when memory was tested with open-ended questions, where there were no answers offered that could serve as a hint for responding, which is proven by the fact that the Unlimited creation group had the lowest score on the open-ended memory questions.

However, the results additionally indicate that collecting digital photographs and creating digital collections do not have a direct negative effect on memory. Therefore, it can be concluded that when it comes to memory of an event, it is the quantity of photographs that affects the amount of memories created rather than the digital format of the photo files. This research study showed that observing digital photo files can actually contribute to better memory, and this is a finding that requires confirmation and elaboration through further research.

One suggestion for avoiding the memory problem caused by taking an increased quantity of photos is that individuals should be encouraged to go back to the photographs they take and analyze them in more details. Another point supporting this suggestion, revealed by analyzing the collected responses, is that when individuals see more photo files, their memory of the photographed event improves, and it improves faster when individuals see these photo files in a digital format. This finding can be justified with the fact that digital format is the standard nowadays, and it might be that people unconsciously process digital files better and faster because of the higher degree of familiarity.

Lastly, analyzing the overall evaluation of the experience during the video tour gave some interesting results. It was found that the respondents who were able to take an unlimited amount of photographs during the video tour had an overall negative experience of the tour. However, the same group of respondents had the most positive feelings about the video, in terms of feeling no distraction, or absent-mindedness. These findings indicate that individuals have positive feelings on a conscious level in terms of embracing the vast opportunities digital photography offers today. Therefore, going backwards and setting a limited number of photo shoots creates discomfort and

dissatisfaction. Moreover, from the results it can be inferred that creating a large quantity of photo files in physical format can contribute to a less positive experience than creating a large quantity of photo files in digital format. What this implies is that individuals today like the convenience of being able to create and observe photo files in digital format. One possible factor that could have contributed to the overall negative evaluation of going through a bigger quantity of physical photo files is the time-consuming characteristics connected with developing and sorting out these photos in traditional format.

However, these same opportunities of unlimited photo storage and easy access of the created digital photo files, present threats at the same time. Even though this research shows that when limited in photo creation, individuals feel irritated, distracted and dissatisfied, it also shows that they are unconscious that their requirement for total freedom in the quantity of photo creation actually negatively influences their overall subsequent experience of an event. As stated earlier, these findings can lead to a conclusion that individuals are well aware of and feel good about the possibilities that technology brings to them, but they are unaware that these same technology advances may influence negatively their life experiences (efficiency-inefficiency paradox by Mick and Fournier, 1998).

5.1 Theoretical implications

The present study revealed interesting findings regarding an important constituent of the modern human being's digital identity - the digital collections of photographs. It was found that digital collections of photographs as virtual possessions have less value for an individual, than the traditional, physical collections of photographs. Thus, this finding gives a negative answer to the question which several researchers and theorists have been working and elaborating on: if the intangible virtual possessions successfully represent an individual's extended-self (Belk, 2013), (Siddiqui and Turley, 2006), (Lehdonvirta, 2009), (Zhao et al., 2008)?

Furthermore, the idea that the possibility for unlimited creation of photographs, in today's digital society influences negatively the memory of the event being photographed can be confirmed and emphasized by the results of this study. Therefore, the

efficiency/inefficiency technology paradox (Mick and Fournier's, 1998) together with the newly formed photo-taking impairment effect (Henkel, 2014), can be underlined once more.

In continuance, the unexpected outcome that digital presentation format of taken photo shoots does not relate with lower memory of an event being photographed, may be seen as a starting point to investigate research affirming the opposite.

In addition, rejecting the expectation that unlimited quantity and digital presentation format of photographs influence the general evaluation of experiencing an event negatively, have confirmed some of the advantages stated in the research of Odom et al. (2011). Their research reveals a strong preference of people to create and access large collections of virtual possessions because of the advantages of unlimited storage possibility and the ease to access their folders with memories at any time, from any place. The findings of this study further support these preferences, by drawing a pattern of positive feelings, and by showing that, in the modern digital era, individuals like and feel comfortable and focused when experiencing an event through the loop of a camera device.

