

NEOSTALGIA : NEW MEDIA KILLS NOSTALGIA

Leiden University, Liacs, MSc Mediatechnology Graduation project

Klaas Jan Mollema (0477621) , Leiden University, MSc Mediatechnology
Willem van Vliet (0381543) , Leiden University, MSc Mediatechnology

Supervisors:

Dr. Yasco Horsman, Leiden University, Literatuurwetenschap
Prof. Dr. Bas Haring, Leiden University, Liacs, MSc Mediatechnology

abstract

Remembrance and the feeling of nostalgic experience is one of the basic elements mature people use to make decisions during the day. People like to get back to the past, using tangible and intangible objects to keep their remembrance. In this paper we will focus on pictures as a trigger of nostalgic feelings. Sontag and Barthes already in the 1970's gave their feedback on the effect on remembrance of those media. Founded on their reflections we see the same effects happen while using digital photography, but stronger. Our research contains two projects, zooming in on these effects of the nostalgic experience. Project 1 (The Digital Polaroid) gives a reaction on the way behaviour has changed with digital photography, project 2 (The Digital Shoebox) investigates the way people store their pictures. In the end we think Sontag was right in her statement Photography has caused a cultural change. In Digital Photography the change is even worse. The way people make and conserve their digital photos has strongly changed. Next to that, people use digital photography to lookup memories, but the factual data pictures provide can cause a change in nostalgic experience.

introduction

Nostalgia has for a long time been an unrecognised and neglected emotion. Its strong effects in behaviour on mature people have long been denied by calling it a disease. Nostalgia is often referred to as "a sentimental longing for the past" [1], which comes from the Greek translation of nostalgia "the suffering caused by the yearning to return one's place of origin" [2]. The ambiguity is evident in nostalgia's characteristically bittersweet quality, its proclivity for combining regret with longing, a vivid sense of missing with an equally vivid sense of what is missed [3]. Nostalgia can be triggered by unhappiness of one's current situation [4] and often is an idealized and unrealistic memory of the past. In doing research on the subject of nostalgia we read that nostalgic emotion is very influencable and subjective by stories, advertisement and media. New media can possibly play a role in changing this emotion and these memories.

The paper proposes two projects which both confront the reader with a specific effect of new media on our behaviour. These behavioural patterns are chosen because of their properties which are needed to create nostalgic feelings. The first project will show the need of quality in the triggers of a nostalgic memory, while the second project will confront you with the temporal character of the digital media, which can lead to having no nostalgic triggers at all. To support the projects a survey has been held under 172 subjects, where they have been asked about 67 different aspects of the projects.

New media

The term "new media" is often used to mark a break with history. First there was "old media" and now there is "new media". The term is used commonly, also in academic circles, but is a very generic thus vague term. Lister (et al.) refer to the term as a way to create new experiences, another way to represent new relationships between subjects, new conceptions and new patterns of organisation and production. [5]

To be able to determine if something can be labelled new media or not, the commonly accepted rules are those of Lev Manovich [6]. He argues that the interfaces of new media objects are being shaped by three cultural traditions: print, cinema and human-computer interfaces. He calls the new media revolution, the shift of all of our culture to computer-mediated forms of production, distribution and communication. New media represents a convergence of two separate historical trajectories: computing and media technologies.

Analogue versus digital photography

The definition of "New Media" as proposed by Lev Manovich is very useful to look at photography. Photography itself is a media technology from early 1800 and developed itself rapidly over the years without the aid of specific computer technology. The first shift to digital technology was in 1981 when the Sony Mavica was introduced. This camera used a magnetic tape to store images and a television had to be used to view the pictures. The digital images can also be

transferred through telephone lines, making it possible to have instant footage of events. The 1984 Olympics reporters and the US military were a few of the early adopters of this technology.

In 1990 the first real digital camera was introduced. The Dycam Model 1 was the first camera that did not only store the image on a digital medium, but could also code the image in standard JPEG, making the images readable when transported to the computer without processing afterwards.

Around the year 2000 the digital camera sales went up drastically. The cameras had reached a mature level and could compete with analogue cameras offering everything an analogue equivalent could offer in quality and the benefits of the digital camera. These benefits are for example:

- No costs for taking pictures
- Direct feedback through the build-in screen
- Copy digital photo's without losing quality
- Ability to print your photos at home on your own (photo) printer
- Almost limitless storing option of pictures because of the big memory space on memory cards
- Smaller camera's possible because of the lack of film
- More functions available, like shooting movies or digital effects
- Presentation of photos on various media

The introduction of computer technology in photography meant that analogue pictures had to be formalized. Digital photographs are structured and formalized in mathematical formats like JPEG, GIF and RAW and can be transformed to either of the formats. This makes photos numerical representable, transcodable and automatically processable. Lev Manovich states the principles of new media consist out of five general principles. Numerical representation, Automation and Transcoding are three of them.

