# Sensational Interfaces
## - Function AND Passion

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**ABSTRACT**

This paper discusses and outlines an example of sensational interface. One important aspect of sensational interfaces is that they have to appeal and bring forward both high focus and low focus thoughts at the same time. This is intended to support creativity for its user. One drawback with this approach is that too little has been done yet to design sensational interfaces and this implies that we donít know where this will lead. Will it lead to chaos or to more benevolent and humane forms of HCI?

**Keywords**

Consciousness, creativity, emotions, experience mode, high focus thoughts, low focus thoughts, multimedia, realisation, reasoning, reflective mode, sensational interfaces, synaesthesia unconsciousness, virtual reality.

**INTRODUCTION**

Today within the community of HCI much attention is given to the design of interfaces. A well designed interface is supposed to have high usability. In fact usability is a keyword in the area. Most interfaces today consist of mouse, keyboard and a graphical screen. The appearance on screen is build upon the concept of direct manipulation. Ben Shneiderman coined this concept in 1982 to describe interactive systems mainly based on the use of windows, icons and menus[2]. Direct manipulation highlights such features as visibility, incremental action, rapid feedback, reversibility of all actions, syntactic correctness of all actions and the direct manipulation of visible objects. Earlier interfaces used only one and in some cases two of the human senses, the faculty of vision and sometimes hearing.

Another area within the community of HCI is multimedia. According to Waterworth [5] the use of multimedia is an attempt to allow people to act and communicate by using several modalities. For example, by a more extensive use of the auditory sense the interface becomes more user-friendly and more easy to use. Virtual reality (VR) takes this development a step further, by its possibility to take advantage of almost all of the human senses. Today it is common to use the faculty of vision, the auditory sense and the tactile sense. It is even possible to make use of the olfactory sense and the sense of taste which entails that it is possible, at least in theory, to use all the senses. Then why is it important to use several senses? One answer to this question is that people donít use all of their senses equally. A few people even have the gift of synaesthesia. Synaesthesia is according to Waterworth [7] î*the experience of information that is usually perceived in one form in a radically different form*î. This indicates that they posses the ability to use several senses at the same time when they perceive some information. One attempt to use and take advantage of several senses is Osmose created by Char Davies [1].

When people work with the interface they use their brain. Gelernter [3] argues that human thought can be seen as a spectrum from low-focus thought to high-focus thought. High-focus thought is used in problem solving, when the thoughts are very abstract and concentrated on a specific clearly defined problem, whereas low-focus thought applies to thoughts which are not concentrated and have a dreaming character. This kind of thought can be seen as concrete thought, and according to Gelernter [3] this kind of thought includes the use of emotion while high-focus thought does not.

Norman [4] differentiates between two kinds of cognition, experiential and reflective. Experiential mode is when we perceive and react to events efficiently and effortlessly, while reflective mode is when we have to reflect, think and make a decision, which leads to new ideas and novel responses. But as Norman points out these two modes are not completely independent nor do they capture all thoughts. Reflection is more difficult than experiential mode because it requires some structure and organisation. Experiential mode on the other hand can be practised simply by experiencing it, and it is often enjoyable. When people use high-focus thoughts they also work in a reflective mode, while the use of low-focus thoughts brings out the experiential mode.

Traditionally interfaces support high-focus thoughts and most of the time only stimulate two of the human senses, the faculty of vision and the auditory sense. This kind of interface encourages reflective thinking and abstract

thoughts. One disadvantage of this is that it limits human thoughts; only information that is abstract, has important attributes and is closely related to the specific problem is accessible in memory. This kind of thought does not evoke creativity and does not appeal to all human beings.