Lastly, this study opens a topic about the conscious/unconscious mind processes, which apparently play an important role into how people accept and use technology. It seems that individuals unconsciously accept all the technology advances in digital photography, without consciously assessing all the risks which some of these advances bring along with their implementation.

To sum up, the experimental approach of this study fulfills its purpose of contributing to the body of science in the concept of creation and collection of digital photographs.

5.2 Practical implications

This study highlights how digital collections of photographs influence subsequent memory, value and overall experience of an event, and therefore the findings also have important practical implications.

Firstly, this research has proven that the possibility to take unlimited quantity of photographs with electronic devices today influences negatively the memory about and

the value assigned to the event being photographed. Therefore, companies producing camera enabled electronic devices ought to take this findings in consideration by implementing an option for built-in daily limit of taking photographs into the electronic devices they produce. Each individual would have the possibility to activate this option and use the automatically defined (or set his own) limit of photo shoots. This could be taken as a sign of customer care, and providing added value to a product, by adding a more human side to the electronic device, which customers would appreciate.

In addition, second conclusion to be made from this study is that digital presentation format of photographs impacts the value of these photo files in a negative way, thus producers of electronic camera devices can include reminders in different formats, as a functional feature of their devices, in order to remind customers to develop photographs more. One alternative is to invest in producing cheaper instant develop camera devices, while promoting these devices widely, by underlining all the advantages which physical photo collections have. Moreover, companies producing electronic camera devices can start selling their camera devices together with photo paper as a co product, which will enable customers to print the photo files they took with the help of their home printer device.

One positive aspect of the digital presentation format of photographs today, discovered in this study is that it does not lower the memories from an event. What this finding implies is that individuals should be encouraged to go back and look through the photo files they take, more often. Again, producers can reach higher, and integrate a so called Memories mode on the devices they produce and sell. The photo presentation in this Memories mode can be made more attractive in multiple ways, by auto compiling a video in a slideshow format, enriched with background music. This would remind customers about the real goal of taking photographs and will hopefully make them value their digital photo files more, which value can easily be transferred to the camera device they are using, which is a win-win situation for producers.

In continuance, another entity which can benefit from the results of this study in practice are tour agencies. By highlighting that using the unlimited shooting capacity of camera devices while being on a tour, influences negatively the subsequent memories and value of the tour, tour agencies can start organize new, different type of tours. A vast

number of different group activities can be implemented, in order to encourage social interaction between tourists and to replace the phone buddy with a real buddy, while traveling. The goal of these alternative incentives is to bring different positive feelings and experiences into individuals, from a tourist visit, other than the possibility to use a camera device endlessly. By thinking out of the box, focusing on the social side and being innovative, tour agencies would enlarge their base of customers, and customers would get experiences worth remembering.

Moreover, a point which came up while analysing the general value findings in this study, not related to the interaction of variables, is that for individuals a drone perspective seem to be an attractive option to take and keep photos. This is expected, because in the overwhelmed digital society of today, only different perspectives are able to stand out and to keep individuals' attention, at least for a short while. Camera producers can be advised to take this finding in consideration and work on implementing more shooting options into their devices, like incorporating bird's eye perspective in a simple camera device (so the consumer is not obligated to invest in a special drone camera).

Lastly, the findings of this study can have different practical implications in different settings. Depending from the nature of the setting: educational, recreational, business setting, different actions will be taken in consideration, in order to exploit the possibilities which digital photography offers today, while striving into minimizing the negative consequences at the same time.

6. Limitations and future research

One important limitation of this study is the manipulated stimulus. The video tour used in the experiment was compiled by the researcher and it wasn't on a highly professional video image level. Therefore, some of the answers and reactions of the respondents might have been influenced by the average image quality of the video tour. Future research could simulate a tourist visit on an existing tourist location, in a real setting, in order to avoid these limitations.

Furthermore, concerning the memory results of the Limited creation group, it is worthwhile mentioning that the bad result that his group had in the memory part, might have been influenced by the ten photo shoots limitation condition. Being focused on taking only ten photographs and paying attention to choose the best sceneries from the video, might have had destructive influence on the attention and focus that this group placed on the narration of the video tour, which has subsequently influenced memory negatively. Future research can implement a different approach, as a solution for limiting the quantity of photographs.

