# Mélange

## A Rich Blend of Online Media

for Creative Professionals, by Aernout Peeters

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# 1 Introduction

In their educations, designers are taught to use inspirational material in their design processes. This inspirational material comes in various forms and is gathered from different sources. Designers tend to think visually, therefore most of this inspirational material is visual in nature, such as photographs, film clips, magazine clippings and sketches. This material is gathered from various sources, often opportunistically, and then added to personal collections. When residing inside a collection, these sources of inspiration have all but no meaning relative to a design problem, but get that meaning when they're used in designers' creativity processes. A designer may tap into such a collection in order to tell a story, exemplify a certain mood, show examples of products relevant to the problem, etc. Using collections for these purposes has both personal and social aspects: the aforementioned visual thinking is personal in nature, enabling the designer to frame a solution space, whereas story telling and collage making are often used to create a common frame of reference among colleagues. Doing so, these sources of inspiration get their meaning as supports for creative exploration.

Widespread ownership of computers and other digital electronics, such as digital camera's and digital audio players, has changed consumers' relation their media. Fueled by the increasing speed and density of broadband internet connections has consumers shifting their focus from physical media towards digital media, often accessed through their internet connections. Whereas the old media are going through rough times, companies have recognized the potential for growth in online media, due to its richer nature, and are shifting their focus as well, making online media more and more dominant.

Designers and other creative professionals are looking more and more into digital media, both for inspiration as well as for publication. The nature of digital media, however, has changed the rules. In order to be able to use media in their projects, designers probably always will collect and sort that which inspires them, making those media ready for future use, like making collages. Those collections used to be predominantly physical, but these popular new media are found online in digital formats, often ill-suited for collecting, let alone for using these media in digital equivalents of collages. In order to create, maintain and effectively use collections of digital media, specialized services and tools are need if the contents of those collections are to be effective in the hands of designers and other creative professionals.

This project is an attempt to try and come up with a tool, capable of tapping into those collections and allow creative professionals to get inspired once more, by being able to manipulate the contents of those collections, aiming for an interface that feels as close as possible to handling physical material, while recognizing the richness and potential these digital media provide. Effectively, this project tries to put the best of both worlds into a tool, which could best described as an online scrapbook.

Through research and personal experience, I will formulate a vision of this digital scrapbooking tool. This vision will focus on what such a tool can mean for creative professionals, recognizing both personal use as well as social use. This vision isn't static, but will evolve as this project develops and come to full fruition using a process called research through design, which is the de facto methodology for projects hosted by the ID-StudioLab. The design aspect will focus on creating prototypes, exploring the possibilities of new media and internet technologies. The results of this prototyping and confronting others with it will be analyzed and fed into the next round of design, and so on, and so on. Also these results will help to make the original vision more clear, which will, in conjunction with the prototypes, help to create a combined prototype, embodying this vision.

Finally, the combined prototype is shortly tried with people working in creative professions, which will, through presenting results of people's use, demonstrate the envisioned concept's use and adequacy as tool for creative professionals.

# 2 In Theory

**Designers and other creative professionals use visual material and other media in their creative processes in order to get inspired. This inspiration comes from the informal handling of this material, evoking an inner dialog; designers often combine visual material in collages to frame moods or solution spaces. During their careers, creative professionals tend to collect this material for inspiration whenever they can and add it to a personal collection, ready to be used at any time. Anything may be effectively collected and used as long as it can easily be handled. This is exactly where the problem lies with today's dominant media; while rich in nature, digital material for inspiration, such as images and videos, need to be mediated by interfaces in order to be handled. This isn't necessarily a bad thing, but computers are ill-equipped by nature for informal interactions. Necessary for creative exploration, these informal interactions may be enabled by designing tools to be simple, while offering a high degree of freedom.**

## 2.1 Today's Special

Ever since the first design assignment I was given in my education to become a design engineer, I was taught to make collages. These collages were either made up from multiple images of products similar to the product to be designed, or a mix of all kind of imagery made into a single image conveying a type of mood. Designers make collages on a regular basis and for this and for other reasons and maintain one or more collections of visual and other forms of inspirational material. Now that the focus is switching towards digital media, new ways of maintaining collections of those media are needed, as well as supporting their use in creativity processes is.

### 2.1.1 Once upon a time...

My personal interest in collages, started before my formally becoming a designer or even before I was sure I wanted to become one. It may have been instrumental in my wanting to become one, though. When I was fifteen, thanks to a good friend of mine, I started reading graphic novels (comics for grown-ups) and became somewhat intrigued by one artist's work on these novels' covers. This artist, Dave McKean, was making the most wonderful collages with imagery, photos, objects and paint, by which he managed to convey surreal and macabre feelings not dissimilar to the works of Jeroen Bosch and Salvador Dali.

When he started using a computer to do image manipulation, a whole new world of opportunities opened up to him, allowing him to combine his old way of working with the editing possibilities of PhotoShop. While I didn't have a studio full of creative tools and the skill to use it, I got hold of a copy of a trial version of a competitor to PhotoShop and attempted to emulate MacKean's work, which I didn't come even close to, but I was satisfied with my first few explorations with my first digital tool for creativity. Unfortunately, getting the source material for manipulation was somewhat of hassle in those days, as scanners, digital camera's and the world wide web were either too expensive or not available, so I had to make due with every image I could find and use my time online wisely.

*Fig. 2-1: Works by Jeroen Bosch, Salvador Dali, Dave McKean and myself*

Collages in design are mostly made at the end of the analysis phase, where the problem is defined, or at the beginning of synthesis or conceptual phase, where the designer starts to work on solutions. Depending on the problem and what the designer wants to achieve with the collage, it can have many purposes; framing a solution space for the the designer to work with, setting a tone or mood, showing swatches and samples of materials to work with, revealing the lifestyle of a target audience, inspire and spark imagination, etc. There may be multiple formalized approaches how to use collages in the design process, but I was taught only one[1], which has the designer analyze the collage and apply keywords to it in order to form explicit design criteria. The dominant uses I know seem to rely on tacit knowledge, where that which the collage is supposed to express resides in the back of the designer's mind, or is used as a communication tool to share its subject(s) with others.

[1] Muller, W.: Order and Meaning in Design *Utrecht: Lemma (2001)*

In my early years at the faculty of Industrial Design Engineering, when I finally did have a scanner by the way, my fellow students and I would opportunistically scavenge for materials to be used in the collages we had to make, for example by taking a glossy commuter magazine called "RAILS" from trains, despite its subtitle saying it belonged in the train. In fact any magazine with magazine with color pictures would do, especially if it featured design products and cool looking people. Computers could hardly play any role in making collages since much more source material was physical and if a web-based image search would yield results, most images would be low-quality anyway. Most students would accumulate quite the collection over the years, ready to be used at any opportunity for making another collage. It seems that there is an explicit goal for maintaining such a collection among students, making collages that is, but most professional designers keep on collecting the same kind of imagery from similar sources during their careers.

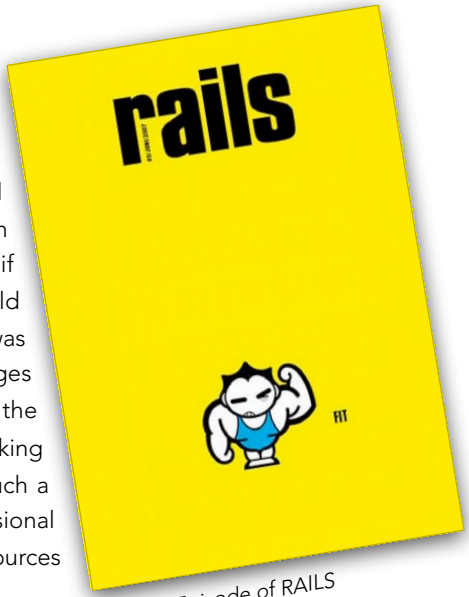

Fig 2.2: Episode of RAILS

### 2.1.2 Designers and their media

While not used for collages per se, although some designers still do, the collection the designer maintains has its own right of existence, as designers may use it at any opportunity to get inspired, to refer to, to use it as a vehicle for telling a story or just for personal enjoyment and the sake of collecting itself.[2] Most collections consist of images and objects, making it rich in nature and thereby useful in various areas of application and creativity. Classically, these collections are of a physical nature, making the use of a collection in creativity processes as well as maintaining it relatively easy. The shift to digital media and digital collections, mainly fueled by cheap broadband internet access, means that old, physical media are being pushed away by their new and digital counterparts. These media are plentiful, easily available and rich in content, but don't afford the same freedom in interacting with them as their physical counterparts. Maintaining and using a collection of these media is therefore relatively hard as these actions aren't supported by these new media themselves. In order to use digital media in such ways, a designer needs tools.

Just as their collections, designers have and probably always will maintain a close relationship to the tools they use to support their creative processes, giving form to the ideas residing in their heads. Tools come in many shapes and and size and can have a highly specific area of application, like a drafting table and splines for making

[2] Keller, A.I.: For Inspiration Only *Doctoral Thesis, Delft University of Technology (2005)*

technical drawings or a more general one like a pencil and paper for sketching while generating ideas. Common in these tools is the fact that they are specialized; only one or a few of tasks may be done using the tool, making its application limited, yet powerful. Ever since the personal computer became the main workhorse for just about every professional behind a desk, including designers and other creative professionals, the conceptual phase is under stress.[3] The nowadays pervasive computer, being the least specialized tool out there, excels at handling tools for detailed design work such as technical drawings, but fails miserably towards the sketchy end of the spectrum. Still, even as a detailed tool, they have their shortcomings, especially in the interactive relationship with the user; most CAD tools have been created with the task and result in mind, all but forgetting about the user. That being said, things have changed for the better during the last decade, giving rise to usability and user-centered design, as well as opening the door to informal, low-threshold and expressive tools.

## 2.2 Food for Inspiration

Inspirational material comes in many shapes in sizes, but generally speaking it has both visual and physical properties. People may use this material to get inspired by referencing to it, use it to support visual thinking, story telling and framing, and share it with others in order to communicate. Designers and other creative professionals need to be able to easily collect and handle this material if they're to use it for supporting their creative processes, expressing themselves and sharing the results with others. Classic media, like printed material, have always supported this very well, but rapidly changing state of the art dictates that creative professionals adjust to new media, which do not support this due to their digital nature. While enabling new opportunities, proper tools are required if these media are to be effective in creativity processes.

### 2.2.1 Sources of inspiration

Before showing how inspirational material matters to designers and other creative professionals, it's important to establish what this inspirational material is. With respect to classical media, or old media as some would say, four types may be concerned: images, sketches, objects and samples. Most images tend to be either photos or printed material, but can also be things like paintings. Sketches are also imagery, but tend to stem from a single source, that is, the person who drew them in the first place. Most objects used as creativity inputs tend to be examples of that which people are trying to create; in the case of product designers, these are products and for fashion designers these are clothes. They can be either examples of the whole object to be created or of a part, like a particular working mechanism. Many images also tend to be representations of products. Samples or

[3] Stappers, P.J.: Creative connections: user, designer, context, and tools *Personal Ubiquitous Computing, Vol. 10, No 2-3. (2006) 95–100*

swatches tend to be possible properties of what is to be created, like material samples, pieces of fabric or color swatches. It should be noted that the one common nature in all four of these is that they are all (mainly) visual in nature.

With this somewhat formal description the nature and appearance of inspirational material, it's time to explore what these materials mean to creative people and how they may use them. As the name implies inspiration is the reason most often mentioned for surrounding oneself with such material. Eckert, who did multiple studies on the use of inspirational material in knitwear design, calls these sources of inspiration.[4] A source of inspiration denotes the conscious use of previous designs, other objects and images in a design process and is divided into five areas: starting design (reference transformed to create new design), precedent (authoritative design as example), reuse (use of existing component in new context), pattern (manifestation of solution principle) and primary generator (a prominent aspect of the problem shaping the design). These sources of inspiration have three roles in design processes: defining context, triggering idea generation and structuring designers' mental representations of designs.

The most commonly mentioned categories of inspiration tend to be referencing, visual thinking, storytelling, sharing and framing. The five points Eckert mentioned for example all fall into the category of referencing. A reference is always something that's remembered as having relevance to the (design) problem at hand. A reference may very well be used as a precedent, which is a reference to that which is to be created, often having some authoritative value; when a designer has been commissioned to design a highly stylized, yet classic chair, he or she might refer to the famous Barcalona chair by Ludwig Mies van der Rohe. This coincides with the collages of "comparable products" students at the our faculty have to make during their design exercises.

With visual thinking, it's not so much the result that is important, but what the interacting with the material does inside the designer's head. Sketching is often valued as visual thinking tool, allowing the sketcher to create an inner dialog in order to generate possible solutions.[5] An important aspect for this dialog to occur is the ambiguous nature of a sketch, allowing it to be reinterpreted in order to spark new ideas. It is believed that free manipulation of inspirational material, when making a collage for example, can evoke this same dialog as well.[3] Sequences of images have been used for ages as a means of non-verbal storytelling. Toddlers' books, movies, comics, storyboards and even ancient forms like the Bayeux tapestry and Egyptian murals all tell stories by

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[4] Eckert, C.M. & Stacey, M.K.: Sources of inspiration: A language of design. *Design Studies, Vol. 21, No. 5. (2000) 523-538*

[5] Verstijnen, I.M., Hennesey, J.M., Leeuwen, C. van, Hamel, R.: Sketching and creative discovery *Design Studies, Vol.19, No. 4. (1998) 519-546*

displaying imagery in a more or less linear fashion. Among filmmakers and designers, in particular interaction designers, storyboards are highly valued as media to communicate with colleagues.