Digital photography does not only belong to professionals but is commonly used. Because of cheap and small parts needed to build a camera, companies equip other devices with a photo function. Taking pictures became a function for handheld devices like mobile phones, pda's and video camera's. The photo camera itself also became more than a machine to take pictures. Most cameras on today's market have a video and sound recording option embedded and some of them even have games installed. This shift made photography even more accessible, but the photo quality of the photo enabled devices are no match to the dedicated photo devices.

This meant a huge shift in how we think about photography and how we use it. We went from quality oriented to quantity-oriented photography and from documenting special occasions, to documenting everything we do. Life-Logging is a good example of this trend. Gordon Bell [7] stores everything digitally. From phone calls to papers he reads and from the television programs he watches to photos of his entire life. As someone said in the survey we created: "It does not matter if the picture is taken

professionally, just take it and make a couple more, just to be sure!".

The introduction of computer technology in photography also created the possibility to take photos without a tangible result. The complete process from taking pictures to watching them can be done in virtual reality. Waiting for your photo's to develop, is replaced by instant gratification, a chemical process is replaced by interpreting data to a digital format and manual functions, where you are in control, are replaced by automatic functions to ensure a sharp image with every picture. You would expect the quality of pictures would get better, because of the new possibilities, but this seems not to be entirely true.

The introduction of digital photography made the mass into photographers. They like to take a picture, but do not like to frame it correctly, sharpen the image, think about composition or light conditions. They just want to take pictures. The digital camera can do all this by itself so the photographer does not have to think about it. For them, taking pictures is the most important thing. So professional photographers have a very different approach and meaning to quality. They take their time to create a scene and frame it correctly, using almost none of the automatic functions of a digital camera, whilst consumers just take more pictures of a scene and hope one of the pictures will be of good quality and let the device make all the technical decisions.

Also American literary theorist, novelist, filmmaker, and political activist Susan Sontag and French literary critic, literary and social theorist, philosopher, and semiotician Roland Barthes reacted on the effect camera's will have on the way people experience events and the way they remember the past [8], [9].

Their critics are the basic elements of our research. Where they reflected on analogue photography, most of their statements might also work for digital photography. But there is not much written about the effect of digital photography on the memory.

hypothesis

We think that ***New media changes our nostalgic experience of the past.***

By discussing this hypothesis we will continue at the point Sontag and Barthes stopped writing about analogue photography to see if new media really changes the way we remember the past. Could there be more triggers, now we have more photos of our life. Having more photos, do we remember more? How do we remember the nostalgic event; is there a more graphical memory? How do we care for our photographic triggers now they are digital? Is the statement of Sontag which she proposed around analogue photography still valid in case of digital photography?

nostalgia

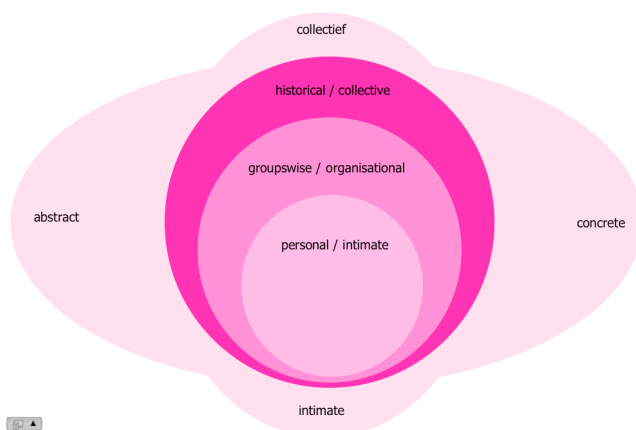
Remembrance

The inner working of your memory is something strange. You can't dictate what to remember or what not to remember. The autobiographic memory seems to do what it wants. It will record events, but can also sometimes forget things. Douwe Draaisma [10] used the metaphor of a minute secretary who keeps his own agenda.

From the year 1879 scientists research the autobiographic memory. By doing practical tests Sir Francis Galton [11] and (later) Hermann Ebbinghaus [12] tried to test their memory by writing down associations and trying to remember syllables. They found out that learning costs more time than re-learning. In 1974 Herbert F. Grovitz continued the research of Galton by developing the Galton-Crovitz test [13], where people have to tell the first thing that pops in mind, after they are triggered. Also the Dutch scientist Willem Albert Wagenaar did research on triggering the memory by starting a daily log of his activities in the period between 1979 and 1983 [14]. With the activities he wrote down the what, when where and who components of the activity. He also wrote down his emotional involvement and how special and pleasant the happening was. In 1984 he tried, by reading one cue (what when where who), to remember the total event. The cues who and where did trigger the memory. The cue 'when' was the least successful trigger of them all. In the end Wagenaar found out that to remember a specific event, we need a key - a unique feature that allows us to readily distinguish that event from similar events.