7. Conclusion

Digital collections of photographs are a very important part of the extended self of an individual in today's digital society. These virtual possessions play a big role in shaping one's identity, relations with self and others, connections with past memories of valuable life events. The two most prominent characteristics of the digital collections of photographs are the Unlimited creation possibility and the Digital presentation format. This study has examined how creating an unlimited amount of digital photo files from an event influences how much do people remember and value the event and the photo files taken, and how it influences their overall experience from the event.

As expected, this study has proven that unlimited quantity of photographs leads to lower memory of the event and to lower value of the created digital files from the event. Additionally, the expectation that digital presentation format of photographs leads to lower value of the collected digital files, has been confirmed.

On the other hand, the analysis of this research has rejected the expectation that digital presentation format of photographs leads to lower memory of an event. Lastly, contrary to expectations, unlimited quantity and digital presentation format of photographs did not negatively influence the overall evaluation of the experience of the event being evaluated.

This research illustrates the existence of a certain awareness and appreciation of the large offer of advanced options in digital photography today, which leads to positive evaluation, vast acceptance and usage of electronic camera devices in recording every life sequence. The consequences discovered are damaged memory of the events being recorded and undermined value of the digital photo files taken. One bright perspective is

that it was confirmed that digital photo files do not impair memory, which proves that the modern human feels complete comfort to feed it's brain cells with digital data nowadays.

To conclude, after reasoning about the literature connected with the given topic, the results of prior studies, and the outcomes of this 3 x 2 factorial design, a final conclusion can be reached that, at this point in time, digital collections of photographs are somewhere at the middle of the scale between two extremes: digital clutter and valuable memories. This implies that future effort should be made to bring the digital collections of photographs, as an important part of an individual's identity, closer to the valuable memories point, through implementation of actions such as the ones suggested in the practical implication section.

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Appendices

Appendix A. Survey instrument

Questionnaire I (Unlimited / Limited creation of photographs groups)

General experience of the event:

Likert scale:

General evaluation:

1. This video tour is a good way of presenting these tourist locations;
2. This video tour really conveyed the beauty of these tourist locations;
3. After seeing the video I really want to visit these locations;
4. I enjoyed the video tour;
5. I learned a lot about these tourist locations during this video tour;

Feelings evaluation:

6. I felt distracted during the video tour;
7. I felt absent minded during the video tour;
8. I felt focused during the video tour;
9. I felt irritated during the video tour;

General value questions:

Likert scale:

1. I store my photos in physical photo album collections.
2. I consider digital photo collections very valuable.
3. I always back up my digital photo collections (on a hard drive, on a cloud service).

Open question:

Any additional comments?

Value:

Likert scale questions:

1. I will go through the photos I took at least once again, viewing them on my computer screen;
2. The images I captured from the video were the most outstanding sequences;
3. These photos are a good way to present this tourist location to my friends/family.
4. These pictures capture a very valuable memory from this event;
5. Going through the photos after the tour increased the attractiveness of the tourist

locations.

6. Going through the photos after the tour increased my intention to visit the tourist locations.
7. Going through the photos after the tour helped me observe some details I hadn't noticed before.

Open value question:

8. Will you keep the photos from this event, and why?

Memory of the tour:

Yes/No questions:

1. The statue Christ the Redeemer is the tallest statue of its kind in the world. (information is not mentioned in the audio guidance)
2. Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007. (given information)
3. The Chinese name of the Great Wall of China is Long Wall, and the wall has more than 2300 years of history; (given information)
4. All three tourist locations: Rio de Janeiro, Lavaux and the Great Wall of China are included in the list of the new seven world wonders.

Open questions:

1. Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common?
2. What are the traditional restaurants in Lavaux called?
3. How many visitors does The Great Wall of China attract every day?
4. What is the length of Copacabana, the most famous beach in Rio de Janeiro?
5. Please name all the tourist attractions mentioned in the video tour you can remember.