Overlapping somewhat with story telling, the aspect of sharing deals with how inspirational material may be used as a vehicle for enabling or even provoking communication. At its most basic form, two or more designers working together in a team often use visual material and objects to get a point across in an attempt to share their own visual thinking with others. This material may also be shared with colleagues in less formal ways; desks and walls are often being used to exhibit work. Within so-called Communities of Practice[6] this is referred to as border resources, which may be used particularly as an informal means for learning what goes on within the community.[7] Lastly, between communities or within Communities of Interest such materials may be used as so-called boundary objects, in which the two or more communities share the same interest(s).[8] Thus the inspirational material serves as a vehicle for sharing interests being two or more communities. This particular use, however, is probably not so common with regard to visual thinking, since this process can only be properly understood by creative people. A combination or composition of inspirational material is often used to frame a possible solution space or a part thereof. This can be an overview of people belonging to a target audience showing their lifestyles and needs, for example.

| **Categorie** | **Reason** |
|---|---|
| Referencing | Direct relevance to the design problem, like an authoritative precedent |
| Visual Thinking | Inner dialog sparks idea generation through free association |
| Storytelling | Remembering, insight into causality, entertainment |
| Sharing | Communication of ideas |
| Framing | Delimiting a creative solution space |

*Table 2.1: Categories of inspiration*

[6] Wenger, E.: Communities of Practice: Learning, Meaning, and Identity Cambridge University Press, New York (1998)

[7] Brown, J.S., and Duguid, P.: Borderline Issues: Social and material aspects of design. Journal of Human Computer Interaction, Vol. 9. (1994) 3-36

[8] Warr, A. & O'Neill, E.: Tool Support for Creativity Using Externalizations *Proceedings of the 6th ACM SIGCHI conference on Creativity & Cognition, ACM Press (2007) 127-136*

### 2.2.2 Inspiration guiding creativity

According to Shneiderman, creativity is a four step process: collecting (looking for material in order learn and get inspired), relating (consulting with peers at multiple stages to get feedback on the process), creating (exploring, composing and evaluating possible solutions) and donating (contributing to "public" sources, like the ones collected from at the beginning.[9] If the second step of relating is omitted, a classic three step process of input, throughput and output becomes clear. One might argue that relating isn't so much a step within this process, but more of a separate process running parallel to the remaining three step process.

Creative people tend to collect that which is inspiring to them. Collecting inspirational material can occur in multiple ways, like searching, browsing and encountering. When a designer unwittingly comes across, let's say an image relevant to what he or she is currently working on or possibly relevant to future products, the designer is having a serendipitous encounter with inspirational material, which may or may not be added to a collection of inspirational material. Browsing is an explorative task, where a creative person is browsing through various sources, like magazines, photos, samples, websites, etc., looking for inspirational material to use within a project or to add to a personal collection. Lastly, searching is a highly focused activity, where the person doing the searching already knows what he or she is looking for, like a product sporting a specific type of closing mechanism.

While creative people will often collect inspirational material for the joy of collecting, it is often done for the purpose of doing something with it within creative processes. The meaning of inspirational material to creative people (discussed earlier), is mainly made in the second step. Here the material is explored further by manipulating and composing it in order to find new insights; ideation may be sparked by finding relations between materials combined in collages. Note that multiple types of material may be combined, like photos with objects and sketches with samples. Creativity is hardly ever a purely solitary activity[10] (even self-employed designers have to confer with their clients), making


*Fig 2.3: Collage denoting materials and style*

[9] Shneiderman, B.: Creativity Support Tools *Communications of the ACM, Vol. 45, No. 10. (2002) 116-120*

[10] Fischer, G.: Distances and Diversity: Sources for Social Creativity *Proceedings of the 5th conference on Creativity & Cognition, ACM Press (2005) 128-136*

the third and final step all the more logical. The results of the second step in the form of collages, insights, ideas, etc. are often meant to be shared with other people, like fellow creative people for advice, experts for specific information or clients for approval. This can occur formally by doing carefully created presentations for clients or informally by filling the office walls with material currently being worked on. This final step also helps other people to get inspired, by returning the transformed materials to the very sources they came from, starting the cycle anew.

### 2.2.3 The digital state of the media

New media are being consumed by the gigabyte nowadays, giving rise to the so-called digital lifestyle. Most people have digital cameras, portable digital audio players, personal computers with loads of storage space and internet connections to match, allowing them to accumulate huge collections of different kinds of media as well as to consume and publicize it on demand. With the focus shifting towards new media, it would make sense for designers adopt these media and use them within their creative processes. The problem, however, is that the media's digital nature requires a computer for working with it, which mostly comes only with a classic file/folder structure for organizing content. This is a poor metaphor for most if not all media, as it hides the richness of the media behind tiny iconic representations, making browsing through collections a chore. In order to overcome this limitation, multiple tools exist for managing collections of media, like music and photos, but most of those solely focus on arranging the collection like books in a library and can deal with only one type of media at a time.

A collection of anything is meaningless without being appropriately arranged and sorted, denoting commitment. Depending on what the designer is to achieve using a collection, a tool for arranging and sorting it will differ vastly in functionality and aesthetics; the metaphor of a library is fine if only an index is needed, but if a user is to be creative through making collages, a user needs to be able to manipulate the material itself and to create a meaningful overview by arranging the source material as he or she wants. Manipulation is something where our physical reality really shines; since we can directly handle the material we're working with, at the tips of our fingers instead of being mediated through an interface, be it physical or virtual. But as stated before, the material itself is located more and more on our computers, which means that a tool for manipulating collections will also have to reside on our computers. So on the one hand, computers limit users' movements and interactions, yet designers us to get access to more inspirational material, that's more diverse in nature and is more easily accessible through the internet. Moreover the very source were it the media came from in the first place can also serve as an excellent publication medium, enabling the designer to share the produce of their creativity with others in order to stimulate communication.

An opportunity presents itself here. There is readily available digital media for creating dynamic collages, moodboards and other kinds of arrangements, which may inspire, be reference to, be shared or be used in any other way to support creative processes. The only thing missing is a way to combine these things. The fact that I stem from the faculty of Industrial Design Engineering makes design engineers and product designers the obvious choice as potential users, but I feel this is too limited. Within other creative professions, like in knitwear, clothes designers use collections of samples and art books in their creative processes.[4] This leads me to define my target audience as creative professionals, consisting of product designers, fashion designers, architects, writers, people working in advertising, artists, even teachers and so many more. By offering them something which is perhaps best described as a 21st century scrapbook (in my mind a bundle of collages), I hope to give them the tools to bring together those media which I think will rule the landscape in the coming decade.

## 2.3 Creative Cutlery

By their very nature, computers, with their one input fits all approach, make bad tools, especially when it comes to creative exploration. However, their potential in dealing with media, in terms of acquiring, manipulating and sharing it, still holds great promise. In order to be effective as tools for creative exploration, creative professionals need to able to use computers in less formal ways. The need to manage the vast amounts of digital media consumers own has been recognized by companies, resulting in various applications allowing users to collect, sort and arrange their media in grid-like structures. This database driven approach is too formal for creative exploration, as designers tend to rely on their own spatial memory. A tool that does explore creative exploration with inspirational material needs to focus its functionality, while offering a high degree of freedom, allowing informal and opportunistic uses.

### 2.3.1 Computers as tools

At its most basic definition, a tool for creativity allows its users to express themselves in one way or another. The detailing phase of design processes requires highly unambiguous results, necessary for keeping production costs low and and controlling quality. A tool, that's intended to support this, needs to address these needs, by allowing or even demanding explicit input, like when making technical drawings on a drafting table. On the other side, creative exploration is by nature an informal activity, belonging to the conceptual phase of design and therefore

requiring informal tools to support this.[2,11,12,13] In the case of designers, perhaps the most important and yet very basic tool is the mighty pencil, allowing its user to produce quick and ambiguous results.

Physical collections don't need tools, save for a pair of scissors for cutting out images or a container to store the collection. Among other things, this makes that collecting is so pervasive, which it wouldn't be if it couldn't be done so informally and opportunistically. However, there is a simple case to be made for maintaining and using collections on the computer. First of all, almost every creative professional, and many other professionals for that matter, uses a computer for their daily work, secondly inspirational material seems to be coming less and less from our physical world, but from our digital cameras and broadband internet connections. The vast storage capabilities and the fact that a computer can do just about anything make it seem as if computers are a sinecure. To say it in other, albeit very corny, words, one tool to rule them all.

If the computer really is the killer app whereas tools are concerned, why is it that designers still prefer the simpleness of a pencil and a piece of paper during ideation and will only turn to their computers when a design has to be detailed? For the latter, CAD tools, for making technical drawings, and 3D modeling can be tremendously useful and powerful; both the high precision and the high level of detail make that their users can produce highly detailed and unambiguous results. The consequence of this is that these tools require very explicit and formal input which tends to rely heavily on verbal expression.[3] These aspects, while highly appreciated for detailing a design, are exactly what keeps designers going back to their trusted pencils. As established earlier, activities like sketching and collage making enable designers and other creative professionals to think visually, engaging themselves in a discussion with themselves. This discussion is made possible by the ambiguous nature of these tools and their results, something CAD tools are inherently bad at. Moreover the formal nature and high threshold of CAD tools and their reliance on verbal expression makes them unsuitable for exploration and discovery, which is exactly what is needed during ideation.

This is not to say no efforts have been or are still being made on informal computerized tools for creativity. As early as the nineties efforts were made to support creativity in much less formal ways, recognizing the resource of

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[11] Keller, A.I., Stappers, P.J., Vroegindeweij, S.: Supporting informal collections of digital images: organizing, browsing and sharing *Proceedings of the conference on Dutch directions in HCI, Sigchi.nl (2004)*

[12] Cook, D.J. & Bailey, B.P.: Designers' Use of Paper and the Implications for Informal Tools *Proceedings of the 19th conference of the computer-human interaction special interest group (CHISIG) of Australia on Computer-human interaction: citizens online: considerations for today and the future (2005) 1-10*

[13] Landay, J.A. & Myers, B.A.: Sketching Interfaces: Toward More Human Interface Design *Computer, Vol. 34, No. 3. (2001) 56-64*

ambiguity in sketching.[14] Others have argued that the controlled vagueness of sketches, models and collages should be reflected in any tool supporting creative exploration. When it comes to supporting creativity ambiguity and exploration are often heralded as the main aspects, the latter probably being made possible by the former. Other aspects include searching, visualizing, (visual) thinking, composing, collecting, storytelling and sharing. The most obvious tools supporting these aspects are digital versions of physical tools, like Autodesk Sketchbook Pro[15] for example. The issue isn't actually just which activities tool supports, but also how it accomplishes this support. In order to effectively support ambiguity and exploration, a tool for creativity needs to be informal, many argue. Informality here means that the tool may be used opportunistically, has a low threshold and is open to a user's personal aesthetics. In order to achieve this, the tool should have a focused functionality, yet a high degree of freedom so a user may switch rapidly between activities. The right aesthetics in terms of a tool's look and feel may be helpful if applied correctly; in most cases this means that the tools aesthetics are minimal, allowing the user's created aesthetics to be dominant.

### 2.3.2 Tools for collections

Creative exploration and discovery, like sketching, may be used for generating feasible product ideas, but more often than not, it's used to stimulate imagination and visual thinking.[14,16] A collection may help in this visual thinking or internal dialogue as it is also called. Not only does dealing with collections share the aspect of visual thinking, also the informal nature is shared with sketching. Both the nature of the collection (anything may be added) as well as the collecting itself (often occurring opportunistically) tend to be informal. The consequence of this is that any tool using collections, like adding new material, organizing it, selecting material, composing from it, etc., should ideally be as informal as possible, while supporting visual thinking.

At the time of this writing and given the ever increasing consumption of new media, some tools for using digital collections do exist. Most of these tools tend to be database driven applications for managing libraries of media like photos or music. As a storage facility and for some basic functionality like playing songs or arranging photos into digital albums these tools do a fine job, but at least in the case of photo collections, the the formality of using a database for managing the collection tends to distract the user from his or her images. Also, the use of grid-like interfaces tends to get in the way of using the collection informally.[11]

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[14] Gross, M.D.: The Electronic Cocktail Napkin - a computational environment for working with design diagrams *Design Studies, Vol. 17, No. 1. (1996) 53-69*

[15] Autodesk Sketchbook Pro *http://usa.autodesk.com/adsk/servlet/index?id=6848332&siteID=123112 (August 2008)*

[16] Oxman, R.: The thinking eye: visual re-cognition in design emergence *Design Studies, Vol. 23, No. 2. (2002) 135-164*

While this project is more interested in what may be created with a collection of inspirational material, rather than maintaining such a collection, Keller's considerations for a collecting tool for visual material are nonetheless applicable. First of all, such a tool should support active collecting, meaning it should allow its users to flexibly add visual material and be readily available. Since physical and digital collections tend to be maintained separately, the tool should be able to merge the two, making the virtual collection benefit from the physical aspects and vice versa. Serendipitous encounters may be a source of inspiration and a collection tool should support these. When making a collage, designers tend rely on their visual and spatial memory for browsing through the collection, so a tool for handling visual material should support this as opposed to the common verbal approach. Another aspect designers mentioned in one of Keller's studies is how they'd get inspired by breaking the rhythm and leaving their desks. This allows them to assume different bodily postures, notably standing up, and use a broader rang of motions in order to be more expressive. Lastly, such a collection tool should support communication giving the collection social value. Designers have used this social value by displaying their work on office walls evoking reactions from colleagues.

