To be or not to be.... conscious

Eva Lindh and John A. Waterworth

Department of Informatics

Umeå University

S-901 87 UMEÅ,

Sweden

+46 90 786 67 71

eva@informatik.umu.se

ABSTRACT

A major problem with today's use of computer-based artefacts is the clear boundary that still exists between the user and the technology. The model behind most computer applications is directed towards high focus and abstract thinking, and that implies using our minds as disembodied problem-solving devices. The result is that we are bound to fail when we try to expand human consciousness through technological means. One way to expand the potential of human-computer interaction is to loosen the boundary between the user and the computer, bringing the two parts closer together and letting them intertwine.

This article outlines a model of models upon which the construction of artefacts can be based. It makes explicit characteristics of technological models of the world that are often hidden and used in a more or less unconscious way. They are not documented anywhere and are often not even considered during the design process. This "Characteristic Model", or CharM, could be used to evaluate existing artefacts or to deliberately place a model in a specific place in CharM space, aimed at a certain goal. It should serve as an aid to creating realisation instead of mere visualisation of data, and to bring the body and the mind together again to enhance our doing via the artefact and our being in the world. The aim is to control the location of consciousness, so that we come to see conscious being and doing not as mutually exclusive realms, typified by the artist on the one hand, and the scientist on the other. Rather, we have the choice of our own functional emphasis, and we have technological support for exploring wherever that choice takes us.

1 INTRODUCTION

A problem with the current use of computers is that a clear boundary exists between the user and the technology. The model behind most computer applications is directed towards high focus thoughts and abstract thinking, and that implies using our mind more that our body in the interaction. Another assumption behind computer models is that everything in our world can be formalised and to put in a computer This is the reason why computer models have to have a very firm structure of the part of the world they are trying to capture. Unfortunately the world is not a very structured and formalised object at least partly because it is populated by unpredictable humans; and besides, unpredictability is one of the characteristics we humans are very proud of possessing. We are bound to fail if we try to formalise the world too hard.

Today much of our life is governed by abstract thinking and we emphasise and value a highly focused way of thinking. Concrete thinking on the other hand is often used in various arts and handicrafts, and artefacts within this area are not intended to be objective. On the contrary. they are intended to be subjective and to appeal to several senses of the users and the users' imagination. The artefact is intended to engage and give experiences, not reasons. Thus the way we design our models of the artefact influences how we create our models of the world, and what is permitted. Art and handicrafts are allowed to be subjective while science and information are supposed to be objective. Our conscious life is divided into two separate lines, conscious doing and conscious being, or put in another way we have separated our body from our mind. It is time that we return to the beginning, to the initial being, but with a richer experience since, through recent changes in technology, we are able to use both sides deliberately and consciously.

Most of the models that we use and that are expressed as computer models give the impression that they are very objective and based on objective information. Another characteristic with today's models, especially the models we use in computer applications, is that they are rigid, frozen in time and do not to a large extend reflect our experience of space. The support for space is improving with the use of multimedia, synaesthesia and VR. This is especially true when it comes to computer games and applications for amusement.

A way to improve the interaction is to loosen up the boundary between the user and the computer, bring the two parts closer together and even making them intertwine. This could be done by presenting information directly to the senses so that the user gets a bodily experience, which in turn gets the user involved and engaged in the interaction. Applications that use this approach, so called sensational interfaces (Lindh, 1997), can be used to present information in more intuitive ways, for example within banking. Another application area is as tools for people with some kind of handicap, both physical or psychical. These kind of tools present an alternative way to communicate and therefore they could be used to improve the communication for people who have problems communicating with words.

The way we design an artefact influences how we create our own models of the world, and what is permitted or possible. Art and handicraft are traditionally allowed to be subjective, while science and information technology are supposed to be objective. Our conscious life was divided into two separate lines, doing and being, at an early stage of technological development (Waterworth, 1998). Or, to put it another way, we have separated our body from our mind. Artists have been thought of as physical doers who have time to ponder the meaning of life in a state of "conscious being". In contrast, scientists are mental doers (in a state of "conscious doing"), too busy with the scientific version of physical reality to waste time on metaphysics. We characterise this divergence as a question of the location of consciousness - in being, or in doing.

By using knowledge of the characteristics expressed in the model it is possible to emphasise different ways of thinking and being, and we should be able to consciously build and implement a more appropriate design model for the specific purpose of the application. This would also make it possible to design for creativity, and to permit the user to travel along the whole spectrum of thoughts, from high-focus to low-focus (Gelernter, 1994).