Questionnaire II (for the No creation of photographs group):

General experience of the event:

Likert scale:

General evaluation:

1. This video tour is a good way of presenting these tourist locations;
2. This video tour really conveyed the beauty of these tourist locations;
3. After seeing the video I really want to visit these locations;
4. I enjoyed the video tour;
5. I learned a lot about these tourist locations during this video tour;

Feelings evaluation:

6. I felt distracted during the video tour;
7. I felt absent minded during the video tour;
8. I felt focused during the video tour;
9. I felt irritated during the video tour;

General value questions:

Likert scale:

1. I store my photos in physical photo album collections.
2. I consider digital photo collections very valuable.
3. I always back up my digital photo collections (on a hard drive, on a cloud service).

Open question:

Any additional comments?

Value:

Likert scale questions:

1. I would go through the photos I took at least once again, viewing them on my computer screen;
2. The images I would capture from the video would be the most outstanding sequences;
3. Photos are a good way to present tourist locations to my friends/family.
4. Pictures capture a very valuable memory from an event;
5. Going through photos of a video tour could increase the attractiveness of tourist locations.
6. Going through photos of a video tour could increase my intention to visit the tourist locations.
7. Going through photos of a video tour could help me to observe some details I hadn't noticed before.

Open value question:

8. If you had been able to take any, would you keep the photos from this event, and why?

Memory of the tour:

Yes/No questions:

1. The statue Christ the Redeemer is the tallest statue of its kind in the world. (information is not mentioned in the audio guidance)
2. Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007. (given

information)
3. The Chinese name of the Great Wall of China is Long Wall, and the wall has more than 2300 years of history; (given information)
4. All three tourist locations: Rio de Janeiro, Lavaux and the Great Wall of China are included in the list of the new seven world wonders.

Open questions:

1. Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common?
2. What are the traditional restaurants in Lavaux called?
3. How many visitors does The Great Wall of China attract every day?
4. What is the length of Copacabana, the most famous beach in Rio de Janeiro?
5. Please name all the tourist attractions mentioned in the video tour you can remember.

Appendix A1. Example of the final look of the questionnaire

Questionnaire (UP and LP condition)

Welcome! We hope you enjoyed the video tour! Now, we would be grateful if you can dedicate 10 minutes of your time and answer this survey.

I) Here we would like to find out some demographic information about you:

Q1 Please fill in your age: _____;

Q2 Please choose your gender:
- ❑ Male
- ❑ Female

II) Please rate the following sentences based on your experience during the video tour:

Q3 This video tour is a good way of presenting these tourist locations
- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q4 This video tour really conveyed the beauty of these tourist locations

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q5 After seeing the video I really want to visit these locations

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q6 I enjoyed the video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q7 I learned a lot about these tourist locations during this video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

III) Please rate the following sentences based on your feelings during the video tour:

Q8 I felt distracted during the video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree

- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q9 I felt absent minded during the video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q10 I felt focused during the video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q11 I felt irritated during the video tour

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

IV) Please rate the following sentences based on your previous personal experience:

Q12 I store my photos in physical photo album collections

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q13 I consider digital photo collections very valuable

- ❑ Strongly agree
- ❑ Agree

- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q14 I always back up my digital photo collections (on a hard drive, on a cloud service)

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q15 Any additional comments?

_____

V) Next, let's talk about the photos of the video tour you were able to take. Please rate the following sentences based on your degree of agreement:

Q16 I will go through the photos I took of the video at least once again, viewing them on my computer screen

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q17 The images I captured from the video were the most outstanding sequences

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q18 These photos are a good way to present these tourist locations to my friends/family

- ❑ Strongly agree
- ❑ Agree

- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q19 These photos capture a very valuable memory from this event

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q20 Going through the photos after the video tour increased the attractiveness of the tourist locations

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q21 Going through the photos after the video tour increased my intention to visit the tourist locations

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q22 Going through the photos after the video tour helped me observe some details I hadn't noticed before

- ❑ Strongly agree
- ❑ Agree
- ❑ Somewhat agree
- ❑ Neither agree nor disagree
- ❑ Somewhat disagree
- ❑ Disagree
- ❑ Strongly disagree

Q23 Will you keep the photos from this event, and why?