### 2.3.2 State of the art

In many ways this project is an extension and variation of the work done by Ianus Keller for his doctoral thesis. His tool, called Cabinet and very much a starting point for this project, enable users to acquire visual material in such a way that bridges the gap between physical and digital imagery. Users are then able to work with a their collection by sorting and arranging that material in a natural way, while still being able to use the benefits of the tools digital properties. From the start of the ID-StudioLab[17], multidisciplinary group of people in the faculty of Industrial Design Engineering doing both research and design, how computers may be used as tools for creative exploration has been an ongoing topic. The

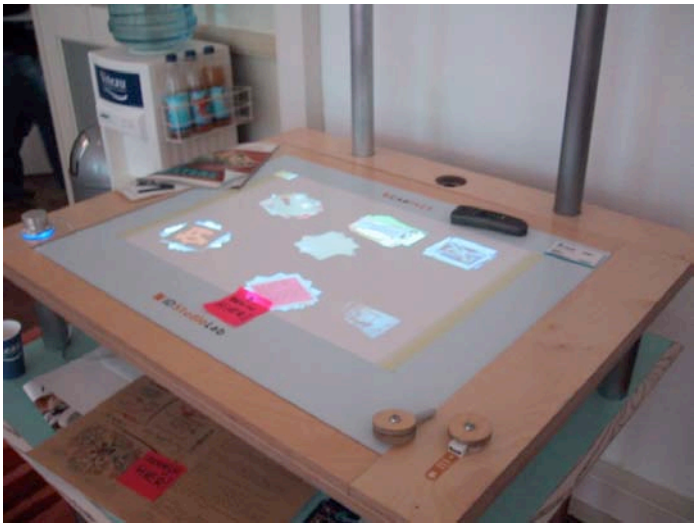

*Fig 2.4: Cabinet in use. Photo by Ianus Keller*

[17] ID-StudioLab *http://studiolab.io.tudelft.nl/ (August 2008)*

focus has always been to empower designers with new technologies, without encumbering them with those technologies, but enhancing their creative expression. The tools that are being designed around this topic tend to have much in common with or support sketching, and generative techniques such as collage making, cultural probing and contextmapping[18], as opposed to focusing on the fact that these tools are computer supported.

In the past video collages have been explored as a means to bring an accessible form of virtual reality to designers; the atmospheric collages reside in the background and don't demand all of the designer's attention so he or she may choose when and how to be inspired. In more than one occasion, former ID-StudioLab members have explored the possibilities of how computers may aid in sketching. Hoeben[19] explored the possibilities of combining sketches with other techniques, while recognizing designers' ideation processes. Often mentioned is Mark Gross' cocktail napkin, which combines both sketching and referencing; users give a rough sketch as input and the tool returns results of existing images resembling the sketch. Doing so, users are not only able to browse through a collection in a visual manner but even search it, which often tends to rely on verbal input. My own previous work demonstrates how opportunistic sharing, in this case imagery, can enhance social presence in a Community of Practice.[20]

Currently, tabletop computing, tangible interaction and augmented reality seem to get the better lot of attention when it comes to tools for creative exploration. On or two exceptions aside, many of these tools tend to either put the focus too much on the interaction instead of the task or specialize too much and limit their area of application, whereas this project is aiming for more general purposes, like serving as a companion to be opportunistically used in ideation. From a lack of found literature, one might conclude that general purpose tools for creativity aren't to popular these days, especially when it comes to supporting visual thinking.

## 2.4 After Dinner

With the ever increasing presence of digital media, creative people may use these media as an extension or in some cases even as a substitute to their collections of inspiration material. Collections of digital material, like pictures, movies, sounds, music or software, may be richer than collections of physical material, such as images, sketches, objects and samples, yet the two share a common purpose. To creative professionals, both kinds of

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[18] Contextmapping *http://studiolab.io.tudelft.nl/contextmapping/ (August 2008)*

[19] Hoeben, A.: ideas: a designers' sketching-tool *Graduation Report*

[20] Peeters, A.W.J. & Stappers, P.J.: Iris: supporting workplace awareness by triggering informal interactions with visual material *Conference Proceedings of DPPI (2005)*

media serve as sources of inspiration, which may be referenced to, support visual thinking, tell stories, be shared and frame a creative solution space.

In order to be used, digital media require tools capable of handling digital information, in most cases a computer with the appropriate applications. Unfortunately, computers and most applications tend to be ill-suited for creative exploration as they tend to rely on the wrong kinds of input, like words and measures. In order to be successful, a tool supporting creative exploration needs to be informal as close to a pencil and paper as possible, meaning that the tool may be used opportunistically, has a low threshold and allows the user's expression and aesthetics to be dominant. This informal approach stimulates imagination and allows people to think visually, thereby allowing them to be inspired. Collecting done right is an opportunistic activity and the collections resulting from this tend to be informal and inspirational in nature., however, most tools for maintaining collections of digital material are lacking in this respect. In fact there are very few tools for creative exploration available, commercially and otherwise, which may be used in an informal manner. On another note, many companies actually don't allow the use of most informal tools like instant messengers or block more leisurely websites, because it might prevent employees from doing their jobs. Creative companies actually do allow this, perhaps fearing that it might inhibit workers. Still, it exemplifies how computers are still being regarded as tools for formal work and that there's still a lot to be done on the creative side of things.

While a research topic like ubiquitous computing[21] still holds a lot of promise for the future, not many solutions for creative expression actually exist within this topic and those that do exist aren't commercially available. Also, many creative professionals won't be willing to abandon their computers just yet, so something in the realm of computer tools has to change. This is not to say that no efforts have been made or are still being made, but arguably this isn't quite enough. In order to achieve such a tool on creative professionals' computers, a lot of effort must go into the design of the tool before it can be denoted as informal. Not just the proper design of aesthetics and interactions is relevant in this aspect, but even more important and making the former easier to accomplish, functionality must be limited; there is no tool to rule them all. That being said, it's probably next to impossible to create a tool that allows informal handling of digital media, while consistently merging the physical and the digital across multiple kinds of media, or using people's computers while allowing for wide gestures.

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[21] Weiser, M., Brown, J.S.: The Coming Age of Calm Technology. Beyond calculation: The next fifty years of computing *Xerox PARC (1996)*

# 3 A Case for Online Scrapbooking

**What if a tool was available allowing people to use inspirational material from different media within their creative processes? Ideally, such a tool should allow its users to collect this material from various sources and arrange them in any way they choose in order to give a new meaning to it. This might be as simple as a variation on taking notes, but arrangements this material may also tell stories, frame a creative space, reflect a mood, or whatever it is the person is trying to express. It would be presumptuous to state such a tool as something novel, as it has been in use for hundreds of years, albeit under different names, the latest being scrapbooking. While a recent development, the use of digital media in scrapbooking isn't a novelty either. What is new, is the way in which people will be able to get access to the inspirational material and how they can use it for their creative expression.**

## 3.1 Scrapbooking and You

Scrapbooking used to be a popular leisure activity in the nineteenth century, allowing people to record happenings from their lives and tell stories using all kinds of visual material, which was pasted into books. Thus it functioned as a sort of enhanced notebook. While scrapbooking has lost a lot of that popularity, there is something to be said for reviving this activity, albeit it with a twist. As an analogy for a creative professional's tool, scrapbooking with digital media could open a realm of possibilities.

### 3.1.1 A short history of scrapbooking

*Scrapbooking is a method for preserving personal and family history in the form of photographs, printed media, and memorabilia contained in decorated albums, or scrapbooks. The idea of keeping printed materials of personal interest probably dates to shortly after the invention of printing. This trend is probably similar for photographs. Historically, scrapbooking was a tradition similar to storytelling, but with a visual and tactile, rather than an oral, focus.*[1]

[1] Scrapbooking on Wikipedia: *http://en.wikipedia.org/wiki/Scrapbooking (August 2008)*

In this sense, a scrapbook is an extended version of the still widely used notebook. Apparently, the basic notebook goes back as far as ancient Greece were people used to have so-called hypomnemata to record things heard, seen or thought; Plato called it a form of artificial memory supposedly. Writing material like wax tablets, papyrus or paper used to be quite expensive, so it wasn't until the 15th century, when cheap paper became available, that personal notebooks became popular. These notebooks were commonly referred to as "commonplace books", which were widely used by academics and writers to assist in learning, containing not just written notes, but also things like recipes and poems. The practice of commonplacing went on for quite a few centuries and had a few famous proponents like Francis Bacon and John Milton.

Scrapbooks became popular somewhere during the nineteenth century, perhaps fueled by the prevalence of printed material. Where commonplacing deals with things written by its owner, scrapbooking extends on that, allowing people to add ephemeral material from sources other than their own, like paper clippings, photographs, postcards and even some objects (mostly relatively flat like a feather or a leaf for example), which would have been wasted otherwise. For decoration, people would add scraps to a page, which were originally Victorian styled brightly colored pieces of paper. The enriched notebook became more than an extension of one's memory, allowing people to tell stories and enjoy themselves while filling the scrapbook. Scrapbooking didn't replace the regular notebook, but became a different activity in itself. Aside from using a notebook for his writings, Mark Twain would spend Sunday afternoons on filling his scrapbooks with things he thought to be interesting, often coming from his own life and works. Lewis Carroll, mainly used it as a means of remembering things that might inspire him to write stories.

### 3.1.2 Scrapbooks as tools

Like cabinets of curiosities, scrapbooks are essentially collecting tools, albeit smaller and more mobile; Mark Twain used to carry one around wherever he went. Also, instead of being an ever changing display of objects, a scrapbook is more of a recording device of ephemera; once a page has been used, it's very difficult to make it unused again. Before the rise of personal photography and photo albums, scrapbooking was a popular activity among families to preserve (family) memories and use those to tell stories and share these with other people, something it shares with collages designers tend to make. The way in

Fig. 3.1: Example of a newspaper scrapbook

which this is achieved is somewhat different, as a single collage is often used to tell a single story, whereas a scrapbook may use multiple pages or miniature collages to tell a story.

One might argue that scrapbooks may serve as a means to express moods given the desire, especially among women presumably, to adorn pages with scrap material and the use of the books as a kind of visual diary. For referencing, it seems that 19th century writers in particular would actually use it for this purpose, Lewis Carroll's preserved scrapbook being an excellent example of this, having filled pages with newspaper clippings worth remembering for later use.[2] There is little information available though in what respect scrapbooks served as a tool for inspirational material among people using visual thinking in their creative processes, something which a sketchbook is known to aid in, nor does there seem to be any record of people using their scrapbooks for framing problems.

The original success of scrapbooking may have attributed to its informal nature, as it allowed people to add just about anything (as long as it was flat and small enough) they wanted add any time they'd feel like it. The first scrapbooks may not have had such a low threshold, as it required paste to add material, but Twain's patented scrapbook, complete with pre-pasted areas, lowered this greatly. Twain's invention came from a personal issue with having to apply paste each and every time he wanted to add something. He was renowned for taking his scrapbook with him wherever he went, so this must have been limiting his freedom of using his scrapbook at opportunities of his own choosing. Aided by fact that Twain's scrapbooks came in multiple shapes and sizes and were made for varying purposes and material, his invention made that people could use their scrapbooks opportunistically.

Despite the fact that scrapbooks may not cater to all these aspects of inspiration (one might argue that no tool ever does), the scrapbook may be considered as a tool for inspiration. In fact may even be considered as an informal tool for inspiration. One might argue that scrapbooking could be an excellent activity for creative people, especially for those having an emphasis on the visual in their work. Why it never got any footing among designers is unclear, but perhaps the stigma of it being a women's activity might have something to do with that. Maybe a new take on scrapbooking, that is appropriate for this day and age, will actually make this possible.

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[2] Lewis Carroll's Scrapbook Collection http://lcweb2.loc.gov/intldl/carrollhtml/lchome.html (August 2008)

# 3.2 Going Digital

Never has there so much media been created and consumed as today, giving rise to our so-called digital lifestyles. Tools for creativity, such as the one proposed in this project, need to be able to incorporate these media. In fact this amount of media is so vast, that users need specialized tools to organize their personal media and other tools to browse through publicly available media. At the same time, these tools and services offer new possibilities for users to express themselves, with one caveat that is: in some way or another, a computer must be used. Computers are by nature ill-equipped for enabling users to be creative; great care must go into designing the product or service, both in terms of functionality as well as interface, users are to have satisfactory experiences.

### 3.2.1 Organizing digital lifestyles

During the last seven years or so, ownership of digital electronic gadgets, including cameras and portable music players has been increasing tremendously year after year and will probably continue to do so during the coming years. Reciprocally related to this development, the penetration of broadband connections as well as the ownership of personal computers and notebooks in particular grew in a comparable way. This technology push has not just enabled people to consume media faster, in larger quantities and from more sources than ever before, but has also enabled them to create and share media of their own, effectively becoming analogous to broadcasting and publishers themselves and giving rise to the so-called digital lifestyle.