Nostalgia

Next to textual triggers, also smell, sound and touch can be triggers. People can use cues to trigger the memory, but also to trigger nostalgia. Smelling the perfume of your grandmother or girlfriend can bring you back to the time you were spending together.



Nostalgia has an important emotional component, making it an emotion state of being. Different types of research have been done in the field of affect (the role of feelings) in nostalgia. Most of those researches have been done in the field of consumer behaviour. One of the researchers, Morris Holbrook [15], could conclude amongst other facts that the influence of nostalgic emotions on our behaviour grows

when we get older, and nostalgia proneness differ per person. Susan L. Holak et al. [16] in their paper about the emotional components of nostalgia conclude that a nostalgic experience is a complex mix of emotions where warmth, joy affection and gratitude are linked with sadness and desire. Wildschut et al [2] also relate to nostalgia as a happiness-related emotion, yet at the same time it invokes sadness.

These researches also suggest that there are different kinds of nostalgia. The authors distinguish personal nostalgia from organizational and historical nostalgia because: "Nostalgia is a prima facie self relevant emotion in the sense that the self is a salient protagonist in the nostalgic experience". They propose that nostalgia must possess an important social element. To take the social element, we propose intimate and collective nostalgia. This can be seen in our model above.

Where collective nostalgia is about the nostalgic memories of a group and can be relived as a group (tradition, childhood in a family, the group wise emotion when you create a collective memory), intimate nostalgia is about the more personal memories; precious memories about moments in your life. All of these memories are very personal and most of them are not commonly shared with others.

Next to the dimension intimate versus collective, we also propose the dimension abstract versus concrete. All the nostalgic memories can be very abstract (the feeling of Christmas eve) but can also be very concrete (the sinking houseboat during the celebration of the '88 game of football).



We also thought about defining the dimension 'timeline'. People not only get nostalgic feelings about the past, but can also get nostalgic about old future images. Star trek and Nineteen Eighty-Four of George Orwell are good examples of presented futures of the past. For now however we didn't include this dimension into the model, because this paper will focus on the intimate nostalgic experience which is, for Davis [17], a "positively toned evocation of a lived past" and for Wildschut et al [2] "...nostalgia refers to a personal experienced past."

Nostalgic experience

It is the personal emotion what makes nostalgia something intimate. Even in collective nostalgia everybody has his own feeling about a memory. We have chosen the personal experience of nostalgic remembrance because it is the most intimate one. It is the personal interest of people what makes that everybody has his own unique personal nostalgic feelings. This is why doing research on this type of nostalgia is something difficult. Much more research has been done about collective nostalgia, where a link is made to the personal nostalgic memories, but by using events, within target groups, which are common, thus making it collective.

A good example of this is "Make my memory: How Advertising can change our memories of the past" of Kathryn A. Braun et Al [18]. This research proved that your memory can be altered through autobiographical advertisement and that you can create a false or distorted memory.

New media as a trigger of nostalgic emotion

Not only advertising has an effect on our memories. Where Wagenaar triggered his memory with cues, new media also can trigger our memory. We think new media triggers can even be too factual. For example: film and photography confront people with displayed facts you normally would have forgotten, like: 'it rained that day' and 'uncle Ben was not comfortable with the situation'. Facts that can make your nostalgic emotion change when confronted with. Strangely enough even with manipulated (analogue or digital) photographs memory can change, when it is convincing, thus creating a false memory. Maybe the influence of new media can even be a threat to the nostalgic feeling people experience.

Photography is a common medium people use to prevent their memories to be forgotten. Making photos has become a part of human culture. Sontag and Barthes already in the analogue world described the way making images of life, affects culture and the memory. In a way the culture of photography has been changed since the introduction of digital photography. In our research we chose to continue the work of Sontag, by working with digital photography as medium because of the properties and specifications of digital cameras and the file formats. Digital cameras are easier to use than analogue ones and are commonly available. A lot of people own a digital camera and have experience with them. We want to find out if the effect on the remembrance with digital photography is different than it was with analogue photography.

research activities

Based on these theories we started two projects. Both projects go deeper into the effects of digital photography on intimate nostalgic emotion. Using our technical knowledge about this medium we focus on the cultural change caused by digital photography. Both projects are meant as a thought experiment. Re-applying two nostalgic elements of human culture to see if the best parts have new possibilities

in the digital world. To support these projects we gathered information with a survey.

survey

Although common sense and people in the field tell us there is a difference between analogue and digital photography it is hard to put into facts and numbers. Because it is almost impossible to cover the complete field of photography and map the differences between everything a focus area was determined.