2 CharM - A MODEL OF MODELS

A model is an abstraction of something. It could be a part of the reality or of something that does not exist (figure 1). The model is separated from the thing it depicts, and it is always a simplification and designed for a certain purpose.
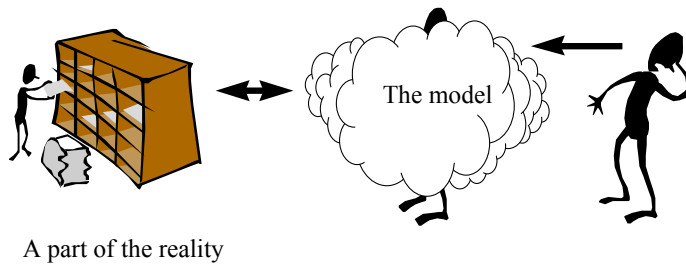
A part of the reality

Figure 1 A model

There is a three-part relationship in modelling, between the person who creates the model, the model itself and what is being modelled (figure 2) (Wartofsky 1979). A model is always in a sense more or less subjective in that the designer or the user adds his/her own interpretation of what is being modelled.

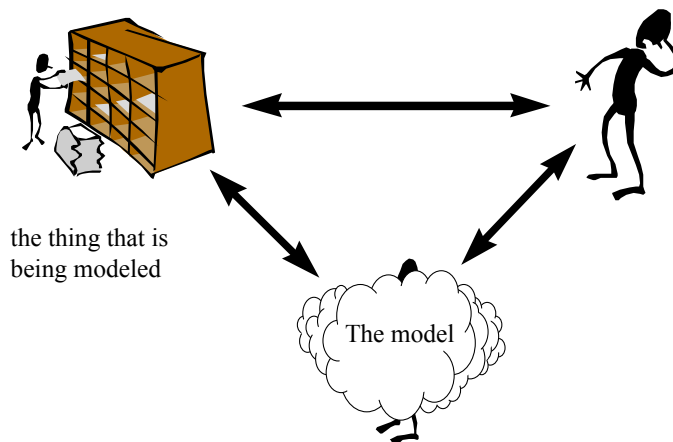

the thing that is being modeled

The model

Figure 2 The three-part relationship in modelling.

CharM is a tool to understand the implications of the model and to put the model in a greater perspective. It is aimed at designing or evaluating a model intended to be used for a certain purpose. The best use of technology is when the interaction combines the best parts from both sides in the communication, the technology and the human being, into a coherent whole, This means letting the technology do the things it does best and letting the humans do what we do best. CharM is a tool to understand what effect a specific model has on its user. For the model to be effective and for it to achieve its goal it is very important to be aware about the effect the model has on the user. By consciously place a model in CharM-space it can improve the interaction between the user and the computer.

CharM consists of a 3 dimensional model and a checklist for evaluation about the models properties. By putting a model in the 3D space and by analysing the model according to the

checklist it is possible to predict what effect it has on its user and what the model is best suited for.

2.1 CharM - The 3D Model of Models

The 3D model (figure 3) depicts whether the model appeals to conscious doing or conscious being, if the model is intended to be objective or subjective and last but not least if the model is used to understand or experience something, for example an artefact, a task, or an event. Most of today's traditional computer applications are directed towards conscious doing because they appeal to abstract representation and human cognition. On the other hand most of computer games and computer art is appealing to conscious being which means concrete representation and human perception. A fuller discussion and definition of conscious doing and conscious being is found in Waterworth (1997).
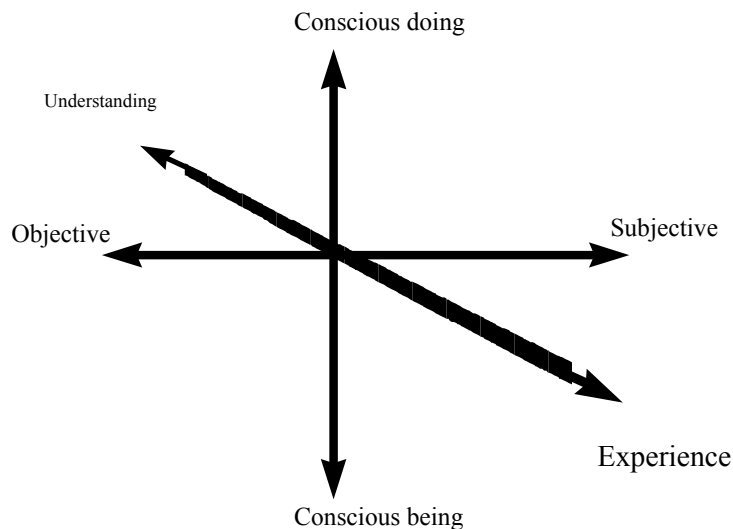