VI) In this last section let's evaluate how much do you remember from the video tour. Please tell us if you agree/disagree with the following sentences:

Q24 The statue Christ the Redeemer is the tallest statue of its kind in the world.

- ❑ Yes
- ❑ No

Q25 Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007.

- ❑ Yes
- ❑ No

Q26 The Chinese name of the Great Wall of China is Long Wall, and the wall has more than 2.300 years of history.

- ❑ Yes
- ❑ No

Q27 All three tourist locations: Rio de Janeiro, Lavaux and The Great Wall of China are included in the list of new seven world wonders.

- ❑ Yes
- ❑ No

VII) Please answer by filling in the blank fields.

Q28 Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common?

_____

Q29 What are the traditional restaurants in Lavaux called?

_____

Q30 How many visitors does The Great Wall of China attract every day?

_____

Q31 What is the length of Copacabana, the most famous beach in Rio de Janeiro?

_____

Q32 Please name all the tourist attractions mentioned in the video tour you can remember.

_____

You have been great, thank you for your time!

Pretest procedure and results

I) Pretest procedure

In order to decide on several details connected with the final research experiment, a pretest has been conducted with six people from the target group (aged 21-27). The pretest consisted of watching a video tour on a computer screen, followed by a writing task and a questionnaire.

Half of the respondents (three individuals) were instructed to follow the video and take as many photographs as they feel like (by pressing the right click on the mouse), while the other half didn't take any photographs. These instructions were aimed to help with the decision of how many photographs the group with limited amount of photographs would be instructed to take, later in the final experiment.

After watching the video, the respondents were asked to write down three facts they remembered about each of the three locations presented in the video on a blank piece of paper, as an attempt for the researcher to obtain general guidance concerning the memory questions in the final questionnaire.

As the next task, the respondents filled out a questionnaire which contained general questions and questions measuring the memory and value of digital photographs. The latter was done in order to additionally assess if the questions in the draft version of the questionnaire work as intended, are understood by those individuals who are likely to respond to them, are unbiased and structured properly (Hilton, 2015). Furthermore, the purpose of the questionnaire pretesting was to eliminate unnecessary and add necessary questions and to estimate the time needed to conduct the whole experiment.

II) Pretest tools

1. Video: The video used for the experiment is compiled by the researcher, using an open-source drone video database and text compiled by the researcher and narrated by a volunteer. More specifically, the video contains three world-famous tourist locations: the capital of Brazil, Rio de Janeiro, the wine district Lavaux in Switzerland, and the Great wall of China. All three locations were allotted the same amount of time in the video (approx. 100 seconds for each location). The reason why the locations were chosen on different continents, with different characteristics (historical, gastronomic, entertainment and pleasure), and different level of eminence is to avoid getting biased answers (e.g correct answers on the memory questions because of a previously known fact about Rio de Janeiro, or the Great Wall of China). The video was programmed in a way that a right click on the mouse, while watching, would take a screenshot of the video, and automatically save it in a folder on the desktop of the computer used.

2. Questionnaire:

Memory of the tour:

Likert scale questions:

1. Taking pictures helped me to follow the tour.
2. Taking pictures during the video tour will improve my short-term memory.
3. Taking pictures during the video tour will improve my long-term memory.
4. I was able to follow the narration closely during the whole video tour.

Yes/No questions:

1. The statue Christ the Redeemer is the tallest statue of its kind in the world. (information is not mentioned in the audio guidance)
2. Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007. (given information)

Open questions:

1. Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common?
2. What is the size of Lavaux, the vineyard region in Switzerland?
3. Why was the Great Wall of China built?
4. How did the favelas in Rio de Janeiro come to be?
5. Please name all the tourist attractions mentioned in the video tour you can remember.