The two projects are the focus of our research. The questions of project 1 (Digital Polaroid camera) we try to answer are "Are we really taking more photographs with digital camera's and why is this?", "Has our behaviour around photography changed because of digital photography?" and "Do digital photographs have the same value for our memory and the trigger of nostalgia?". With project 2 (Digital shoebox) we try to answer the questions "How do you create quality in a digital photo?" and "How are digital photographs protected against the temporary character of the media it is saved on?".

The question "why do we take more photographs?" is going to be answered by taking the obvious differences between digital and analogue photography. These differences are costs of taking pictures, the automatic functions of the camera and the availability of digital cameras for example. To be able to ask the question, we first have to establish that there is an increase in photos.

The use of technology and the need for computers to do anything with your photos can create a change on our behavior around photography. To measure this change, questions about the aspects of taking, viewing and displaying photos will be asked. Taking photos can be different because of the availability and ease of digital cameras, viewing pictures needs a digital device with display, which has its own use characteristics and culture and to display a digital photo you need completely different approaches like a digital photo frame or internet.

By the increase of photos and possible change in our behavior around photography the value of a picture can change. It is very hard to ask suitable survey questions to see if the value really changed, so we will try to combine the questions asked to be able to say something about this aspect. The value of an image can be a direct link to your memory and a trigger for an autobiographical nostalgic emotion.

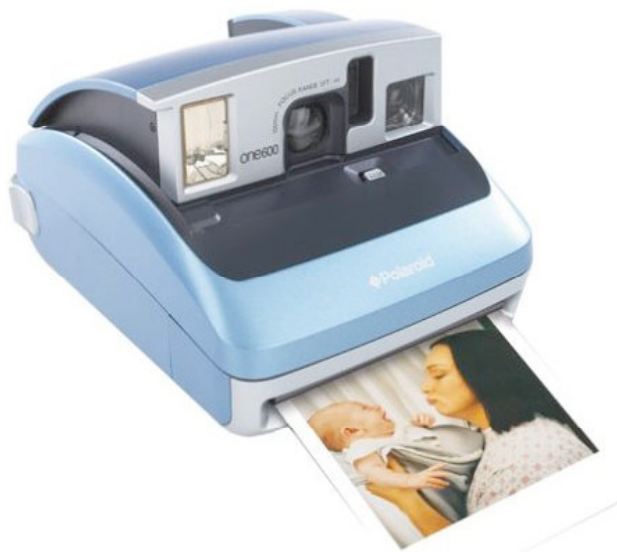
Project 2 focuses on the availability and quality of triggers in future generations. The questions in this part of the survey try to index if and how we tag our photos and, if we are aware of and how we protect ourselves against, the transitoriness of the storage media.

The digital survey counted 67 questions and has been filled out by 172 persons with an average age of 28,5 years old and a standard deviation of 8,5. 52% of the persons are female and 48% are male. The average age of 28,5 for us is very convenient. These people have seen or even used the

analogue camera when they were young and embraced the digital camera in recent years. They also grew up in a technological environment where the use of computers and internet is very common. This is the generation of users who know what was then, and what it is now. Because of this knowledge they will be able to answer the questions we have perfectly.

project 1: the digital polaroid

The Polaroid camera is an icon of its time. The instant gratification you got when taking a picture and being able to have the photo ready within minutes, was a revolution of its time and inspired a new breed of photographers.



In recent years photography has become something of the masses. Everybody in the western countries owns at least one digital camera, also counting mobile phone cameras. Taking pictures was never as easy as it is now, and digital storage makes it easier to store an endless stream of images with almost no costs.

In the 70's and 80's Sontag [8] and Barthes [9] wrote about the commonly available camera which suggests that time only exists out of interesting events.

The survey told us that 19,4 percent of the people who own at least one digital camera always carries it along, 35,5 percent brings a camera along when an interesting situation could occur and 43,0 percent only brings a camera when they go on holiday or at important events. The availability of digital cameras leads to more photo coverage, especially at important events like weddings where 96,4 percent brings a camera. Taking in account that an average digital photographer took 556,6 pictures in the last 12 months (survey result), a big pile of photos is made every year. Who is going to look at all those pictures of an event?

That's one of the reasons why Sontag called photography chronically voyeurism of life, which fades out the meaning of things. Taking photos of people is to violate them, by seeing them as they never see themselves, by having

knowledge of them they can never have; it turns people into objects that can be symbolically possessed.

Next to this effect digital photography provides the photographer with the possibility to make an almost filming stream of photos. It almost looks like that Sontag is getting more and more right by saying that using the camera appeases the anxiety which the work-driven feel about not working when they are on vacation and supposed to be having fun. They have something to do that is like a friendly imitation of work: they can take pictures. Photography still looks like a tool to control any situation. The photographer gives himself a task at any event. He can even change a situation to the way he likes it to be, by changing the scenery or manipulate the image.