This development has not gone unnoticed and multiple companies flourished catering to these novel user needs, although some would argue that these companies actually created these needs in the first place, the truth probably being somewhere in the middle, with some companies being the pioneers and others following closely behind the successes these pioneers. The increase in media consumption brought along by people's digital lifestyles have gone hand in hand with with the increase in available products and services for using these very media. Aside consuming and publicizing (consumer) media, managing and editing these media has been given a lot of attention these last few years, allowing users (other than creative professionals) to give new meaning to their media.

Currently the most popular application for managing media is, thanks to their widely popular portable music player, Apple's iTunes, which, among other things, allows its users to acquire music, to manage it, to play it and to share it, or as Apple once advocated, Rip, Mix and Burn (import music from your own CDs, create a mix of your songs and burn them onto a blank CD). Also photos have been getting the same treatment, ever since the

widespread ownership of digital camera's: both Google's Picasa[3] and Apple's iPhoto[4] enable people to manage a personal photo library, which may be easily expanded and used for other creative outings such as slideshows. While these applications are in essence all database driven applications, in terms of user experience they're big step up from the classic file/folder metaphor, allowing users to switch easily from browsing thumbnails to examining large previews to using the same photo in multiple contexts.

### 3.2.2 Tuning experience

Instead of adding more and more features to such products, user experience (a term which unfortunately is becoming more and more of a buzzword these days) should be prioritized over functionality. At first the user experience of just the product, service or tool became important, but currently the trend seems to go towards creating integrated product service combinations. In order for this integration, the user experience needs to be an integrated aspect as well, from the beginning to the end. Google's Picasa for example doesn't just allow users to manage their photos on their desktops, but also enables them to easily add them to Google's web-based Picasa albums and even offers a lightweight version of their desktop software online. Instead of offering people large and complex monolithic applications, the current trend of tools seems to be going towards smaller applications doing less in a better way. In order to bring different media together, these smaller applications and their media libraries may serve as modules to be used in different contexts, extending each other's potential. For example, a DVD of a vacation trip can easily be created with photos managed by another application and be augmented by music managed by a third piece of software.

While not necessarily a tool for creative professionals (it may be used as such, though), a special mention should go out to Plasq's Comic Life.[5] Comic Life allows users to use their own photos, by tapping into the libraries of photo managing tools, and put those inside comic book templates; adding text balloons and various decals enable them to create comic-like strips of their own lives. For creative professionals, such a piece of software may serve as an excellent photo-based storyboarding utility. Its strength however actually lies in the way how easily can people may express themselves creatively, without having learnt skills like drawing and sketching.

Unfortunately, most tools enabling users to express themselves in a creative manner limit media acquisition to personal sources like private photo and music collections and recording devices like webcams. There is a huge untapped potential for creative professionals in using the growing ocean of user generated content within their

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[3] Google Picasa http://picasa.google.com/ (August 2008)

[4] Apple iPhoto *http://www.apple.com/ilife/iphoto/ (August 2008)*

[5] Plasq Comic Life *http://plasq.com/comiclife/ (August 2008)*

creative processes. In fact one might argue that online media are slowly becoming more important than regular printed media and that creative professionals should be able to easily get access to these media. Web-based services like Flickr[6], YouTube[7] and the aforementioned Picasa don't just allow people to store their media online and share it with others, but also enable developers to gain access to these media from within their own applications, effectively allowing users to acquire media from online sources in the same way they already can use their personal collections.

Not only is the experience, in terms of what a user might achieve with a product, important, a lot of this experience is determined by how a user might tap into that functionality. This holds especially true for tools for creativity, as the user should be able to remain focused on expressing him- or herself, instead of having to think about the user interface. Manipulating the contents of such a tool should therefore feel as natural as possible supporting actions like dragging, while showing as few buttons as possible. When called for, interface elements like buttons may be used but only those relevant to the content currently worked on and certainly no elements like grayed out buttons. Another possibility to make graphical user interfaces feel more natural is to use animations. Immediate state changes can make an application feel staccato and clunky; animations may ease these bumps and give it somewhat of a flow. It should be noted however, that it is all too easy to go overboard with such animations, distracting from the task at hand. Tuning is therefore required to find just the right balance.

## 3.3 Digital Considerations

The question now is what online services and media have to do with an old hobby such as scrapbooking. It's actually quite astonishing how the process of making collages, with one or two exceptions, still only incorporates images, whereas current technology and media allow for using multiple kinds of media within new contexts, such as a digital scrapbook. Today's media and their contents are there to be used by creative professionals within their creative processes as sources of inspiration. A tool, which does enable this use, is not just a great opportunity but also all but inevitable.

### 3.3.1 From physical scraps to digital media

Although the problem doesn't specifically call for a scrapbook to be literally translated to a computerized tool and in doing so supporting digital media, some analogies are nonetheless applicable. The aim of the tool to be

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[6] Flickr *http://flickr.com/ (August 2008)*

[7] YouTube *http://www.youtube.com/ (August 2008)*

created is not to emulate the trinkets, adornments and the focus on beautification of the Victorian kind of scrapbooking, but to serve as a tool for inspiration. The book part in this sense means that the tool will be a linear collection of canvases, to be filled with inspirational material. Doing so, the pages effectively become collages of inspirational material, which may be referenced to, support visual thinking, tell stories, be shared or frame a creative solution space. Scrapping here means that people should be able to take inspirational material or pieces thereof in an informal way, specifically opportunistically with a low threshold, analogous to sketching and taking notes. The tool therefore should look and feel like a scrapbook, while acting like a notebook or sketchbook by being a collection of collages.

Exploration is one of many aspects of creativity, being especially relevant in ideation. It is therefore unfortunate that the computerized tools we use every day are so ill-equipped for this purpose. While our computers should support creative exploration, they should not just try and mimic the behavior of their physical counterparts, but incorporate both the possibilities and constraints of their digital nature. From the ancient hypomnemata through commonplace books to scrapbooks, all of these may serve as tools, which support remembering and thinking in a way that reflects the contemporary technology of that era. Such a tool for this day and age should do the same, meaning it should at least acknowledge today's digital media and enable new possibilities by incorporating it.

### 3.3.2 Acquiring digital material

The contents of today's new and digital media include (but aren't limited to) images, videos & other forms of animation, music & other kinds of sounds, text and interactive applications, which today's tools for creativity should be able to use as inspirational material. There are three aspects important when it comes to these types of content; where they are located, how a user may get access to those for use within the tool and how they may be manipulated. Two main locations in case of digital media may be discerned, namely online and offline; offline content is located on people computers and other forms of digital storage available only to its owner, whereas online content is hosted on the web (and other parts of the internet) through various websites. Besides digital media, the old physical media are still present. However, in order to be used within a computerized tool, the contents of those media will first have to be digitized, through things like scanners and digital camera's.

Getting content from offline sources into a computerized tool is becoming easier as stated before, as the collections may be tapped into directly from within the tool itself. Tapping into physical media from within computerized tools is rare and often cumbersome, but it must be said that Cabinet actually does a a very elegant job in this respect. Getting online content into the tool generally takes a number of steps outside the tool itself; first the content must be downloaded and then added to the tool, often through one or more dialog boxes. The issue is not so much the steps themselves, but more so how these steps break the rhythm of working with the

tool. Web-based services that host content, like Flickr and YouTube, thankfully offer ways for software to tap into the potential of online collections, enabling users to get direct access to the vast amount of online content; all it needs is an internet connection.

### 3.3.3 Aesthetics for a digital scrapbook

Not only the aspect of acquiring inspirational material is different in digital tools for creation, but also the ways the material are handled and put out differ from their physical counterparts. Collections and collages tend to informal, both in terms of their appearance as well as their uses, which is probably what makes them so successful in the first place. Part of this informality comes from how the material may be opportunistically obtained; a glossy magazine combined with a little bit of tearing and cutting may easily yield clippings of inspirational material, which may then be added to a collection and/or used for making collages. The handling the material affords, has a low threshold and ensures that people can focus on how they want to express themselves when making a collage for example.

While this level of informality is in most cases impossible within digital tools, because the interaction is mediated by an interface, it doesn't mean one shouldn't strive for it. Instead of encumbering users with interface elements from an operating system, like clunky dialog boxes for opening files, dragging and dropping of digital material should be supported as default actions, which comes as close as possible to the informal nature of handling physical material. This is not to say that interface elements like dialog boxes should never be used, but they should be avoided whenever possible, so that users may focus on what they're working and not so much on the interface. Supporting actions like dragging and dropping is very much an aesthetic consideration, which may aid in the informal nature of the look and feel of the tool. Enabling people to drag and place their inspirational material freely around a canvas prevents the previously mentioned grids of database driven collection tools, while empowering them to be expressive without them having to think about the interface.

Another aspect of the aesthetics of the interface are the visual elements; while a natural interface without any visual interface would be ideal, actions like browsing through inspirational material and adding it to the canvas will need some sort of visual interface. These interface interface elements need to be aesthetically minimalist, yet distinctive from the canvas and the material being worked on. Minimalist aesthetics of interface elements, like buttons and fields, make sure that the aesthetics on the canvas created by the user will be the dominant aesthetics. However in order to be useful, a user should be able to notice the interface elements and should therefore be distinctive; ideally such interface elements should only be present when needed. The goals of the aesthetics, both in terms of appearance as well as interaction, are to make the tool informal and enticing at the same time, so users will be mainly concerned with being expressive.

### 3.3.4 Limitations and possibilities

By now it should be clear that there are some substantial differences between physical and digital scrapbooking. In terms of interacting with the material, doing it physically offers a wider range of possibilities while not having to worry about an interfaces. Also, anything can be added to a scrapbook as long as it's flat enough and it will stick to a page. These shortcomings, however, may be compensated by some of the new possibilities offered by a digital scrapbook. First of all, the number of pages a digital scrapbook can hold is virtually limitless and may be added without cost. Secondly, inspirational material tends to come from digital sources these days and require digital tools for manipulation. While some aspects of manipulation are lost in the translation from physical to digital (take using a pair of scissors for example), digital manipulation allows actions like resizing and other non-destructive operations.

Incorporating the web opens up new possibilities as well. Besides the previously mentioned access to digital inspirational material and the constraint of needing an internet connection, the web may also be used to publish the results of working with a digital scrapbook. In this manner, someone may share their creative processes, in order to get critique or to get to the same creative solution space with others working on the same design problems. It may also be used just to inform colleagues of what one is working on, in a way that's similar to putting work up on the office walls, leaving it up to colleagues to take notice of it. Similar to this, weblogs have been likened to digital versions of commonplace books, where readers are often able to leave comments behind. A digital scrapbook should therefore support one or more ways to share its contents for others, thus being able to strengthen social cohesion within a community of practice.

## 3.4 The Heart of It All

Up until now, the proposed tool has been called a digital scrapbook. The following paragraphs will show why it should be an online scrapbook and not just a digital one. The world wide web and the browsers used tfor navigation have evolved to such a point, that small, but powerful applications may run inside regular browser windows. Using the right combination of web technologies, users may be able to gain access to their online scrapbooks from wherever there's a computer with an internet connection.

### 3.4.1 The next web?

Using the internet and the web (the world wide web is only part of the internet) in particular for serving rich applications to users has been a long time goal for years. In 2004 the term "Web 2.0" was coined (and later

redefined and trademarked) by Tim O'Reilly[8,9] of O'Reilly Media, noting a new way of thinking about the web, where the user is put central, both for experiencing content as well as creating it. The term has lost a good deal of its momentum these days and is regarded by some as nothing more than a marketing buzzword, but the much of the emphasized technologies powering the Web 2.0 movement are still very much relevant.

The most critical aspect of an application, users have to deal with, is the user interface. Generally speaking, internet applications run within browsers such as Firefox[10], Internet Explorer[11], Safari[12] or Opera[13]. There are two options to make these run: natively or through a plug-in architecture such Flash[14] or Java[15]. Natively, means that the application relies on HTML[16] for semantic markup (content description), CSS[17] for styling the markup and JavaScript[18] for interactivity. For the user experience to work well, altering the state of the application, like dragging or scaling an interface element, should be able to occur asynchronously; most of the time when a user clicks an interface element on a webpage, the entire page tends to get refreshed, which is called synchronous updating. This makes manipulating elements a daunting tasks, which is why plugin-based applications like those built with Flash, which can do this much more easily, can do this easier. In recent years however, together with the Web 2.0 craze, another term was made popular as well: AJAX(Asynchronous JavaScript and XML)[19], a combination of existing technologies, allowing browsers to update their state, without reloading the entire web page, capable of making webpages behave like regular desktop applications.