Value of the photographs:

Likert scale questions:

1. After the experiment, I will develop all the photos I took and show them to my family/friends;
2. I will go through the photos I took at least once again, viewing them on my computer screen;
3. The images I captured from the video were the most outstanding sequences;
4. These photos are a good way to present this tourist location to my friends/family.
5. I consider the photos more useful in presenting this tourist location to my friends/family than the video;
6. I consider the video more useful in presenting this tourist location to my friends/family than the photos;
7. These pictures capture a very valuable memory from this event;
8. Going through the photos after the tour increased the attractiveness of the tourist locations.
9. Going through the photos after the tour increased my intention to visit the tourist

locations.

10. Going through the photos after the tour helped me observe some details I hadn't noticed before.

Open question:

11. Will you keep the photos from this event, and why?

General experience of the event:

Likert scale:

1. This video tour is a good way of presenting a tourist location;
2. I enjoyed the video tour;
3. I liked the opportunity of being able to take photographs of the tour;
4. I learned a lot about these tourist locations during this video tour;

General questions:

Likert scale:

1. I like taking photos.
2. My camera is the first thing I pack when I travel.
3. I often develop the photos I take on photo paper.
4. I often go through my old photo albums.
5. I store my photos in physical photo album collections.
6. I consider digital photo collections very valuable.
7. I always back up my digital photo collections (on a hard drive, on a cloud service).

Open question:

Any additional comments?

II) Pretest results

The researcher closely observed the respondents during the whole process of performing the pretest and summed up their reactions, comments and answers to all questions. The results from the pretest can be summed up into the following three conclusions.

1. Number of limited amount of photographs. On average, the group of respondents that was assigned to take as many photographs as they wish during the video tour, took 19 photographs. Taking this information as a reference, for the final experiment, the researcher decided to assign 10 photographs as the upper limit (half of the average of 19

photographs), for the category of respondents that will be instructed to take a limited amount of photographs while watching the video tour.

2. Memory questions adjustment. Summing up and analyzing the results from the writing task clearly underlined several facts, which were mostly remembered by the respondents. The three facts, divided by each place, with highest rate of remembrance were:

Rio: "The statue of Christ the Redeemer is 30m tall.", "Copacabana beach in Rio is 50 km long.", "The name of Rio means River of January."
Lavaux: "The Lavaux is the biggest wine region in Switzerland." "The wine region is protected by Unesco since 2007.", "The mini traditional restaurants are called pints."
The Great Wall of China: "**The** wall can be seen from the Moon.", "The wall attracts 70.000 visitors per day.", "The Chinese wall is protected by Unesco since 1987."

These findings were afterwards compared with the part of the questionnaire used in the pretest which measures memory, and the following changes have been made accordingly.

Memory of the tour:

Likert scale questions:

1. Taking pictures helped me to follow the tour. ✓ **(question can be used in the final questionnaire)**
2. Taking pictures during the video tour will improve my short-term memory.✓
3. Taking pictures during the video tour will improve my long-term memory. ✓
4. I was able to follow the narration closely during the whole video tour.✓

Yes/No questions:

1. The statue Christ the Redeemer is the tallest statue of its kind in the world. (information is not mentioned in the audio guidance) ✓ **(respondents remembered the actual size of the statue, which means they followed carefully this part, if so then this question is relevant, because it should be easy to answer it with "No" or / "I don't know")**
2. Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007. (given information) ✓ **(the question will be used in the final questionnaire, because according to the pretest this is an easily remembered fact.)**

Open questions:

1. Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common? ✓ **(question will be used in the final questionnaire because the answer of it is "All three locations are Unesco's World Heritage Sites" and the facts about Unesco were remembered in 66% of the answers, which is a satisfactory**

percentage.)

2. What is the size of Lavaux, the vineyard region in Switzerland? **X (question won't be included in the final questionnaire because none of the respondents remembered this fact) This question will be replaced with: 2. What are the traditional restaurants in Lavaux called?**
3. Why was the Great Wall of China built? **X (question won't be included in the final questionnaire because only a very small percentage of the respondents remembered this fact) This question will be replaced with: 3. How many visitors does The Great Wall of China attract every day?**
4. How did the favelas in Rio de Janeiro come to be? **X (question won't be included in the final questionnaire because only a very small percentage of the respondents remembered this fact) This question will be replaced with: 4. What is the length of Copacabana, the most famous beach in Rio de Janeiro?**
5. Please name all the tourist attractions mentioned in the video tour you can remember. **✓ (question will be used in the final questionnaire because it will directly show if the respondents who didn't take photos remembered more than the other two groups.)**

3. Need for creation of two different questionnaires.

The pretest additionally showed that there is a need for creation of a second version of the questionnaire, adjusted for the group of participants who won't be taking any photographs during the video. Therefore, a new version of the questionnaire, slightly different from the first one, was compiled.