Sontag described a collection of analogue photo's as a stream of pictures where separated events become one world made of images. Digital photography makes that effect even worse. You can doubt if any picture made by the digital camera is valuable.

Amateur photographers take a lot of images and trust on the quantity of images to give them quality and the automatic abilities of the camera. As someone said in the survey we created: "It does not matter if the picture is taken professionally, just take it and make a couple more, just to be sure!". The expertise of a good photographer, in their eyes, does not exist and is replaced by the point and click software inside the camera to create the picture. The soul of the image is not in the control of the photographer anymore. The brand and quality of the camera determines the outcome.

Throwing away the bad quality pictures is hardly done, because this takes a lot of time. So even if you have qualitative good pictures, they get lost between the bad ones and the sheer volume of pictures. Still a digital photo is better in transmitting an impression of an event than a movie camera can do, because it is a small cut-out piece of time. But digital photography makes the line between filming and making photos a thin one.

Getting back to the 'good old' Polaroid camera

The analogue Polaroid camera was different. It was a simple point and click device. The Polaroid photo paper is expensive, creating a threshold for taking pictures. Because the pictures you take are important enough to spend a sheet of photo paper on, the photos have a certain quality. The picture gets developed instantly; creating an original picture that can't be reproduced without loss of quality. Also the Polaroid camera is build for one purpose only. If you want to create macro photos you need another camera which is specially suited for this purpose, creating specialized tools. Of digital cameras is expected you can do everything in one device, creating compromises which means the loss of quality.

The properties of direct development and the fact that originals can't be tempered with made the Polaroid camera very popular in the Court of Law. Here they are being used a lot in sexual assault cases because the pictures are directly available as evidence and can't get lost during

development. As an analogue process, it can't be tempered with, so the image always reflexes a truth that a digital image, even if it is in better quality, can't reach. [19], [20]



Polaroid pictures have white space for tags and other writings to remember the context of an image. Digital images have EXIF information but you need a computer and software that can write EXIF information to be able to tag your photos. This makes it much harder to describe the context of a photo. 53,6 percent of our survey responders said they tag their photos, mostly by filename or naming the file folder and in lesser amount in a database or on the internet. This leaves a lot of images untagged, thus lacking triggers for your memory to respond.

Copy versus original

In digital photography you have no original image and reproducing an image is possible without loss of quality. This makes the copy exactly the same as the original and makes every copy worth the same. Not only physical but also mentally.

Having an original image can have significant value and copies can damage the emotional value. Take the painting of Mona Lisa as an example. There are various printed and painted copies available of the Mona Lisa. This is why almost everybody has seen a graphical representation of her, but still there are long lines at the Louvre with people who want to see the original. The copies show the same graphic, but usually are in a different size than the original, disappointing many people when they look at the original. The copies look better in their opinion, this perhaps because of digital enhancement and enlargement.

People still have the urge to have printed copies of their digital images. This can be seen in the growing market of photo books for example. Polaroid is now developing a portable printer / camera solution which can print photos in credit card format directly from a camera. [21] But this printer still contains a memory to save pictures in JPEG format, so there still is a possibility to manipulate images and to shoot a big amount of photos before printing one of them.

In the gathering of pictures a change in behavior has taken place. It is immensely difficult to find all the origins of these changes. To start investigating this subject we started with properties of photography which are different between analogue and digital.

	Yes	No	Uncertain
No costs for taking pictures	91,1%	5,1%	2,8%
Digital camera is easier in use	56,5%	37,3%	6,2%
Availability of digital cameras	63,8%	27,1%	9,0%
Direct feedback of onscreen photo	89,8%	7,3%	2,8%
More options of altering	54,2%	29,4%	15,8%

Next to these properties respondents also came with the liberation of the 12, 24 or 36 photos you could take with an analogue camera, before you have to change and develop the photos. The digital camera almost has limitless memory capability which invites to take more pictures without the need to change anything.

With this much photos going around you would think we do not have to take much pictures anymore. Just copy a photo from somebody else and you will have the same result. In our survey it became clear this also is done on a large scale with digital photographs. 73 percent of the people say they copy digital photographs of other photographers. This is a big difference with analogue photos, where only 27 percent of the respondents copy pictures. In the analogue world of photography making copies never gives back the same quality, making the original version special and valued. Looking at copies will always make you think about the original version. With digital media this is different. Original and copies are exactly the same, you can copy them with no limit, so there is no way to tell which version is the original. The original loses its value and everybody can have it if they wish.

So why take that many digital pictures, when you also copy photos from each other? 84,8% of the respondents still wants to take its own photo of the same object, because of the emotional value. Photos from other photographers can be very nice, but seem to lack emotional value because you did not take the photo yourself. A part of the emotional value seems to be the feeling of having an original photo. 76,8% said that this aspect plays a role in deciding between copying or taking a photo. By asking openly about other influences 24,1% of the respondents also came up with "having proof I have been there". When you copy a photo, it does not prove you have been to the actual event.