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[8] What is Web 2.0 *http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html (April 2008)*

[9] Web 2.0 Compact Definition *Trying Again, http://radar.oreilly.com/archives/2006/12/web-20-compact-definition-tryi.html (April 2008)*

[10] Mozilla Firefox *http://www.mozilla.com/en-US/firefox/ (April 2008)*

[11] Microsoft Windows Internet Explorer *http://www.microsoft.com/windows/products/winfamily/ie/default.mspx (April 2008)*

[12] Apple Safari *http://www.apple.com/safari/ (April 2008)*

[13] Opera Browser http://www.opera.com/ (April 2008)

[14] Adobe Flash *http://www.adobe.com/products/flash/ (April 2008)*

[15] Sun Microsystems Java *http://java.sun.com/ (April 2008)*

[16] HTML *http://en.wikipedia.org/wiki/HTML (April 2008)*

[17] CSS *http://en.wikipedia.org/wiki/Cascading_Style_Sheets (April 2008)*

[18] JavaScript *http://en.wikipedia.org/wiki/JavaScript (April 2008)*

[19] AJAX *http://en.wikipedia.org/wiki/AJAX (April 2008)*

### 3.4.2 Mashing things up

Another relative recent welcome development is the use of APIs(Application Programming Interface)[20]. Content hosters, like Flickr and YouTube, offer services where software developers may query the their databases through an API in order to retrieve content. Queries may often be based on newness, popularity or one or more search terms, as long as it is within the specifications of the API. Using APIs from multiple source within a single (internet) application is called a mashup. For example, Google Maps[21] allows users to overlay own information over the map information or satellite imagery provided by Google. Lately, mashups have been attracting an increased interest from large companies, in addition to early adopters made up of curious and playful web developers.

Most mashups, however, don't offer basic interactivity like dragging, dropping or resizing of the media users have available, making them rather static. On the other hand, widget engines[22] are gaining popularity among users, with offerings by Microsoft[23], Apple[24], Yahoo[25] and Google[26]. Most widget engines function like a sandbox, which may be filled with all kinds of toys, i.e. the widgets. A widget is a small and application capable of doing only one or two tasks, like calculators, photo frames, sticky notes, indicators, clocks, etc. The best part is that these applications can be positioned and often scaled as well as the user sees fit.


*Fig 3.2: Dashboard by Apple*

Ideally, an online scrapbook would be a widget mashup engine, running inside a browser. This can be achieved natively using HTML, CSS and AJAX/Javascript or with plugins like Flash or Java. For me personally, the choice came down to choosing between Flash and doing it natively; Java was no option for me whatsoever as I don't have any experience developing against this language. I ended up choosing for the native approach, as I believe it offers far more flexibility. This is not to say Flash has no advantages whatsoever; for example, Flash content

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[20] API *http://en.wikipedia.org/wiki/API (April 2008)*

[21] Google Maps *http://maps.google.com/ (April 2008)*

[22] Widget Engine *http://en.wikipedia.org/wiki/Widget_engine (April 2008)*

[23] Microsoft Windows Vista Sidebar *http://vista.gallery.microsoft.com/vista/SideBar.aspx (April 2008)*

[24] Apple Dashboard *http://www.apple.com/macosx/features/dashboard/ (April 2008)*

[25] Yahoo! Widgets *http://widgets.yahoo.com/ (April 2008)*

[26] Google Desktop *http://desktop.google.com (April 2008)*

looks the same across all browsers and has more options for creating expressiveness. Unfortunately, plugin based internet content tends to come at a performance cost and this is certainly the case with Flash. More importantly, the native approach requires a relatively strict separation between semantics (HTML), styling (CSS) and interactivity (AJAX/Javascript), which enables developers to create more modular architectures. The main benefit of using a modular architecture, as a opposed to a monolithic architecture, is that changes at any point in the development process are relatively painless, unless the architecture itself has to be changed.

## 3.5 More Than a Case

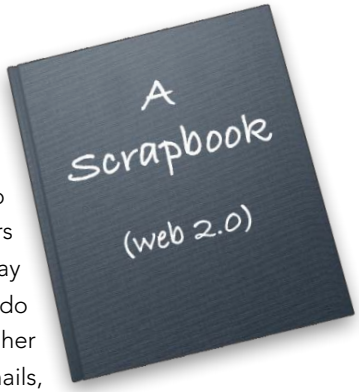
All things considered, there isn't a just a case for online scrapbooking, in fact, it's an inevitability. The technology is here, waiting to be used. Digital media is abundant, coming from various sources, ready to be tapped into at any moment. There is an audience of creative professionals, always on the lookout for new things to try. Finally, there is an idea for enabling creative professionals to express themselves in richer ways using new media in a familiar fashion. There are two main unknowns in this case: how is the idea going to be realized and is it actually going to work?

# 4 Presenting "Mélange"

**When different materials and substances, often heterogeneous to one another, are mixed, the end result may be called a mélange. While often used in relation to taste and smell of foods or perfumes for example, it shares some similarities with design as well. All designs are mixtures of ideas, materials, functions and interactions, which, if composed properly, complement each other and make that the design itself may be greater than the sum of its parts, just as the ingredients in an exquisite meal. The process of finding the right mélange is one of trial and error; just as the perfumer discarding tens if not hundreds of scent medleys before settling on the right balance, designers make numerous sketches, models and prototypes in order to get to the right mélange of features. This project also started with a small set of ingredients, which grew over time by collecting knowledge and adopting this into a vision of a digital scrapbook. This vision was not just created by combining ideas and knowledge, but developed while trying to give form to this vision. The results of different small prototypes were used as ingredients for both this vision as well as for a large prototype embodying this vision. One might argue that people engaged in scrapbooking and other explorative composition activities, are also striving to find the right mélange, making "Mélange" an appropriate name for an explorative tool allowing its users to create their own mélanges with different kinds of digital media.**

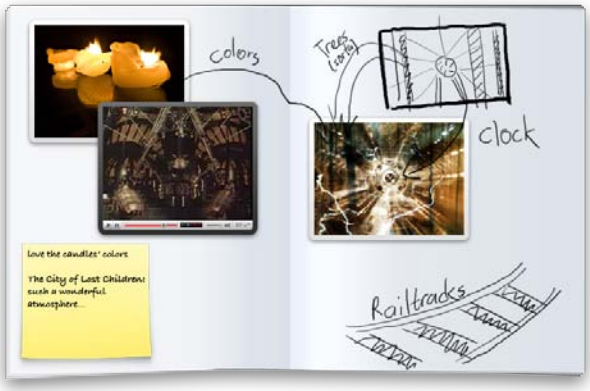
## 4.1 Features and Components

At its base, Mélange is an internet application, incorporating much of the Web 2.0 philosophies of integrating web services. First of all, it uses a web browser to deliver a service, making it accessible to anyone at anytime, as long as they have access to a computer with an internet connection. This service allows its users to create compositions or collages using their own media stored on their personal computers and remotely stored media, through services like Flickr's and YouTube's. Also users may enhance their compositions by adding virtual sticky notes, text balloons or flat text. The results of their efforts are stored online for later retrieval as well as for sharing with others. Mélange therefore is a web service, hosting collections of digital scrapbooks, which' pages are composed of media and annotations





Each user has a personal Mélange account, which, after having logged in, displays and overview of his or her collection of scrapbooks. Each scrapbook is effectively no more than a collection of pages, where each page is a single composition. Most people will likely use this as a way to organize their compositions by subject, just as some designers keep different notebooks for different projects. Users may organize their "desk" of scrapbooks in any way they choose to do so and add new ones at will. When a user opens one of his or her scrapbooks, its contents are shown as an array of thumbnails, representing the individual pages of the scrapbook. Clicking one of these thumbnails will open the selected page and display the composition as well as the tools to manipulate the composition. While there's no particular order in the arrangement of the scrapbooks on the users' "desk", their pages are linearly ordered; not only does the book metaphor more or less demand such order, it also allows its users to tell stories more easily, having multiple compositions belong to the same story. This linear order, however, is not fixed, enabling users to sort their pages if they choose to do so. New stories may be added at the end of the scrapbook at the users' discretion, which will immediately take the user to a blank canvas. Naturally, pages can be deleted at will.




The page is where the Mélange's heart lies as it gives the the tools to access different kinds of contents and add these to a blank canvas. Four types of content may be discerned; images, videos, sounds and annotations. These forms of content, depending on the nature, mat be added in four ways. By uploading a file or entering a URL pointing to a file, a user may submit media, which will be added to the user's personal collection. Through the use of an API (Application Programming Interface), Mélange allows users to query databases of external sources, such as Flickr and YouTube and display content on users' pages. The convenience of using this lies in the fact that it offers vast amounts of content, ready to be used within Mélange. While technically complicated, users should ideally be able to access their personal libraries from within Mélange, like their music and videos; in order for this to work, the contents (or

a selection thereof) from a user's personal libraries should be kept in sync with the user's collection of media within Mélange. While technically feasible, this brings some difficulties with it, as it requires vast amounts of bandwidth and processing power; videos for example tend to be relatively large in size and need to be converted to a convenient format in order to be reliably playable within a browser. Currently the most reliable way to display video in a browser is to use Flash Video.

Lastly, users may add content on the spot, or ad-hoc as some would say. Browsers are naturally suited for textual input, making sticky notes, text blocks and text balloons logical options. Sketching, taking pictures and recording aren't naturally supported by browsers and must be enabled through the likes of Flash; YouTube uses Flash to allow people to use a webcam and record a video, which is added to the user's collection after recording.

| | **Submit / Upload** | **API** | **Sync** | **Ad Hoc** |
|---|---|---|---|---|
| **Images** | yes | Flickr<br>Picasa Web<br>Photobucket<br>SmugMug | Picasa<br>iPhoto | webcam |
| **Videos** | yes, if Flash Video | YouTube<br>Vimeo<br>Revver | iTunes | webcam |
| **Sounds & Music** | Yes, if MP3 | none (yet) | iTunes | microphone |
| **Annotations** | not applicable | not applicable | notes? | sticky notes<br>text balloons<br>text blocks<br>sketches |

*Table 4.1: Overview of different forms of content and their respective origins*

While Ménage is designed to be a personal tool for creativity, a user may give other people access to one or more scrapbooks if he or she wishes to do so. These other people may either be anonymous visitors or be limited to a selection of other Ménage users, just as Flickr allows its users to limit access to a user's contacts.

Furthermore, individual pages may be published to so-called shared scrapbooks, which belong to a community, allowing different people to work together on a single topic. Finally, when a page is accessible to others, they may add comments on a semi-transparent vellum, which may be laid out over the composition.

## 4.2 Filling Pages

The overview given before is merely a concept of what Mélange could look like. Text alone may be able explain a concept up to an understandable level, with pictures clarifying that which cannot be explained with words, or as the mantra goes, saying more than a thousand words. Still, a static concept presentation can only explain itself so far and in some cases, the concept must be experienced to be understood completely. This is especially true in interaction design, as interaction is hard to explain using paper. Prototyping therefore is one of the backbones of designing and evaluating interactive concepts. Not only are prototypes useful for making other people experience and understand the concept, prototyping, if done correctly, contributes to the the design process itself.

### 4.2.1 Prototyping as a methodology

Designers have been and still are making models or mock-ups of their designs for years now. These models are used for evaluating a design when, for example, graphical representations don't suffice. If, for example, a design's shape is concerned, the designer and his or her colleagues may reflect on this shape by handling the model and experiencing it from multiple viewpoints. Just as product designers use models during design processes, interaction designers use interactive prototypes to gain insights into the interactive properties of their designs. However, some differences between these two should be noted. First and foremost, prototypes aren't just used to be reflected upon and to seek affirmation of an idea, but may shape an idea and vision during the design process. Product design is often, al least at our faculty, a very analytical process involving the rapid creation of many ideas around a single problem, which are later on reduced in to a small number of concepts. After these concepts have been detailed, a final design is chosen based on the original criteria, which is then finalized.

This formalized kind of methodology doesn't seem to exist (yet) in interaction design; this field, being a relatively young, seems to fare best with a vision, which is used as a benchmark in a process of trial and error. In a way, the small, but effective, prototypes created resemble the rapidly created ideas and models in classic product design, but differ in the ways they're used. The small prototypes, especially the software components, are after having been evaluated, reused within a final prototype, which exemplifies the original vision. Prototyping, because of its trial and error nature, is often a learning experience as well and, in doing so, may adjust the original vision. In

terms of methodology, classic product design is very much a tiered process, with a number of iterative phases, whereas interaction design tends to have fewer stages and more focus on iterations.

Ever since the start of this project, I've had a vision, if somewhat hazy initially, of what kind of tool I wanted to give to my target audience of creative professionals. Instead of creating one or more concepts of this vision, conceptual design not being one of my fortes, I decided to start with prototyping, which I'd like to think of as one of my fortes, right off the bat, designing and developing an online scrapbook along the way. The ID-StudioLab has a rich history of applying a methodology of applying research through design, which can greatly help in explorative design, where the researcher may have a vision of what he or she wants to study, but lacks the necessary information to form hypotheses. The reciprocal and iterative relationship between design and research, where the results of one serves as input for the other (and vice versa), helps to generate knowledge both in design as well as in research. This process, in the case of interaction design, often uses techniques like contextual inquiries to get information about target audiences and their context of their practices. It might be clear that I chose to forsake this step, as a vision of what the tool to be designed should accomplish was formed early on in his project. Instead, I opted to focus on prototyping, which may is another important technique of the research through design methodology. Here, small prototypes are created, often quickly and dirtily, and used as vehicles for reflection and communication, which serve as input for the next iteration of prototypes. Moreover, it may generate input for doing research, giving rise hypotheses. All in all, prototyping is very much a learning experience, both in generating input for design and research as well as for mastering technology and evaluating this technology in the context of the problem at hand.