## CREATING CREATIVITY

One important aspect to take into consideration when creating a sensational interface is to design for creativity. According to Gelernter [3 page 79-80] what happens when you are creative is that îRather than beating your head against the wall of a difficult problem that doesnít yield to ordinary, methodical approaches, you discover a different way to see the problem; you conceive of the problem in new and different terms; you îrestructureî the problemî. This ought to entail that you have to use your low focus thoughts to be able to find analogies to the problem, and not to be so abstract in your thought about the problem. But on the other hand to be creative and to be able to get a new idea includes the use of both low focus and high focus thoughts (figure 1).

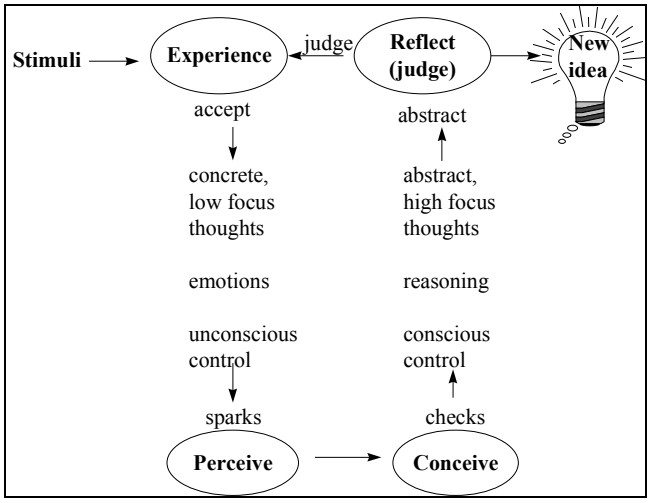


Figure 1 An outline of creativity.

A new idea starts with stimuli which evoke concrete and low focus thoughts. This part of the process is controlled by the unconscious part of the mind and gives raise to sparks of ideas. In this part of the process emotions play an important role. When an individual is in low focus thought they have access to their whole memory and this also entails the use of emotions [3]. After a while one or a couple of these sparks appear and become clearer than the rest, and this is perceived by the individual, who becomes aware of the thought and conceives it. This is the start of the process of checking and testing this new idea, and transfers the thoughts along the spectrum of thoughts from low focus to high focus. The control is accordingly transferred to the conscious part of the mind and gives rise to abstract thought, which starts to reason and gives the idea a clearer shape. When the idea is clear the individual starts to reflect further about the possible new idea and if necessary modifies it or otherwise a new idea is born. If the individual finds it necessary to modify the idea the process starts all over again and the skeleton of the new idea is transferred to experiential mode again.

One important aspect that this model brings forward is the use of both experiencing and reflecting, of both high and low focus thought and last but not least the use of both the body and the mind. To use both the body and the mind also includes the use of emotions, since emotions play an important role in low focus thoughts.

Today most existing systems tend to be purely reflective or purely experiential. Most business systems are purely reflective and support only high focus thoughts and abstract thinking. This is probably a good idea for those systems because they should be effective and support quick problem solving. These interfaces have to be very abstract and support high focus thoughts, which they in fact do.

There exist also examples of pure experiential systems, like Osmose, games and so on. In this kind of system the emphasis is on emotion. Both games and Osmose are very good at bringing out emotions and they also uses several senses in doing so.

Thus in order to be able to give support for creativity and the emotional aspects of human mental life, it is important that the system is designed to bring forward self-discovery and understanding within the user. To address these aspects, it is a need to design for both experience and reflection.

### An example of a sensational interface

A sensational interface has to support both high focus and low focus thoughts as well as emotions. A way to support that is to use multimedia or VR, which make it possible to for an individual to use several senses at the same time.

Figure 2 outlines a simple sketch of a sensational interface.