The survey also contained a little memory game. During this memory game you had to retrieve two different memories from your personal history. Of the first memory there can be no photo material available, and the second memory there must be photo material available. The game was developed to see if there is a difference between how you remember them. 69,8% of the respondents who did the experiment has a more detailed memory of the memory with images and if we look at what type of components the memory is composed from, 92,5% says it at least involves images. The memory without pictures available rates lower with 76,1%. Other components like sound (~33%), smell (~16%), taste (~6%), feelings (~73%) and emotion (~68%) have no significantly different values.

Next to taking pictures, viewing pictures can also be different. Looking at pictures on a screen or from an album can make a big difference. In the survey the question was asked about how the respondent usually looked at pictures.

Computer	25,05%
Internet	16,81%
On the photo device	16,25%
Photo book	15,55%
Framed photo	15,28%
Shoebox	8,45%
Digital photo frame	2,61%

Like shown in the table above, the computer is used most often as a medium to look at pictures, followed by internet and looking at photos on the photo device, like the digital camera or a camera-enabled phone. An analogue way of looking at pictures, the photo book comes in at 4th place and is closely followed by the framed photos, mostly used for decoration inside a house. This is no surprise when you take the amount of available digital pictures in comparison to the amount of analogue pictures.

Because of the increasing amount of pictures, 93,8% of the respondents look at pictures more often and 85,8% also looks at a bigger amount of pictures than they did 10 years ago. This bigger amount of photos is not the complete collection of photos taken at an event. The increase in photos also makes us more selective in which pictures we watch. With analogue photos 68,9% of the respondents view the complete album. With a digital photo album this number dropped to 56,5%. Not only the quantity of pictures can be held responsible for this outcome. Also because a lot of people take several pictures of the same thing, you can skip through the pictures easier.

Another aspect of behaviour in viewing pictures is the setting in which you are watching them. Are you alone or in a group, when you refresh your memories? Digital media,

like the computer, are less suitable for group viewing and this also became clear in the survey. Viewing an album with a computer is considered a group activity in 2,3% of the time. Physical photo books are viewed in groups 14,5% of the time. This also means that people are viewing digital pictures on a computer alone in 47,1% of the time. Physical photo books are viewed alone 23,7% of the time.

Remembering an event alone with many pictures is a complete different situation than remembering an event with a group of people with none, or little pictures available. In the research area of collective memories several studies by Rousseau, Hegel but also McDougall, Ross, Durkheim, Wundt and LeBon for example have shown that the group has a mental life thus can form a collective memory. These collective memories are formed by the combined stories of the group. These stories are all personal nostalgic experiences and, by having no real evidence, are romanticized. Because everybody has their own experiences you build a very diverse, but also very subjective image of a nostalgic event. Being alone and being confronted with many pictures there is much less room to build a subjective romanticized version of the event, thus creating another form of experience.

Solution

In reaction to the continuous stream of photos with reduced photographic quality, we created The Digital Polaroid camera. The digital Polaroid camera is a device to make people aware of the effects of digital cameras and tries to bring back the quality in photographs, to get quality instead of quantity.

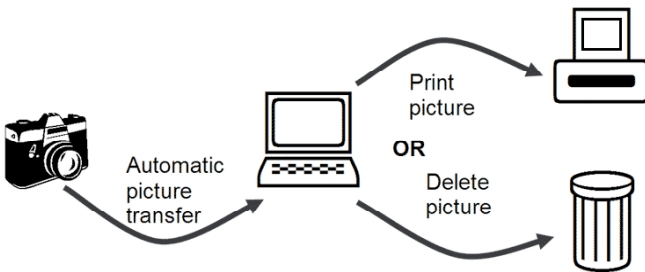
To obtain this goal, the properties that cause the behavioural change have to be undone, but without undoing the usefull features of the digital camera. So, you can take a picture and preview it, without any harm, but you have to decide within 60 seconds what to do with it. Two options are given: "delete" and "print". Delete means you will never see the picture again and it will be permanently gone. "Print" means the picture will be printed on "Polaroid" paper, which costs money.



Because printing costs money you bring back part of the threshold analogue and Polaroid cameras had. Before you print you have to decide about the quality of the taken picture, so no unnecessary pictures will be saved and quality will be restored.

The printed Polaroid pictures can be tagged with a pen and will be hung on a photo wall. The photo wall is a medium that is very well suited for large group viewing, making sure you will never have to view your photos alone. Not having too much photos, but of high quality, will make sure a nostalgic memory will arise in due time.