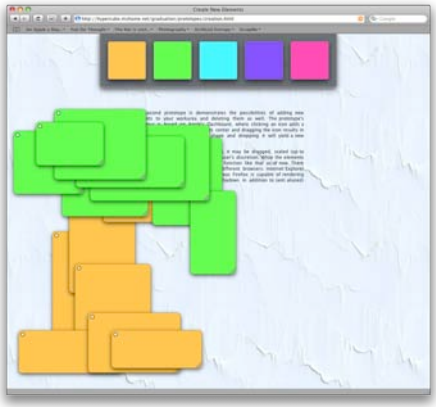
The fist step to be taken was the choosing in which order the aforementioned vision of online scrapbooking would prototyped. While a prototype supporting features mentioned before would be all but perfect, realistically, I'd be able to prototype only a subset of these features in the given time span. Supporting social interaction between users and studying those in relation to their practices would be quite interesting and possibly reveal how new ways of dealing with media could affect those interactions and practices. For this to work properly, at least one of both sharing features (opening one or more scrapbooks to others and posting single pages to shared scrapbooks) should work and ideally, the prototype should already support comments from onlooking visitors. This in turn requires that personal use of the scrapbooking prototype should be next to complete, sporting at least one scrapbook allowing people to create, edit and delete the pages therein. This is where the crux of an online scrapbooking tool lies; all of these actions can't be prototyped meaningfully unless users are able to deal with the most elementary aspects of scrapbooking or any other tool for creativity for that matter.

A tool for creativity should allow users to express themselves aesthetically in a way of their choosing. A person working on a scrapbook should be able to arrangements of his or her own choosing, using personally collected material varying in nature. In other words an online scrapbooking tool should first and foremost give users access to different kinds of (online) media, allow them to add these to a digital canvas and enable them to arrange and manipulate these media in a way of their own choosing. Having established that a digital canvas is a requirement for an online scrapbook, as it's the only feature allowing users to express themselves creatively and generate content (i.e. fill pages) and the fact that subsequent actions are meaningless without content to work with, such a tool should be designed and developed from the ground up; the ground being the tool's digital canvas

### 4.2.2 Getting things done


The first two prototypes, which are basically two of the same thing, were created as proof of concept. Both feature a canvas filled with a number of images and a single YouTube video. The second prototype, which is a kind of New Year's greeting card, differs in the sense that I had arranged the elements on the canvas. The elements themselves show no controls, until a user hold the mouse over the element, which will then show a bezel with a handle in the bottom right corner. The bezel allows the user to drag the element around the canvas and the handle enable resizing of the element. Furthermore, any use with a mouse button on an element will make that particular element the top layer. Aside of the bezels looking like Windows Vista's bezels as someone observed, three things were noted: in the case of resizing images, the aspect ratio had to be constrained, the elements should be (if possible) possible to drag around by their contents and not (just) their bezels and adding and deleting elements should be available as soon as possible.

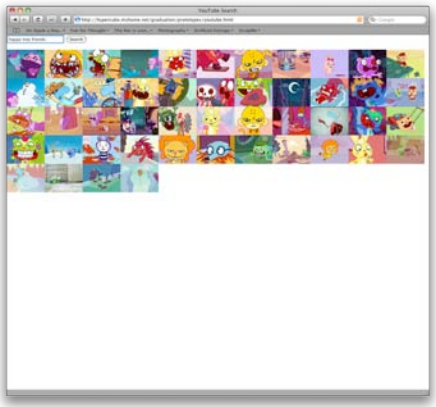
The last issue of element creation and destruction gave rise to the third prototype, which allows users to do just that. A toolbox at the top of the browser's window shows five differently colored squares. Just like Apple's Dashboard, these squares may be added to the canvas, either by dragging them onto the canvas or clicking

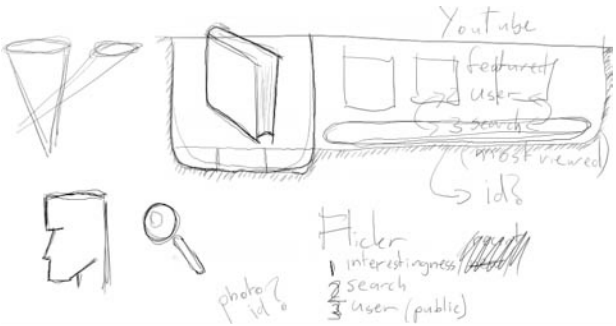


them. In the case of dragging, the square increases in size once it’s held over the canvas. Releasing the square will create a new element on the canvas in the same place were the square was originally held before releasing, having the same dimensions. Clicking will generate an element of the same size in the center of the window. The elements created support, just like the previous prototypes, both dragging and resizing, but additionally also support deleting. Instead of using a bezel, the whole element can be used to as a dragging handle. The first thing people noted was the resemblance to sticky notes, so they’d try to add text to the elements, which wasn’t possible in this prototype. Although the corners of the elements on the canvas are rounded, the square appearance caused a somewhat uncontrollable desire in one person to align elements with one another. More multiform shapes are therefore desirable, as aligning elements is anything but one of this projects’ goals. Perhaps caused by the lack of textual support, some people tried to experiment anyway and started to make larger shapes, such as creatures and trees out of the colored blocks, as if they were playing with Lego bricks.

One of this project’s goals has been to get media from various sources onto a canvas for users to play with. With synchronization out of the question, because of its innate complexity, three options remained: uploading files from a computer, downloading files by submitting URLs pointing to files and querying content hosters’ databases through APIs. I chose to prioritize the API method using AJAX, as it provides some advantages over the other two. Each upload or download action provides the user with only one new piece of media content, whereas the use of an API can generate any number of results up to what the API allows (50 per request in the case of YouTube and 250 for Flickr). These numbers mean that users may browse through the results of such a request. Request may be triggered by submitting search terms, but both Flick and YouTube also feature higher profile content, which don’t require explicit input and may be effectively used to present default content when using an API based source. Here two prototypes where created: one for Flickr and one for YouTube. Both will simply display thumbnails after a successful request using a search. Each of these thumbnails is also a link to a webpage containing the image or video. These two prototypes were

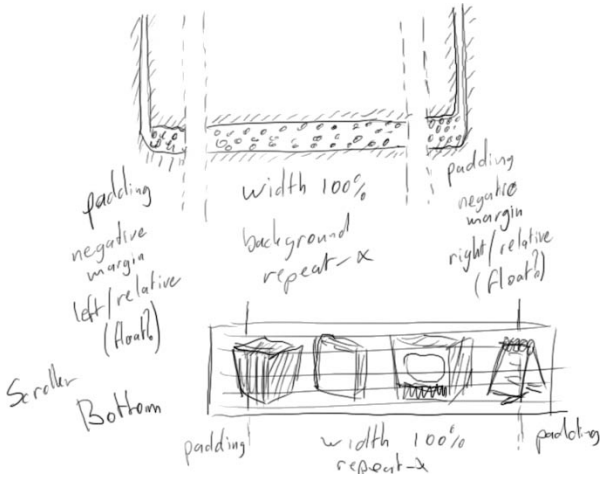
used to prove a concept, but revealed some technical issues in using AJAX; especially circumventing the limitation that requests can only go to the same server as where the request is coming from proved to be tricky initially.






Having dealt with three important interaction aspects of interacting with an online scrapbooking tool (access to media, management of canvas elements (containing media) and interacting with these elements), it was time to change the direction of the prototyping. Between these benchmarks for the inevitable prototype, a good number of gaps had to be filled before these three could be tied together. So instead of making more prototypes demonstrating possible ties, I switched to creating visuals for this inevitable prototype. Just a few rough sketches as references, should be enough for any aspiring pixel pusher to create a mockup within Adobe Photoshop, which is exactly what I did. A rough toolbox for adding content to the canvas was quickly made, after which I added some icons representing the different sources. One might think that all of the interface sprites were created next, but actually happened was an iterative process between Photoshop and prototyping, effectively building up the prototype from its basics.

The first few prototypes I made with these toolbox sprites, showed the opening and closing of the toolbox at the click of the button, whereas selecting a source would just shrink the toolbox down to the selected source, with a second click opening it up again. At this point, I switched back to making more interface sprites, starting with the so-called carousel for browsing source content. Repeating this process of iteratively switching between designing sprites and interaction over and over again, slowly evolved the prototype incorporating more and more features originally envisioned. The aspect of architecture turned out to be initially difficult to get a grasp on as the prototype hadn't been designed up to a point where I could relate any architecture to it. While working on a full interface mockup in Photoshop, it started becoming clear as I was sorting all the sprites in a way that they'd make




sense. In this way it became clear that I needed to create the architecture in such a way that I could use a uniform data structure describing a source, its options (methods for acquiring media, like searching for example) and the options’ contents. A method would have to exist to build the source (into the toolbox) and call upon a lower level method for each option contained within a particular source. This method would build the option, including any input forms and requests, and execute an even lower method to generate the contents the user is after. These contents would be displayed as thumbnails, ready to be added to the canvas. This eureka moment doesn’t stand on its own: the original vision of the scrapbooking tool didn’t feature text balloons, but when I mocked up a canvas with content and added a person, it struck me that this particular person might have something to say, hence the text balloons.

From this point onward, the focus shifted from designing features and appearance, to applying these within the prototype and, basically, making things work. This is not to say that no new features were added from this point onward, but those that were, only served to correct any shortcomings found during this phase. For example, as it turned out, sending an element to the front, when it is being manipulated with the mouse, proved to be extremely frustrating when creating a stacked arrangement. When this happens unintentionally, an element that’s supposed to be lower in the stack gets on top, covering the rest; in order to correct this, the element needs to be moved out of the way and all the other elements need to be on top again. This is especially annoying when a lower element needs to be manipulated but the layering is supposed to stay the same. In order to overcome this, extra features were added, so changing the layering can only occur intentionally most of the time.

Working towards a finished prototype, the devil tends to rear his ugly head, revealing all kinds of small yet annoying mistakes when putting the last bits of string together. While somewhat tedious, the result is that the end result becomes so much more gratifying, not only to oneself, but to others, like testers, as well who often won’t even notice it, which is a good thing as they tend to notice things going wrong much more easily. Thankfully God can be found in the details as well, however, this requires tuning. With tuning, no features are added to the design, but the look and feel of those features and the prototype as a whole are massaged until they feel just right. For looks it’s a matter of a final round of pushing pixels, but for feel it works differently. This feel comes from

interacting with the prototype and its features and is a qualitative statement how those respond to user input, which refers mainly to mouse input in case of this project. Within this project it refers to what happens after a user has clicked a button, when the mouse is held over an interactive element or when an element is being dragged around. Transitions and dynamics can help to create a more fluid user experience as opposed to a staccato one, but tuning is required to apply those in when and how those occur. Animate everything and it becomes too superfluous, so a good balance of what should be animated is needed so that they add to the overall prototype and the experience thereof, without dominating the prototype. Just as important, the nature of such animations needs to be tuned as well and, if anything, should be kept as understated as possible.

## 4.3 Experiential Mélange

At this point the prototype had grown into embodying the original vision of an online scrapbooking tool creative professionals. Ideally, the finalized prototype would support all the proposed features described earlier on, but due to time constraints the prototype supports only a subset of those, but, through experiencing it, should be able to explain itself to creative professionals in its current state.

### 4.3.1 Features Lost

While directly tapping into media library tools, such as iTunes and Picasa, from within the prototype would be ideal, it's probably nothing more than a pipe dream, as browser technologies often doesn't support this sort of approach or actively precludes it due to security concerns. Uploading from within those library tools is possible, but requires custom plugins extending those tools' original functionality, but, like some of the ad-hoc methods, this too would deter from the main prototype. The next features to be moved to the back of the list, were the ones allowing ad-hoc creation, save for those relying on textual input. Sketching and on-the-fly recording and photograph taking require a lot of development, likely in Flash, deterring from development of the main prototype. Uploading files didn't make it into the prototype either, as the use of services like YouTube and Flickr was prioritized over this, due to the readily available media provided by these two.

What remains is in fact no more than the front end of the full concept, presented earlier. The prototype only shows an imaginary page, which may be filled with the toolbox provided; there's no way, save for making a screenshot, to save anything created using the prototype. Consequently, there's no scrapbook to be filled with pages, nor is there any way to share creations with others. What remains is a highly detailed example a tool allowing users to fill a canvas with various forms of (online) content, like images, text and video, and be expressive with those while there at it. This expression, which may occur through manipulating that content and

adjusting it one's need, may result in things like collages, moodboards, stories, or anything users can think up. Mélange has no strictly defined purpose, so that users must add meaning themselves in their creations.

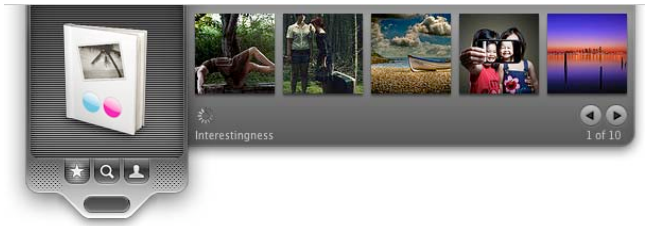
### 4.3.2 Prototype Overview

The following paragraphs are a rundown of a single page within Mélange. It contains a canvas and a toolbox for adding content to that. The aspects of the toolbox will be described in detail, both as a whole as well as for every source. A source has a number of options to select the different ways content may be accessed, which in turn prepare that content for the user to add to the canvas. For each kind of element containing that content, a short description will show how it may be interacted with and put to use. Finally, I present a simplified overview of how a source is built up from a data structure.