Memory of the tour:

Likert scale questions:

1. I think taking pictures would help me to follow the tour.
2. Taking pictures during the video tour could improve my short-term memory.
3. Taking pictures during the video tour could improve my long-term memory.
4. I was able to follow the narration closely during the whole video tour.

Yes/No questions:

1. The statue Christ the Redeemer is the tallest statue of its kind in the world. (information is not mentioned in the audio guidance)
2. Dating since the 11th century, Lavaux is the largest vineyard region in Switzerland, and its impressive hillside terraces have been protected by UNESCO since 2007. (given information)

Open questions:

1. Please name one fact that Rio de Janeiro, Lavaux and The Great Wall of China have in common?
2. What are the traditional restaurants in Lavaux called?
3. How many visitors does The Great Wall of China attract every day?
4. What is the length of Copacabana, the most famous beach in Rio de Janeiro?
5. Please name all the tourist attractions mentioned in the video tour you can remember.

Value of the photographs:

Likert scale questions:

1. If I had a chance to take photographs during the video, I would develop and show them to my family/friends;
2. I would go through the photos I took at least once again, viewing them on my computer screen;
3. The images I would capture from the video would be the most outstanding sequences;
4. Photos are a good way to present tourist locations to my friends/family.
5. I consider photos more useful in presenting tourist locations to my friends/family than videos;
6. I consider videos more useful in presenting tourist locations to my friends/family than photos;
7. Pictures capture a very valuable memory from an event;
8. Going through photos of a video tour could increase the attractiveness of tourist locations.
9. Going through photos of a video tour could increase my intention to visit the tourist locations.
10. Going through photos of a video tour could help me to observe some details I hadn't noticed before.

Open question:

11. If you had been able to take any, would you keep the photos from this event, and why?

General experience of the event:

Likert scale:

1. This video tour is a good way of presenting a tourist location;
2. I enjoyed the video tour;
3. I would have liked to have an opportunity to take photographs of the tour;
4. I learned a lot about these tourist locations during this video tour;

General questions:

Likert scale:

5. I like taking photos.
6. My camera is the first thing I pack when I travel.
7. I often develop the photos I take on photo paper.

1. I often go through my old photo albums.
2. I store my photos in physical photo album collections.
3. I consider digital photo collections very valuable.
4. I always back up my digital photo collections (on a hard drive, on a cloud service).

Open question:

Any additional comments?

4. Detailed outline of the results

I) Photographs taking part

Number of photos taken:
Respondent 1 - 33
Respondent 2 - 12
Respondent 3 - 12

Average: 19 photographs.

Taking this data as a reference point, it can be concluded that when respondents are free to take as many photographs as they want, they would take around 19 photographs. Herefrom, the limit of number of photographs for the second (limited quantity of photographs) group of respondents is set at **10.**

II) Writing task

Facts mentioned in the video which the respondents memorized after watching the video:

Rio:

a) Group that took photographs:

Respondent 1: The statue of Christ the Redeemer is 30m tall; the most famous beach in Rio is Copacabana; Favelas were built by pushing the poor people out of the center of Rio;
Respondent 2: The statue of Christ the Redeemer is 30m tall; Copacabana is 50 km long; The name of Rio means River of January;
Respondent 3: The statue of Christ the Redeemer is 30m tall; Copacabana is 50 km long; The name of Rio means River of January; This year Rio is hosting the Olympic games 2016;

b) Group that didn't take photographs:

Respondent 4: 1.4 million people live in the favelas in Rio; The statue of Christ the Redeemer is 30m tall; Copacabana beach became a symbol of Rio during the 1940s;
Respondent 5: Copacabana is the most famous beach and it's 50 km long; Part of Rio was protected by Unesco at 2012.
Respondent 6: The statue of Christ the Redeemer is 30m tall; This year Rio is hosting the Olympic games 2016; The nickname of Rio is Marvelous city.