The setup consists out of a wireless digital camera, a computer and a photo printer. The computer contains software which takes care of the choice between “delete” or “print”. When “delete” is pressed within 60 seconds or when no action is taken, the picture will be deleted for ever, else the picture will be printed with a photo printer and will also be deleted, so the printed picture is the only copy remaining, thus becomes the original.



project 2 : the digital shoebox

One classic way of conserving pictures, articles from newspapers, letters and other personal heritage, is putting them into a shoebox. In the past people found these boxes on attics of elderly people, which gave them a glimpse of the lives of their ancestors. In these boxes they found analogue photo material, with on the backsides usually descriptions of what's on the image.



Digital sustainability of personal heritage

New technology and new media provide us the possibility to create and store photos and information digitally, making an old-fashioned shoebox for storing images superfluous. Because of this, you will not find shoeboxes containing pictures and information anymore. But the way we store our media these days on personal computers and internet servers is not yet an answer to the digital sustainability of

these media. Will those computers and media still work tomorrow? Will a burned CD still be readable? And what will happen with a commonly used file format like JPEG in ten or twenty years?

Our survey shows that people do not think about the preservation of their heritage and are not consequently tagging their photos. Only 53,6% of the respondents says they tag photos. This can be their complete collection or just a part of it. When they copy a picture from somebody else and that person has tagged the photo, only 27,1% also copies the tags along. Not copying the tag for us is losing a piece of quality, especially when it is provided by the photographer.

Especially in a time where storing data is made so easy, people are lazy when it comes to describing the images and are not thinking ahead. People also do not think about the medium where they store their photos. Many think internet has the best of both worlds; you can store your images safely and you can share them with others. In our survey we asked the respondents to put media for storing images in a specific order from “trustworthy” to “not to be trusted”. The results only prove people do not know which media are good or bad for storing data.

Medium:	Percentage:
External Harddisk	24.39
cd-rom / dvd-rom	20.25
Internal Harddisk	19.96
USB Memorystick	13.00
Internet	12.59
Memory card	9.81

External and mobile devices like the external hard disk, USB memory stick or even the cd-rom have the risk to get lost or to fall to pieces. Devices with moving parts like the hard disk will brake down eventually. Research showed that hard drives have a nominal life expectancy of 5 years [22]. This is hardly enough to save our pictures for future generations but at the same time is (combined external / internal hard disk drive) the most popular storage device. Storage media with organic tissue like cd-rom or dvd-rom has a slightly better life expectancy of 9 years. After this period of time parts of the surface will be unreadable through a corrosion process. Solid state devices like the USB memory stick and the memory card do not have any moving parts so are very rugged. Not considering that you can lose them, because they are so small, these devices are the most trustworthy for saving your photos. Solid state devices have a downside to however. The current generation only survives 20.000 read/write operations in one cell before decay of the memory cells will set in. This means you can store your images for a very long time on the disk, but after 20.000 times of viewing, you will have to make a new copy. This

however can take a long time. Future generations promise more than a million r/w operations without decay.

Saving your precious pictures on internet can be even worse. They give the impression of being reliable and a growing group of people use commercial websites to store a serious amount of pictures. Reading through the "Terms of use" of those websites reveals how much they really care about the preservation of images. Facebook.com for example writes the following "You understand and agree that the Company may, but is not obligated to, review the Site and may delete or remove (without notice) any Site Content or User Content in its sole discretion, for any reason or no reason ...". Many other websites including Picasa.com, Flickr.com, Hyves.nl (Dutch social network), zoom.nl, photobucket.com, deviantart.com and pbase.com have comparative content in their "Terms of use".

Luckily 71,1% of the respondents saves their images on different media at the same time, but this only lessens the odds of losing pictures, and not eliminates it. Regularly creating new copies of photos is only done by 30,7% of the respondents and printing images as a mean of backup is done by 39,2% of the respondents.

Clear for us was that some of the respondents are aware of the transitoriness of digital storage, but that they choose the wrong means to solve the problem. It is not in our way of thinking to think ahead very far. Computers are replaced normally every 3 years and the photos move along.

File formats

There are too many different file formats for saving images in. Consumer camera's offer the JPEG format and more professional camera's use TIFF or RAW. In the JPEG compression a lot of data from the original image on the light sensitive chip (CCD) of the camera get lost. RAW format allows the user to postpone this compression to a later stadium, so the user can adjust the compression values himself. One problem however is the fact that every camera offers another, brand decently, RAW format. Another problem with digital image file formats is that consumer camera files (mostly jpeg) don't offer the user to put in their metadata on an easy way.

Adobe is reacting on this by developing two things. First they create an XML standard for saving metadata in the JPEG file format, called XMP (Adobe's Extensible Metadata Platform) Second: Adobe gets back to the original by creating a digital negative (DNG), an open archive standard for RAW images universal for all cameras. DNG is an extension of the TIFF 6.0 standard and can contain metadata like EXIF or XMP.