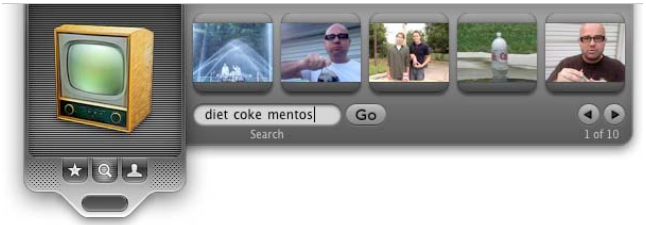
When a new Mélange page is created, an empty canvas is shown, with a small button in the top of the browser's window. Clicking this button will open the toolbox and reveal three sources: Themes, Flickr, YouTube and Pen & Paper, which may be accessed by clicking these. The toolbox can be closed by clicking the button again.

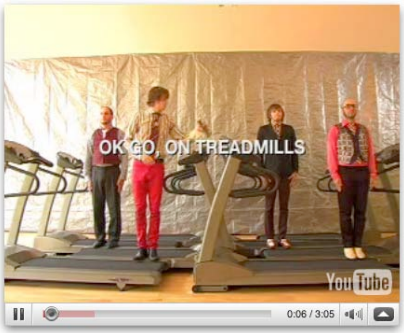


The first source, Themes, allows the user to adjust the overall appearance of the page. Currently there are five different themes: light canvas, dark parchment, blue silk, red curtain and checkered marble. The most obvious effect, as seen below, is in the canvas' appearance, but themes also affect the appearance and fonts of text boxes.

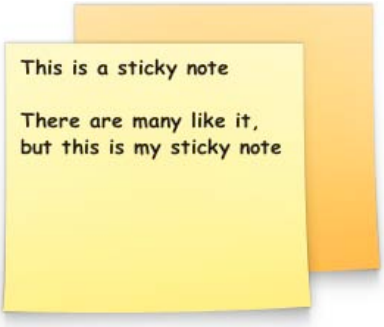



Flickr comes with three options: "Interestingness" (photos having had most activity in the last 24 hours), "Search" (based on keywords), and "User" (list of photos belonging to a Flickr username). When opening a source, the the first option is automatically collected, so that in this case, users are always greeted with content, ready to be browsed through. Because Flickr will often generate more than five results, users can scroll through these results with the left and right buttons; this kind of interface is often called a carrousel. Once an image has been added to the canvas, by default it shows only the picture with a small drop shadow for decorative purposes,allowing users to tell different elements apart by giving a false sense of depth. All kinds of image elements on the canvas are freely resizable, but always maintain their original aspect ratios. Users may decorate their image elements, by selecting a border style other than the default drop shadow.

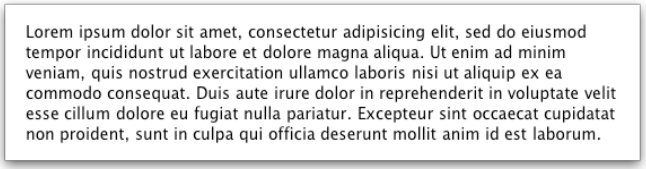



In terms of options, YouTube works the same as Flickr, except that the default option here is called "Recently Featured", which is a selection made by YouTube's editors, updated daily with five or so new videos. On the canvas the video is a regular YouTube web player, with some added features. The video element may be resized at the user's discretion (aspect ratio constrained) and can have its border decorated as well. Because a YouTube player has to be able to respond to user input, like playing, pausing, and adjusting volume, the handles for dragging the video element appear when the mouse is held over it and disappear once it has left the element.




The last source contains elements, once added to the canvas, which enable users to add text. The first one is the ever present sticky note for lists, annotations or simple labeling. Sticky notes can be decorated into five different colors. On a side note, the image above shows how content grows when it’s being dragged out of the toolbox and held over the canvas. Mentioned earlier, text blocks are meant for entire paragraphs of text and grow vertically to accommodate that text. A text block is horizontally resizable so that it shrinks in height when it’s being made wider and grows in height when it’s made thinner. Just as Flickr’s images and YouTube’s videos, a text block’s default drop shadow decoration may be changed. The background and font are part of the current theme and change accordingly as a new theme is selected. Lastly, text balloons can make actors on the canvas, like images displaying people and pets, say things as if the user is making a comic strip. Text balloons can be flipped horizontally or changed from the default black--on-white appearance to a white-on-black appearance, which might mean that the actor saying it, is angry.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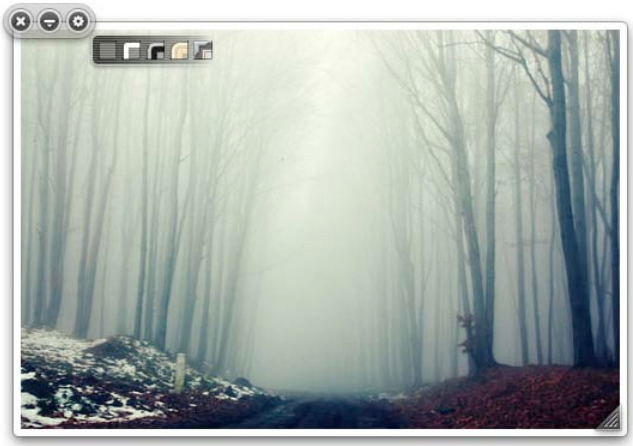
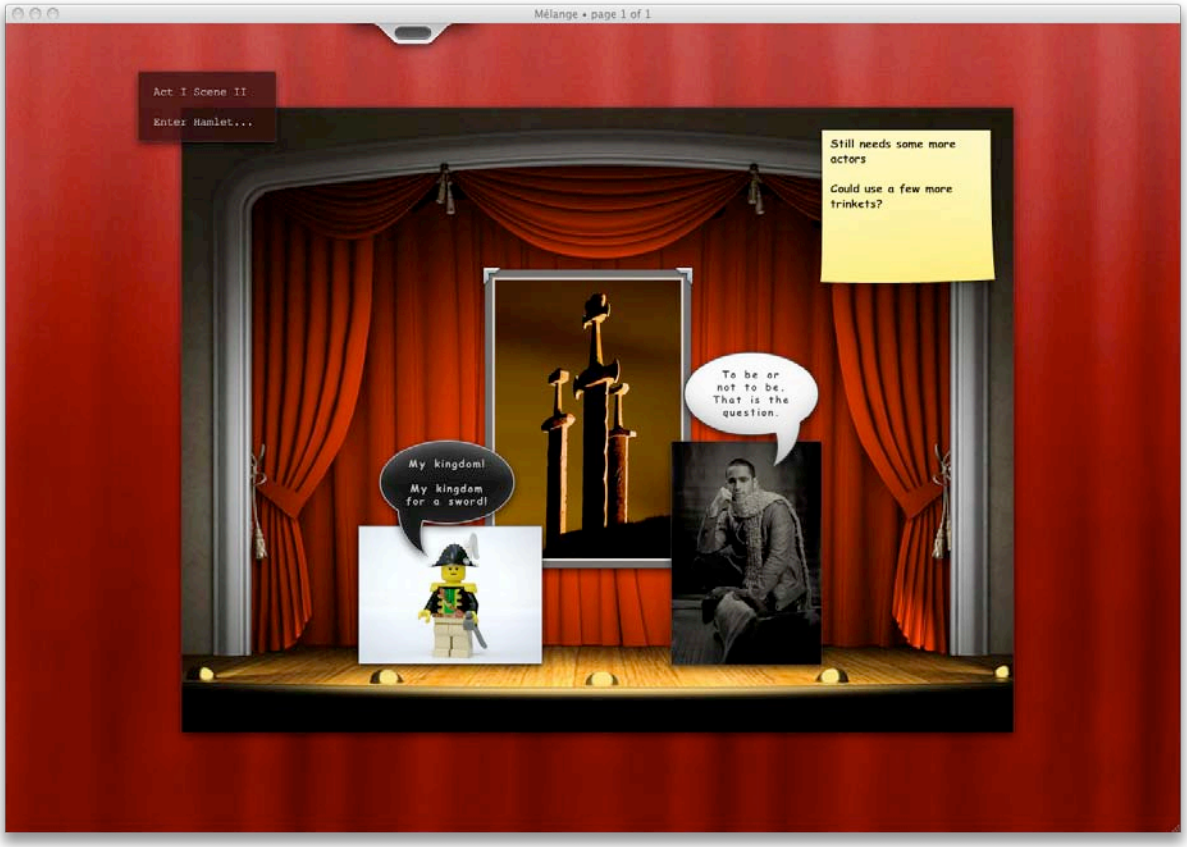
All elements on the canvas support dragging by default; elements can be "picked up anywhere, as long as there's no editable or active content where the mouse is clicked. In the prototype, editable content is limited to fields for entering text, which happens to be the case with all three element types of the "Pen & Paper" source. Active content refers to web applications such as Flash object; the YouTube video player is such an object, where people need to be able to access things like play and volume control, which means that the element must be "picked up: outside that content. Double clicking the element or holding it in place for a fraction of a second before moving will make the element the top layer. All elements added to the canvas have a set of controls, which reveals itself when the mouse is being held over the element. By default, an array is located in the top left corner, consisting of three buttons, which are used respectively for deleting the element, sending it one layer down and showing the decoration options, which may be unique for each type of canvas element. Optionally, if the element is resizable, a handle for resizing the element is located in the bottom right corner. There are four types of resizing: in height, in width, in both directions and in both directions with a constrained aspect ratio.

Resizable, rectangular element, like images, videos and text blocks can have five decoration options for their borders: plain shadow, white margin, black & chrome, heavy paper and a studded frame. Sticky notes have five options to have their color changed, whereas text balloons have a two horizontal orientations and two color schemes, making a total of four options.






Just a few minutes of working with Mélange’s prototype can generate a simple, yet expressive arrangement; in this case a stage with some things related to Shakespeare. Whether it’s a scene, a collage, a story, etc., even as a semi-functioning prototype, Mélange’s simplicity and freedom allow people to express themselves easily.

# 5 In Practice

**Just as an idea is all but meaningless without execution, a tool like Mélange is next to meaningless without it having been tested. The originally grand vision for trying a fully functioning prototype wasn't achieved, but enough of remained to create a working prototype and confront prospective users with it. One group of users was given a week to use the prototype in any way they would seem appropriate, whereas the other group was asked to use it in the context of a design assignment. Results from both studies will be shown, demonstrating the prototype's use and usefulness as a tool for creativity.**

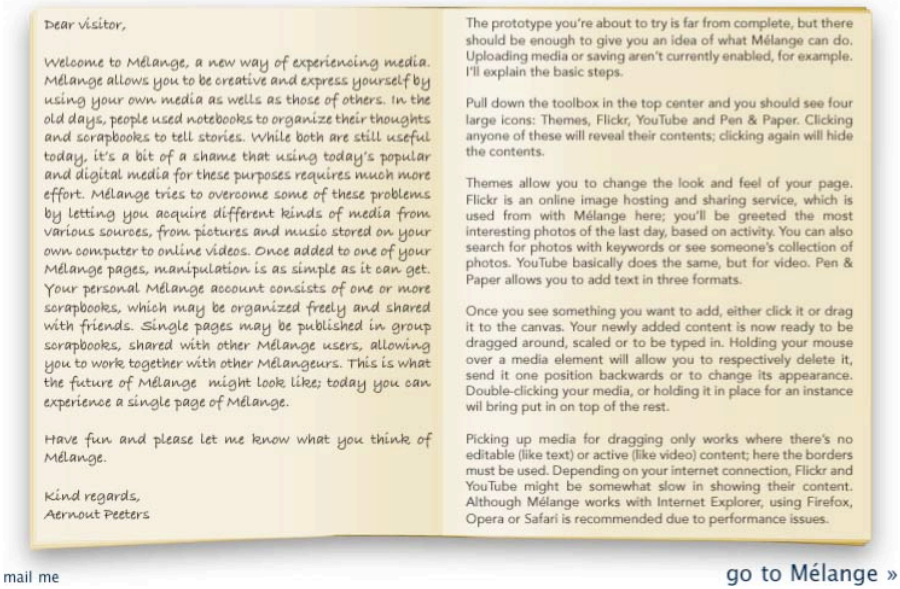
## 5.1 In the Beginning

Originally, the goal was to end up with a prototype, which would allow users to maintain at least one scrapbook filled with multiple pages, which could be create freely and shared with others. Given the time constraints of this project, it might have been possible if and only if a design specifications had been ready at the beginning of this project and I would have made the prototype without making mistakes or having to learn. While in hindsight an obvious fallacy, the original aim was to have a group of creative professionals from different backgrounds use the prototype within the context of their work for the duration of one month. After that month. I would review their creations and conduct interviews with participants, using those creations as guidelines, and try to find out what their attitudes would be towards the prototype and how it had affected their work.

As this project moved on and time seemed to go faster than anticipated, the goals of this project had to be redefined; a working prototype would still be made in order for others to experience, but as made clear in the chapter before, a lot of features were scratched, leaving a working interface for filling a canvas, without any means of saving, let alone sharing. Consequently, the goals for doing research with the prototype also changed and changed again when any prospected testers would have only one week to use the prototype.

# 5.2 One Week of Play

Five people were asked to participate in a one week trial of using Mélange, all of them having a creative profession of some sort. Two are interaction designers, one is an architect, the forth is an assistant professor in interaction design and the last participant is a writer of children's books. I asked them to use Mélange, and experiment with it, as much as possible, but at least once in the context of their professions, preferably for a project they were working on at the time. As the prototype doesn't support saving, I asked them to make screenshots of their arrangements, so I would be able to analyze those and use them in interviews later on.




