

# ideas: A vision of a designer's sketching-tool

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## ABSTRACT

In the conceptual phase of a project, industrial designers do a lot of sketching. In this early phase the immediacy and flexibility of traditional media are preferred over the possibilities that computer tools offer. This video presents ways in which a computer-supported sketching tool can improve support for a designer at those stages. Three scenarios each depict part of a designer's activities: discussing the brief with a client, travelling home in a train, and working in the designer's office. For each scenario, the video shows the strong points and limitations of traditional media, and indicates how current or near-future technology can improve the situation.

## Keywords

sketching, design tools, conceptualisation, pen tablet.

## INTRODUCTION

Computers are becoming more important in all aspects of the designer's workplace. That is, all aspects except one: the conceptualisation phase. In this early phase, where a problem is explored and ideas for solutions are formed [1], sketching on traditional media is still the preferred way of working. Designers favour traditional media over computer tools because the former allow controlled vagueness and natural interaction, whereas computer tools are perceived to be overly precise, and expressively dead while offering stifled interaction [2].

The IDEATE Tools research in the ID-StudioLab focuses on (computer-supported) design tools for the conceptual phase of a design project. In earlier work, the IDEATOR [3] showed how the interface of a digital sketching tool should look in order to support the perceptual and motor skills of the designer. TIME [4] showed how a digital sketching tool could similarly support 3D design. Both projects focussed on sketching individual shapes. The 'ideas' project [2] studied how designers handled multiple visual materials, including sketches, early in the design process. The project resulted in a vision of a digital sketchbook for designers that was feasible with current or near-future technology.

## Approach and scenarios

The approach shown in the video contrasts with the

common approach of finding an application for a new technological tool or concept ('finding a problem for a solution') or solving problems with current digital solutions. In our video presentation we show a number of problems and annoyances with the current situation and traditional tools, and show how this situation could be improved using computer-supported tools.

Each scenario in the video shows a designer using his traditional sketching tools. These tools actually suffice for the task, but lead to some problems and annoyances. Next we show a vision of how a well-designed digital sketching-tool can improve this situation. Finally, some of the tools and technologies seen in the vision are highlighted to show the ideas and concepts are not very unrealistic, given the current state of technology. This cycle is repeated for three situations taken from a designer's day of work.

## SCENARIO 1: AT THE CLIENT'S

The first scenario shows the designer at his client's office. In this scenario we see that, although there is a big difference in form and function between presenting concept-renderings and rough sketches, sketch-like annotations are needed on the presentation-renderings.

Further on the scenario shows that sketching is more than making pen-on-paper drawings. Both the designer and the client bring forward other visual information, including pictures from magazines and existing products. All of this information is included in the project's design context, and annotated. Designers often use many visual materials for inspiration and guidance in the early phases of the design-process [5]. Archiving all this information can be problematic.

In our vision the designer uses a digital sketching pad, which may seem a bit futuristic. However, most hardware is already available: high-resolution pressure sensitive screens, and portable computers are powerful enough for simple sketching applications. Digital camera's can capture images of pictures and products to illustrate the design context.

## SCENARIO 2: TRAVELLING BACK

In the next scenario we see the benefits of portability of sketches in a train, or indeed any mobile situation and situations where the designer is not in his office. Good ideas often come unexpected, at times the designer may not have all of his sketches and visual material and tools at his disposal. Ideas end up on small note blocks, or even on cocktail napkins and beer mats [6]. Because no prior

sketches are available to provide context, the creative moment may stop here. A small portable tool containing prior sketches would help.

Even with all sketches at his disposal, the designer's needs a good way to navigate through his sketches. Making sketches helps the designer with creative tasks [7], but tracking back sketches or browsing through prior work provides valuable input and inspiration for the internal dialog.

In our vision, browsing through the pages of the digital sketchbook is done using a 'thumbnailslider' [8]: A thumbnail-representation of the current page that – when dragged – reveals other pages in the book. By releasing the thumbnail, the page in it is displayed. The thumbnail can be placed on the screen semi-transparently without taking up virtually any screen-space: The thumbnailslider only pops up when focussed on and all of the screen's surface can be available for sketching [9].

From our studies it was found that a thumbnailslider works especially well for pages that have distinct visual features and page-layouts. Furthermore to find back pages it helps if the reader has a coarse mental image of the pages and their order. Pages of a sketchbook satisfy these conditions, which makes the thumbnailslider well suited for this application.

### SCENARIO 3: BACK AT THE OFFICE

When the designer is back at his office, he can use all his favourite sketching tools he could not take with him (eg larger paper, fineliners and markers). In addition to using the tools and visual materials as introduced in the first scenario, the designer can make quick models out of for example cardboard or clay. The sketches in the sketchbook, the stack of new larger sketches and the quick models make it hard to maintain an overview of process and chronological order of the sketches.

A clear benefit of 'digital sketches' in this situation is that all sketches and material can be transferred and scaled to both situations (portable and office), including imported images and quick models.

Though most CAD applications are not suited for early idea generation purposes [4] applications like Teddy [10] show a way of making 3d models in a more sketch-like fashion.

### CONCLUSIONS

The video does not show a fully detailed product that will revolutionise sketching for designers. But in three situations it shows benefits with which a digital sketching tool could beat traditional media 'on their home ground':

- Mixed aspects of sketching and full annotation are supported, and extraneous material can be integrated.

- Sketches can be accessible at any time, any place, which means sketches are both portable and navigable.
- Sketches can be duplicated and transferred between different tool-environments.

Moreover the video shows that most technology and interaction concepts are ready to be implemented.

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