Digital sustainability of file formats

Research in the project Planets[23] learns us that 65% of worlds cultural heritage organisations use the TIFF format as digital sustainable file format and 55% use JPEG.

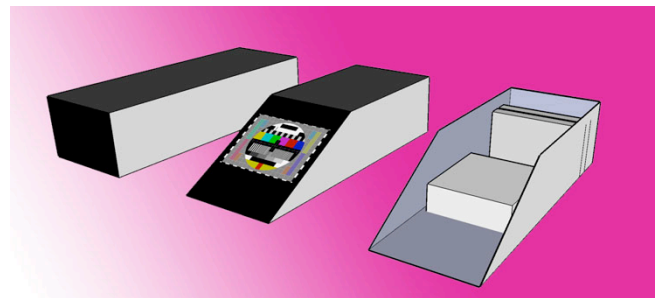
Solution

To make future findings of media possible we suggest to create a digital shoebox. A storage device to save personal heritage digital sustainable and tagged. The digital shoebox

is fireproof and has the dimensions of a common shoebox. It houses a large storage device and is standalone because of its own operating system, screen and interface.

To store media on the storage device the shoebox provides a replaceable connection interface. For now it will be a RJ45 network port and a USB 2.0 port. In the future you can buy a dongle of a new interface and replace the old one.

To store files in the shoebox they have to be saved in an open file format. We think that .raw, .bmp or .tiff is still a valid format in the future. JPEG is a format what is changing because of the compression it uses. Metadata has to be saved in annotated ASCII files like the XML and RDF standard.



Specifications

The shoebox is a black box made of fireproof material, like iron and consists out of an outer shell (left) and an inner device (middle). On top of the device there is a touch screen with the operating system. In this way the Digital Shoebox is a standalone device.

In the inside of the box there is a CPU processing unit (small box in front) containing the operating system stored on a ROM chip. At the backside of the box there are two storage media (Sold State Disk) set up in RAID configuration to offer a continuous backup facility.

To make a connection with the pc a mountable outlet is situated on the backside of the Shoebox. Normally there will be a USB2.0 and a RJ-45 Network outlet, but the moment technology provides better and faster communication with different connections, you can just buy a new outlet module, to upgrade the Shoebox.

An external power supply containing a power peak protection unit protects the box for influences from outside.



final discussion

Could there be more triggers, now we have more photos of our life?

People seem to need proof, to show where they have been so they take their own pictures instead of copying them from somebody. Digitally there does not have to be a difference between original and copy, so when you show your pictures, nobody can even see if they are yours or not.

Your own analogue and digital photos secure a bit of emotion of the event you covered. Taking more photographs creates a more detailed emotional map of the event, thus can create a more detailed memory.

How do we remember the nostalgic event; is there a more graphical memory?

Response on the survey pointed out that there is indeed a change in the way we store memories. People responded that they remember more graphical images of the event when there are pictures available.

How do we care for our photographic triggers now they are digital?

Based on our survey results we can say that a lot of people don't really bother how they save their photos and metadata sustainable. People trust on unreliable and uncontrollable media like the hard disk (lifecycle 5 years) and online photo albums (with agreements telling that the company can quit services or delete pictures at any time).

Where technology already offers several possibilities to save metadata of digital photos, just the half of our survey responders actually registers their metadata. One tenth of them uses the official Metadata techniques, but the rest only uses artifices.

Both choices people make around saving their photos and their metadata will affect the way we experience the nostalgic emotion. We will not find a shoebox on the attic anymore. The classic shoebox, with paper-based pictures and on the backside the 'metadata'. No, in 2028 we have to deal with 20 year old computers or hard disks with some alien hardware and software interfaces we don't now

anymore. We cannot access all those files anymore and our outdated metadata artifices.

But the responders on our survey don't seem to bother about these things. It takes money and time to save all our digital images (average 557 a year) and a full description of them. It looks like the large amount of data and the quickly changing world of new media poses a threat on future nostalgic experience.

Are the statements Sontag proposed around analogue photography still valid in case of digital photography?

Where Sontag wrote about the commonly available camera which suggests that time only exists out of interesting events, her statement is still valid for digital cameras. Because they are commonly available, people are able to make even more pictures than they did already in the analogue era. Sontag her opinion about the continuous stream of photos is, that it looks like chronically voyeurism. The fact every event is often digitally photographed makes that even worse. Also the statement Sontag made around the work replacing effect of photography during events is still valid and also even worse in digital photography.

New media kills nostalgia?

In the end we think that new media can change nostalgic experiences by providing more factual data than our memory normally stores about events. The cultural change around photography has given a new perspective on making photos. Even looking at pictures has been changed from a family happening to something individual.

But we also think new media can support nostalgia, by providing the viewer better cues to remember events and through the big amount of digital pictures giving a better overview of events that happened.

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