Figure 3 CharM's 3D model

Another aspect of the 3D model is whether the model is to be seen as objective or subjective. The traditional computer application is intended to take an objective view of what it is modelled. It is seen to be an objective presentation of what it depicts. On the other hand computer games and computer art do have a subjective presentation of what they depict, so the observer is allowed to interpret it the way she wants, which in fact is a goal with art and games.

The third axis of the 3D model considers whether the model is used to understand or experience a certain phenomenon or object. It can be used to understand and take a decision in a problem solving situation, or to experience an object or phenomena, as within art or a

computer. OSMOSE (Davies, 1997) is one example of a model aimed at experience by its user and there exist architecture models of building so the user by using VR can walk around in the building which does not yet exist, and so on.

By having knowledge about where a model is in CharM space it is also possible to create an environment which also enhance the users' creativity and in that way create a sensational interface (Lindh 1997) which attracts both the conscious and unconscious mind of the user.

2.2 CharM - Checklist for models

After putting the model in CharM space it is important to analyse the model according to the CharM checklist. This is done to understand and see what implications a certain model brings with it to its intended user. The CharM checklist analyses the rationale behind the model. The checklist is split in two parts, the generality part and the usage part. The generality part deals with the purpose, attributes, structure and the assumptions behind the model, whereas the usage part inspects the use of the model and whether the model is clearly expressed to the user, that is if it is easy for the user to understand the model, its implication, limitations and so on.

Generality, description, structure
- The purpose of the model?
- Is the model general or specific for a certain purpose?
- How was the model created?
- Domain/context of the object?
- Relevant attribute/that are included in the model?
- Relevant attribute/that are excluded in the model?
- Attribute/methods in the model that does not exist in the reality that it is modelling?
- Structure - dense or loose?. If the model has a dense structure it is able to answer more questions.
- What underlying assumptions is behind the model?
- Does the model include time?

Evaluation and use
- Is the purpose and demarcation clear?
- Is the model objective or subjective?

- Is the model made for the purpose to understand, that is to gain knowledge of some kind, or to experience, that is to use your low focus thoughts?
- Is the model intended to appeal to conscious being or conscious doing?
- Is the model supporting the unconscious, that is if the model is trying to activate the unconscious?
- Proposed medium for implementation of the model?
- Demanded medium for the model?
- Is it possible to computerise the model? If so, why?
- What are the pros and cons of computerise the model?
- What has to be changed/adjusted to computerise the model?
- Does the purpose have to be changed to computerise the model? If so, what's the new purpose?
- Propose a better or improved model?
- Is it a good or bad model? Why?
- Strength of the model?
- Weakness of the model?

3   CharM USAGE -THE RELATION BETWEEN THE CONSCIOUS AND THE UNCONSCIOUS

The CharM model is used as a tool to improve the communication between technology and its user. It is a way to bring the two parts together and in fact let them intertwine. By doing that it is also possible to use technology to expand human consciousness and for the technology to appeal to both the human conscious and unconscious mind. One outcome of this expansion is the possibility of technological support for human creativity.

The relation between the conscious and unconscious is very complicated, but very important. Figure 4 presents a gross oversimplification, but makes the point that the "door" between the two may be closed, open a little, or open wide; and this has profound implications. Creative insights have often been associated with the activities of the unconscious mind. Perhaps the most familiar example is that of breakthroughs following the experience of a particularly striking dream. If we take a Jungian perspective, we can account for this dimension of creativity in terms of the relationship between the conscious ego, the individual unconscious, and the collective unconscious (Jung, 1953-1979a). Linking the cognitive, abstract stream of thought with the physical, bodily stream amounts to linking the conscious with the unconscious, since most bodily processing is unconscious.