Where the first part of testing Mélange focused on what people would would do with it, the second part features a small usability study. I asked two people, one PhD student in design (and member of the ID-StudioLab) and a graduate student from our faculty (doing his master's in Integrated Product Design), to use the prototype in relation to a fictitious brief. The brief's assignment was to design a coffee maker for couples, who had been living together shortly or would do so in the near future. The two participants were asked to use Mélange in relation to to the design assignment and to speak their thoughts while doing so. A camera was used to record their actions on their monitors as well as anything they would say.

For both groups of participants, a written introduction was shown before they could access Mélange's prototype. Other than explaining what it might be used for and how the interface the prototype's interface worked, the link to the prototype opens it in a new window, which uses as much screen estate as possible and hides as much of

the browser's interface as possible. I interviewed participants, asking what their attitudes towards the prototype and Mélange as a concept were. I was especially interested in how Mélange could affect their personal professions and daily routines as well as what role Mélange could play for their professions in general. Naturally, I was also interested in anything else participants would mention, such as uses not specifically intended or mentioned.

## 5.3 Results

While not part of this research, a few anecdotes are worth mentioning of what happened when people were confronted with the prototype for the first time. A fellow graduate student likened the ability to mix different kinds of media within the same creative space to the animated newspapers in the Harry Potter movies. One of the participants created a concert of YouTube videos showing musical practice sessions of her daughters. Lastly, I couldn't get a bigger compliment than the one given by one of my mentors, who pondered as to why a comparable service wasn't already available, given the, in his mind, obvious capabilities of the prototype.

Before I present any results, it should be mentioned that the results from the trial aren't as complete or uniform as I would have wished for. Getting participants to respond is, despite reminding them, always somewhat of a hassle and one participant didn't provide anything. Only one participant actually sent a photo of himself at his desk, with the prototype running on his computer. The level of commitment also varied with two participants sending me only one screenshots, another two and the last one three. The next few paragraphs provide an overview of what the prototype was used for, as well as what they and others could use it for if Mélange's full concept would be available as a service.

### 5.3.1 Observations

All of the four participants who did use the prototype, sent screenshots of how they had used the prototype in relation to their professions, but showing only work of past project and no current ones, which is, given the time constraint of one week, not so surprising. The result, however, is that the prototype has been used mainly to communicate to others and not as a personal tool. The writer, for example, explored the possibilities to show media related to one of his books, for which he has a video on an accompanying website, hosted by YouTube. Consequently he used the video in his arrangement, which he would have loved to have been able to do with one or more image as well. He doesn't have a Flickr account, but to his surprise, a photo of his book had been uploaded to Flickr by someone else. Another arrangement shows an overview of issues concerning young girls and internet safety, which was an assignment topic for students of the assistant professor. It shows children, computers, a chat log, and flyers of organizations working on the topic. There was also an annotated collection of YouTube videos, showing different kinds of touch interfaces. It's related to a past project his company did on touch display in classrooms. The last arrangement shows elements for an exposition and presumably, as the creator was unavailable for comment, shows a checklist of what has to be done and as well as two examples of what to feature in the exposition.


All of these four work related arrangements use sticky notes in one way or another; some show thoughts or considerations, whereas another was used for a label and the last one for a checklist. While text blocks didn't prove to be very popular, the text balloons did, but some were left empty, which might mean they were added for novelty's sake under the assumption the most creative professionals are used to (digital) sticky notes. Both images

and video were featured in all four and all had their default theme changed. Less popular, as it seems, was the ability to change an elements decoration, with most images and videos having their default drop shadow as well as sticky notes and text balloons having their default color schemes.

The two participants, who used the prototype while they were recorded, didn't use it to communicate with others but for their inner dialog. Immediately, both separated the assignment into problem areas: methods of making coffee, current products and contexts of use. One added the target audience as a problem area as well, whereas the other later argued that the target audience had no room left for interpretation and was already implicitly featured in the context of use. Both said to want to focus on the experience of making and drinking coffee, which they stated to be induced by the looks and sounds of the coffee maker, which is why both searched for videos showing operating working coffee machines. Both regarded the kitchen as the main context of use and added photos of somewhat kitchens or videos of people drinking coffee in such a kitchen, arguing that the context was part of the experience. Also, both stated they had changed the theme to match coffee as a theme; one selected the checkered marble floor, opting for an Italian theme, whereas the other chose the red velvet curtains, portraying the sensation of coffee, as they stated.


In terms of usability, the two participants who were recorded seemed to have some difficulty getting used to some of the elements' handles intended for dragging. Text elements and YouTube's video elements have those handles outside the elements' contents, which occasionally resulted in failing to drag the element around. Sometimes they would miss the locations of where they had to click to start typing in text elements. YouTube's elements seemed to have an extra annoyance, as clicking the video will open a new window, showing the video on YouTube's own website. Making the area displaying the video part of the handle fro dragging would alleviate this problem, but would introduce new problems because some of the video player's controls wouldn't be accessible. There also seemed to be some issues with understanding how the layering of elements on the canvas works. Double clicking and holding in place aren't conventional ways to get a layer on top, so these weren't naturally found out; after some instructions both participants had an easy time adjusting to this type of behavior.

The other way of adjusting the layering, using the middle button of the control box in the top left corner, didn't always seem to respond. While clicking this button moves the element one layer down, the effects may not always be visible, especially when the element positioned one layer lower isn't necessarily directly underneath it. Surprisingly, neither had any problems opening the toolbox or any of its sources. Selecting the right options took only a few seconds the first time and provided no issues later on. All in all, both managed to create satisfactory arrangements with a minimum amount of effort once everything was running slowly: one participant was initially suffering from a very slow browser, which wasn't caused by the prototype by the way.

### 5.3.2 Responses

Generally speaking, all participants responded positively and noted the concept's potential, but also noted the prototype to be too limited to be useful. The designers among the participants noted that Mélange, as a concept, could have multiple uses related to design work, both as a personal tool as well as a social tool. One participant noted that the ability to use different kinds of media is a bonus when it comes to making collages, as it would allow him to express himself in more ways; video and text balloons can make a collage express things, which would have to be explained in the case of regular image based collages. The participants with backgrounds in design, likened the personal use very much to making collages. The writer, who admitted to not having read the introduction, was the only one not have regarded the prototype as personal tool, but solely as a means of presentation.

All noted the concept's potential for communicating ideas to others. Groups of students working on the same assignment would be able to communicate their thought processes more easily, as one participant noted. Another noted how he would be able to share results of design processes more easily with colleagues across distances if he could send a URL pointing to the page he had been working on. Communicating with clients through Mélange was also noted as a possibility. Two also reckoned it as a presentation tool, allowing them to easily make arrangements and share those with audiences, as if it were digitally enhanced postcards. Another also noted it as such, but not in the context of his work, but for sharing things like holiday experiences or as someone else mentioned, to tell stories digitally.

Other than not being able save and share arrangements, participants missed some, to them, essential features. Most often mentioned was the desire to upload files, especially images to the prototype, not wanting to upload to Flickr first, let alone wanting to create an account. Also, participants noted a desire to customize image elements by being able to crop and mask them. One would like to be able to rotate elements to break through the orthogonal layout of some elements. In order to be truly effective as a personal tool, more annotation possibilities should be available, such as drawing lines, arrows and freehand sketches in order to relate two or

more objects with one another. For one participants, the themes were too dominant, wishing for more neutral, understated themes and plain colors to choose from. In the case of text blocks, some wished for more control over font styles.

Overall, participants enjoyed working with the prototype, praising how the interface allowed them to quickly find results and associate freely with those in order get more results. One mentioned that the interface's presentation entices him to experiment and find out what might he might be able to do with it; the idiot proof nature of the interface, as he called it, is essential for achieving that goal. He also mentioned that the prototype felt like a real application, despite running in a browser window. Another also mentioned the ability to make arrangements on the fly, but regarded the ability to easily delete elements just as important.

## 5.4 Discussion

First of all, it should be noted that all participants are personal acquaintances and friends of mine, so there's a likely good deal of bias going on here; although I trust them to be honest with me, I realize that some form of pleasing is always going on. Having noted this caveat and noting the fact that this phase should have been done more thoroughly if time had allowed it, I feel that Mélange holds a good amount of promise. Most participants mentioned that they, if at all, barely read the introduction and yet managed to do just fine. I see this as an accomplishment of a carefully created user interface, allowing users to focus on the their creations and not the interface.

Compared to the five categories of inspiration found earlier, Mélange seems to be able to hold its own. The two participants who had the coffee maker assignment, immediately started looking for examples on Flickr and YouTube and seemed to be satisfied with the results. These references were part of attempts to frame their assignments into a workable space for generating solutions Although one participant mentioned he would associate freely with the results from Flickr and YouTube, I feel that it's too premature to state that Mélange is suitable for visual thinking. The participants who were given a week to play with the prototype tried to tell stories about past projects they had worked on and all stated how useful Mélange might be in this context. However, as long as there is no way to save arrangements, and share those with people other than myself, I can only guess, although the ability to tell stories was mentioned more than once. The aspect of sharing not only requires arrangement to be saved, it also needs some way of receiving comments; sharing thought processes, stories, or anything else for that matter, is done to get reactions and is in no way currently supported by the prototype.

All in all, I can say that, judging from participants reactions, Mélange and its prototype are headed the right way. The fact that people were so easily able to create arrangements shows, at least to me, that there really is a need among creative professionals to use digital media in informal ways. This has already been established for images, but other kinds of media like video and text may be just as valuable and combined even more than any one of these on its own.

# 6 Conclusions and Recommendations

All that remains now is to conclude this project in a dignified manner. First of all, I believed in the vague idea I had of enabling people to mix different kinds of media and I believe even more in what the concept turned out be. Mélange may open up new ways of how we use our media and change the way we think about our media. As the albeit very limited trial shows, people are able to express themselves with minimal effort if they choose to do so. Noting that Mélange can play a role in at least three out of five categories of inspiration, I'm going to proclaim Mélange as a tool for creativity.

By using a aesthetically minimal but generally pleasing interface, participants of the two tests didn't just experience a low threshold in using the prototype (few had actually read the introduction, describing how the prototype worked) but felt themselves enticed to explore, not in the slightest sense feeling worried that they would "break" anything. Although the prototype can't be used as opportunistically as, for example, a notebook, observations seemed to show that the two participants working on the imaginary assignment were still capable of using the prototype in such a manner; by being able to use the results from searching Flickr and YouTube immediately within their arrangements, they didn't have to go through a process of reviewing first, but could judge immediately whether or not the media element would fit. Given the low threshold of using the prototype and being able to create arrangements in opportunistic ways, one might argue that Mélange isn't just a tool for creativity but an informal one as well, despite its reliance on verbal input for searches.

Because of the prototype's versatile nature, as people responded, Mélange should be useful in many areas of creativity, both personal and social, that is, when fully operational. This versatility might make it useful for other people, not engaged in any creative profession, as well, which wasn't even a topic to begin with. This versatility is mainly caused by recognizing aspects from physical as well as from digital media. Physical media offer unmediated handling which allows for high degrees of freedom, but offer little of the rich nature found in today's new media. The interface emulates this as close as technically possible, providing limited functionality, yet deep

interaction. The meaning of what people create doesn't come from what an interface dictates them, but becomes clear from the arrangement and aesthetics made by the user.

While Mélange offers a lot of potential, I'm certain that it won't replace making physical collages anytime soon; physical material has enough other advantages to make its use appropriate in the right contexts, especially when the focus is for people to be able to express themselves as opportunistically and informally as possible. Mélange wasn't created to replace physical collages, but to offer a glimpse into the future, possibly revealing, if not deciding, how creative professionals might use new media as inspirational material in their design processes.

This project also demonstrates the power of prototyping as part of design processes. In fact, I don't think that this project could have been very meaningful if no prototypes had been created. Despite designers' ability to make concepts insightful using words, images and storyboards, being able to experience an interactive prototype of such a concept is more powerful than all of the rest combined, that is if the prototype is the appropriate tool for the job. This is also why I won't make any bold comments as to Mélange's usefulness as a social (design) tool and, to a lesser extent, for telling stories. This too needs prototyping, meaning that a so-called back end service will have to be developed, allowing people to experience Mélange as intended. Mélange might have a lot of potential hidden away somewhere, which can only come out by having a group of considerable size use it and observing how this group will use it, both as a personal and as a social tool.

Lastly, I would like to make a case for using more different kinds of media in researching design tools, as I feel that the focus should accompany for media other than static imagery, which is exactly why I chose to do this project. From a physical point of view, the focus on static imagery makes sense, but with today's interactive media and designers exploring interactions other media should be included as well, especially if those use senses other than eyes. From a digital point of view, I very much understand that basically leaves sounds to add to Mélange, but the effects of that might be interesting nonetheless.

# Thank you...

Mum and Dad (for letting me stay in university for this long)

PJ (for believing in me)

Timo (for being different)

Marcel, Sytse, Suuz, Pieter & Jan-Tjeerd (for testing or saying you would)

Froukje, Daniel & Ianus (for being the best of colleagues)

The ID-StudioLab (for making me learn)

Jack (for dragging me through the last hurdles)

Anyone I forgot (for .....)