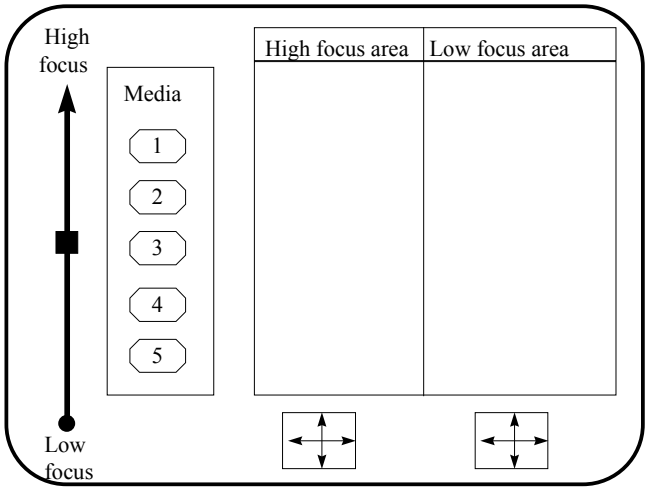


Figure 2 Example of a sensational interface.

The interface enables the user to choose focus from the spectrum of thoughts, whether (s)he wants a view of information that supports high or low focus thoughts. It is even possible to choose arbitrarily along the spectrum of

thought. In figure 2 the focus of thoughts supports both low and high focus, which is shown by the high focus area and the low focus area being of equal size. To change focus, for example to low focus, the high focus area shrinks the advantage of the low focus area which expands. It is also possible to move within both the high focus area and the low focus area by using the navigation button (  ).

Another possibility is to choose different media for presenting the information. It is even possible to choose to present the information in several media at the same time, and this supports the idea of synaesthesia.

By default information presented in high focus area is text and very abstract and focused on the subject. It contains just the necessary information, and in that way it supports reflection, problem solving and high focus thoughts, whereas the information presented in the low focus area uses several senses and appeal to the userís emotions since this supports creativity by stimulating concrete and low focus thoughts. The low focus area uses 3D images, sounds or if possible other aids that attract the users emotion, and puts her in low focus thought where the unconscious is in control and where the whole memory is available.

### Discussion

One problem with this approach is that it is hard to evaluate. One has to consider questions like; how to judge creativity, how to measure user satisfaction, how to ensure that the interface supports the spectrum of thought for the actual user and also how to measure and judge the support for rational and emotional thoughts. Today there is a lack of empirical evidence within this area, but the need for that is very urgent. There are also relatively few proposals to develop and evaluate sensational interfaces. Part of the trend to address emotional aspects of cognition as well as rational aspects is the use of VR and visualisation capabilities. But it is not enough to use just sense of vision, the system has to utilise many senses preferably at the same time, and also there has to be a possibility for the user to choose between use of different senses or more preferably to use several senses at the same time. The interface should be designed for **realisation**, which reduces the need for rational thoughts in interacting with computers and mixes the possibilities for richer direct interactive experience. Waterworth [6] outlines an approach on how to blend experiential and cognitive aspects of mental life by using VR (virtual reality). He claims that it is important to use both the abstract and the concrete to support creativity.

## CONCLUSION

To create sensational interfaces it is important to use several of the human senses and especially the tactile sense. Virtual Reality is a useful tool to implement the use of the tactile sense, which is a good way to bring forward low-focus thought, experiential mode and creativity. I believe that it is important to create interfaces that evoke sensations and emotions which should lead to engagement within the user. Sensational interfaces should attract and stimulate the creativity and fantasy that people have inside themselves, but it is also important that the interface has the ability to bring forward high-focus thought. If an interface has the ability to stimulate both high-focus and low-focus thoughts, that would imply that more people would find it easier to use and to fit their style of thought and work. Further it could make the interface more enjoyable and more appealing to work with.

Too little has been done yet to design and evaluate sensational interfaces and this implies that we donít know where this will lead in the future. Will it lead to chaos or to more benevolent and humane forms of HCI? Or as Waterworth [7] expresses it î*We cannot help people to think better*, but we can allow them to experience more.î


## ACKNOWLEDGEMENTS

Thanks are due to John Waterworth for valuable comments and inspiration to the paper, and thanks to Victor Kaptelinin for his helpful comments.


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