According to Jung, the goal of personal development is the expansion of consciousness to encompass more of the unconscious. Or, in our terms, to open the door between the two.
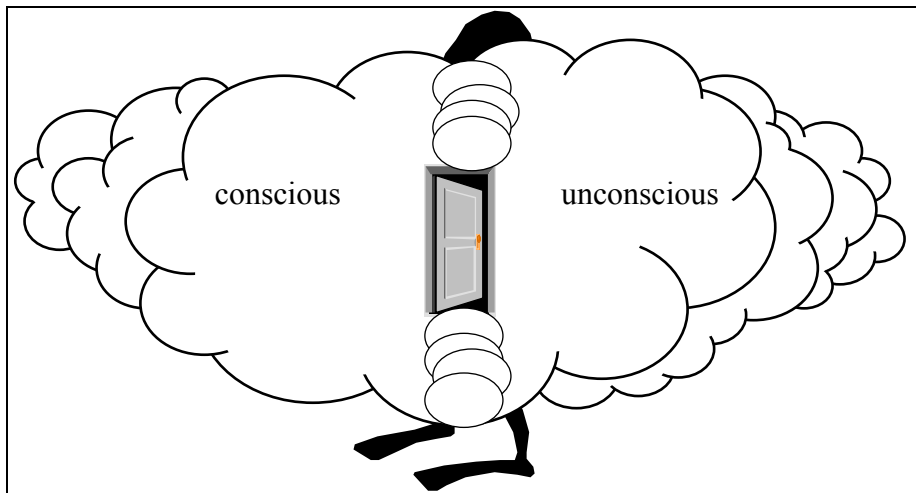

Figure 4 The relation between the conscious and unconscious

The ability to create such links explicitly using CharM also suggests that we might take the idea of the collective unconscious seriously, and accept some kind of relationship between it and the physical world. From the Jungian viewpoint, such a relationship may potentially become conscious, and to support this, we should provide for casual, not causal relations between the two. To open the door to creativity, then, we need to design for the human participant to be conscious of fortuitous links between the mental and the physical. We also need to provide as many alternative concrete representations of abstract ideas as possible, since each is partial and to an extent arbitrary. And we may wish to experiment with populating a VR with mythic objects and landscapes that are likely to encourage conscious access to the world of the collective unconscious, for example.

The door between the conscious and unconscious provides both opportunities and threats, however. As long as the unconscious remains so, we don't have to take responsibility for unconsciously-motivated actions or how we put different pieces of information together. To be active in a decision or in a mix of pieces of information means that you as a person have to take responsibility for your actions and decisions. To mix new pieces of information together into "new" information is to some extend done unconsciously but to express that new mix and to communicate it to other persons means that you take responsibility for it and to test it consciously , which means that you are active and conscious in that decision making. When we are explaining something we make it conscious or take it to a higher degree of consciousness. There are different levels of conscious and unconscious.

Creativity is, at least in part, the ability to let the unconscious mix different kind of information and then transfer it to the conscious part of the mind, which can make a model of it and then see, check, execute and test that model. For this to work, it is important that the information is initially unconscious and unstructured, so that mixing and selection can take place without the conscious setting the rules.

3.1 Creating Creativity

According to Gelernter (1994, page 79-80) what happens when you are creative is that "Rather than beating your head against the wall of a difficult problem that doesn't 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 "restructure" the problem". 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 (Lindh, 1997).

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 rise 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. 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. 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; and this is the purpose of CharM.

4 CONCLUSIONS

This article outlines a model of characteristics that describes the rationale behind models of artefacts that are designed today or will be designed in the future. These kinds of characteristic are often hidden and used in the models more of less unconsciously; they are not documented anywhere and sometimes not even been considered during the design process. The characteristic model (CharM) could be used to evaluate existing artefacts or be used to deliberately place a model in a specific place, aimed at a certain goal. It should be an aid to creating realisation instead of mere visualisation, and to bring the body and the mind together to enhance our perception of the artefact and our being in the world. Another advantage could be to help us be more conscious about a part of our unconscious, to expand our conscious.

Our brain is not just intended for abstract thinking, it is at least as much for concrete things, such our feelings, our spontaneous being in the world. The best is perhaps when we experience both sides of our mental life, the concrete and the abstract, because that leads to richer experience and realisation. By being aware or the characteristics of the model behind the artefact and to design that model carefully with the respect to these characteristics it is possible to give the user realisation and to give them a richer and more memorable experience.

Our title refers to Hamlet's tragic dilemma. Oblivion may seem more inviting than facing reality. We often defend ourselves from ourselves, and the price of expanding consciousness into the unconscious is to expose oneself to oneself. CharM allows us to address the question: to be conscious or not (or how much?) - and of what? Should we keep opening doors until a monster pops out, or nail them up and make a nest in the hall?. Dare we revel in our potential for creativity, self-knowing, and expanded consciousness? Such revelry may yet transform devilish tragedy into divine comedy.

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