Lavaux:

a) Group that took photographs:

Respondent 1: The wine region is built on the shores of lake Geneva; The vineyards are composed of terraces; The region offers good wine and food;
Respondent 2: The wine region is protected by Unesco since 2007; The traditional restaurants are called pintes; The Lavaux is the biggest wine region in Switzerland.
Respondent 3: The Lavaux is the biggest wine region in Switzerland; It takes 12 minutes by train to get to Lavaux from Vevey; The traditional restaurants are called pintes;

b) Group that didn't take photographs.

Respondent 4: The wine region is protected by Unesco since 2007; The Lavaux is the biggest wine region in Switzerland. The traditional mini restaurants are called pintes;
Respondent 5: The wine region is protected by Unesco since 2007; The wine region is built on the shores of lake Geneva; The Lavaux is the biggest wine region in Switzerland;
Respondent 6: The Lavaux is the biggest wine region in Switzerland; The wine region is protected by Unesco since 2007; There are beautiful medieval winegrowers houses in Lavaux;

Great wall of China:

a) Group that took photographs:

Respondent 1: People were buried in the walls, during the construction of it; The wall can be seen from the Moon; The wall attracts 70.000 visitors per day.
Respondent 2: The wall can be seen from the Moon; The wall attracts 70.000 visitors per day.
Respondent 3: The wall can be seen from the Moon; The wall attracts 70.000 visitors per day; It was built to protect China from invasion; The Chinese wall is protected by Unesco since 1987.

b) Group that didn't take photographs.

Respondent 4: The wall can be seen from the Moon; The Chinese name of the wall is long wall; The wall is China's icon, it shows Chinese culture and it's a national pride.
Respondent 5: People were buried in the walls and families were separated, during the construction of the Great Wall; The wall attracts 70.000 visitors per day; The Chinese wall is protected by Unesco since 1987;
Respondent 6: The wall can be seen from the Moon; The wall is a symbol of the Chinese architecture; A poet once said that only heroes reach the wall;

Most mentioned, by tourist location:

Rio: "The statue of Christ the Redeemer is 30m tall.", "Copacabana beach in Rio is 50 km long.", "The name of Rio means River of January."
Lavaux: "The Lavaux is the biggest wine region in Switzerland." "The wine region is protected by Unesco since 2007.", "The mini traditional restaurants are called pintes."
The Great Wall of China: " The wall can be seen from the Moon.", "The wall attracts 70.000 visitors per day.", "The Chinese wall is protected by Unesco since 1987."

III) Questionnaire:

The results from the answers of the questionnaire were not analyzed according to the research hypothesis of this research project, because this is to be done in the latter, final experiment. During the pretest the composition and structure of questions was measured, and it was noticed that the current structure of the questions is not completely relevant for the "No creation of photographs" group of respondents (especially the questions from the Value of the photographs part).
This gave a clear conclusion that there is a need to create a second questionnaire, for the "No creation of photographs" group of respondents.

Appendix C: Results

1. Reliability analysis

Results demonstrate that all measurement items chosen and adapted to this study had an excellent individual performance for reliability (resulting in no exclusions for the final analyses). The reliability of the dependent measures is presented in more details in Table 1.

Table 1
General descriptive statistics of measure constructs.

	Cronbach Alpha	M	SD	N
Value	.81	2.44	.88	7
Memory	.76	1.54	.18	9
Overall evaluation of experience	.74	2.21	.77	9

3.Sample adequacy:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.680
Bartlett's Test of Sphericity	Approx. Chi-Square	673.415
	df	300
	Sig.	.000

Table 1: Sample adequacy;

Concerning the adequacy of the sample it can be concluded that the sample is adequate, because the value is .680 (for sample adequacy the value should be more than .6).