

# MDS-i for 1 to 1 E-commerce: A position paper

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## **Introduction**

This position paper gives some background on what research and approach we apply to design issues within the IDEATE project, which is a part of the faculty of Industrial Design Engineering at the Delft University of Technology. The IDEATE project studies possibilities in new computer tools, interfaces, input & output devices that support the user (specifically designers) to visualize and organize their ideas and concepts. One of the interfaces developed in our labs, MDS-Interactive (Multi Dimensional Scaling Interactive) [1], offers a truly interactive and explorative way of performing visual searches in a large collection of products. We believe that some aspects of the research and experiments done on the MDS-Interactive interface offers possibilities for the human searching and browsing in complex hypermedia spaces and the information visualization of a product catalogue.

## **The IDEATE research project**

Research in the IDEATE projects focuses on the methods and tools used in the conceptual phase of design. Apart from studies, we try to develop (computer-supported) tools to better support this process. With these tools we often go beyond our original target group, the designer, and try to find tools that other people can use to express their needs and wishes in a product, form or functionality. In our interactive tools we try to exploit and transcend the so-called “physical world” interaction models. We have noticed that especially in the early phases of decision making and concept generation the conventional “physical world” techniques, such as pen-and-paper sketching and browsing through magazines or catalogues reigns supreme over the advanced computer aided tools such as CAD and visual databases. We do believe that computer-supported tools can offer some great advantages over these traditional methods, as long as the tool is developed and applied specifically for that purpose.

## **Interaction, Usability and Aesthetics**

In the development and research of methods, tools and applications we have a special interest in the interaction, usability and aesthetics aspects. When these more general aspects are applied to the specific field of the early phases of decision making, visualization and concept generation, there is a specific need for informal, easy to learn but especially intuitive tools. With the interaction, we look at the richer interaction styles that occur in sketching and discussing ideas and concepts. Not only the tangible results, such as drawings, spoken words and written texts, but also the tempo, expression and layout are important ways for the user to express their ideas. The aspect of usability applies specifically to minimizing the distraction from the task. Instead of intimidating the user with an array of options and possibilities, we try to start of by offering a minimal set of cues to the user that will still allow her to reach any complex result they need to express their ideas. Especially the aesthetics aspect of our approach allows us to stimulate the user to go beyond the already treaded paths. In the conceptual phase it is very hard to allow the user to feel free within a set of given tools. By offering tools that stimulate sketchy aesthetics and that allow the user to “fill in the gaps” by their own imagination, we can achieve a more creative expression and experience for the user.

## MDS-Interactive

The MDS-Interactive solution tries to solve the problem of current database interface paradigms that force the user to verbalize queries in terms of attributive values. People do not always have a rigorously defined question in mind when they exploratively search in a collection. Think for example of a designer browsing through magazines or consumers picking the color of wallpaper or furniture to match their taste. The solution that MDS-Interactive proposes consists of a computer interface that initially offers an accessible (read: small) number of sample products in a clear way and lets users visually specify queries with respect to these samples.



**Figure 1.** An MDS-Interactive interface to a database of skates (graphic design: Bram v.d. Nouweland).

For the visualization of similarity relationships between objects we used an existing statistical method named Multi-Dimensional Scaling [2] in which the distance between two objects reflects similarity of given attributes.

To use this visualization method for querying the database we have added an interaction style that allows the user to visually express the direction of their query in relation to the given sample. A query is generated by selecting a position *between the icons* instead of *on the icons*, resulting in a statement of attributes for the new product.

The prototype itself has a rough and playful character stimulating the user to play and fiddle with queries interactively. When a new product is added the different icons rearrange themselves quickly to create a new MDS based visualization.

When applied to the area of 1-to-1 E-commerce interface development, the fluency of the search and browse interaction in MDS-i has many improvements over the current jargon based query systems. Our first experiments with consumers also show that the system offers a very low-threshold interface especially when offered in a kiosk environment with multiple users.

## References

1. Stappers, P.J. & Pasman, G. (1999) *Exploring a database through interactive visualised similarity scaling*. In Proceedings of CHI' 99 (Pittsburgh, PA, May 1999). 184-185
2. Kimbal Romney, A. Shepard, R. Nerlove, S. *Multidimensional Scaling; Theory and applications in the behavioural sciences*, Seminar, Londen, 1972