

USER-HOSTILE PRODUCTS: WHAT THEY ARE: HOW THEY SHAPE US, HOW WE SHAPE THEM

Chris Dowlen¹ and Eurlng Colin Ledsome

¹London South Bank University

ABSTRACT

This paper explores what might be meant by user-hostility and shows examples of the different categories of products. The examples include the old chestnuts of doors and the Video Cassette Recorder. But there is a smattering of other examples including food processors, cars, security systems and musical instruments. The paper goes on to look at the ways in which products shape the way we live and, in particular, how we learn to use products that at first we find difficult and even hostile. The paper continues to investigate ways in which we might, as designers, seek to design deliberately and intentionally user-hostile products and how we might successfully design out user-hostility, and then apply this to the teaching situation.

Keywords: Ergonomics, Customer requirements, Use of products, Design methods

1 INTRODUCTION

Sometimes, as design teachers, we need to get back to basics. Although this topic has been covered in a great amount of detail our students haven't covered the same ground as we have and so we regularly need to reiterate things such as user-hostility in products. Some products never seem to do what we want them to do. They have minds of their own and seem to forever be at war with us. When faced with a product, people tend to treat it as if it were another human [1]. We love things, get cross with computers, give human names to our cars, call steam locomotives 'she' and give things other human attributes.

The approach varies with the product and with who purchases and uses it. Some people without much evident emotional fervour may treat things as if they were simply a means to an end. Noam Tractinsky documented experiments on automatic teller machine mock-ups that indicated that even products that work badly can be 'forgiven' if they look good [2]. We want the products we buy to be things that we love, things we cherish and things that we enjoy. We want to have an emotional attachment to them. This is documented well by Donald Norman, particularly in his book on emotional design [3].

What is meant by the term user-hostile? There is a fight going on between the user and the product. The product, usually, does something that we don't expect or something that we don't want it to do. Either it breaks down and ceases to function or it functions in what we decide is a high-handed manner, using its own criteria to fulfil a function that we think it has decided without any understanding of what we actually asked it to do. The product wins and we feel foolish for not giving it due respect.

But there are other categories of product that could be considered user-hostile. The paper starts with definitions. It covers examples and looks at how we learn to use products and how we might start designing products better.

2 DEFINITIONS AND CLASSIFICATIONS

The dictionary defines the term user-hostile as *difficult to use or understand* [4]. However, hostility can be taken in terms of deliberate physical hostility, either in general or to limit use to specific people, or incidental hostility, either as a result of needing specific training to operate the device or some basic skill expected of the normal user. In some cases this will be deliberate on the part of the designer, but in most the hostility will come about by mistake, by the failure of the designer to appreciate the way in which that product is actually used.

In the first case, products are designed to prevent certain behaviours taking place, usually behaviours that produce physical discomfort when they are used in a particular manner. Things such as non-climbing paint and barbed wire as a security barrier come into this category. The second category is that of products that are selectively hostile. That means that they are able to be used by certain individuals or groups. Things such as entry systems, keys, and password-protected computer systems come into this category. For the intended users, these products need to be friendly but for all others who attempt to use (or misuse?) them they need to be hostile so that access to information or equipment isn't gained by the wrong person.

The third category is those products that are designed for expert usage. There is usually no attempt to make these deliberately hostile: in the hands of the expert they work effectively, and in the hands of the novice they do not, and may even cause physical damage. Learning of some kind needs to take place before they can be used effectively. This may be formal training, but could be by experience or professional competence.

The fourth category consists of products that, in theory, can be used by anyone, either with no training at all or with a basic knowledge of the way things 'normally' work – although this still demands a modicum of general skills and abilities. And if you don't have those skills and abilities because your common sense, cultural background, or even local knowledge isn't the same as the designer's, then you have problems. These are the products where the hostility isn't intended by the designer, but has crept in without their knowing.

The reaction to this hostility is often to find some way of circumventing the offending action. This has various consequences. Most importantly, there may be the threat of bodily harm. The product is used in a manner different from that anticipated by the designer, because the user is either not careful enough with it or because they are trying to use it for a purpose other than that for which it was designed and the product bites back.

The most common design failure is where the product simply doesn't live up to what is expected. It fails to work properly and we get cross with it. It may be that the specification the designer was working to was not what the user had in mind. Or a key feature or behaviour, that the user wanted but never specified, was never incorporated into the product. This is often a failure by the designer(s) to ask the right questions or not properly come to terms with the user's needs. Occasionally the user will try to extend the range of use unreasonably or just fail to read the instructions. Most of the user-hostility that we find and get annoyed with is in this category.

3 PRODUCT EXAMPLES

Doors are the most common annoying products. We shouldn't need an instruction manual on how to open a door. The door should inform us exactly how it should be opened. But there are a significant number of doors in our fourth category where there is a big pull handle that screams out, "Pull me" and then laughs at us when the door opens

the other way. Some doors fit into the second category. We need to know the secret opening code for them, frequently a key. Sometimes, the security arrangements are circumvented, deliberately or otherwise. The security system was too complicated and we needed to override it in a way that the designer didn't envisage, or maybe they deliberately went out of their way to make the override difficult and user-hostile. An example given by Donald Norman is his coffee pot (figure 1), falling into our fourth category. This is on the front cover of his book *The Design of Everyday Things* [5]

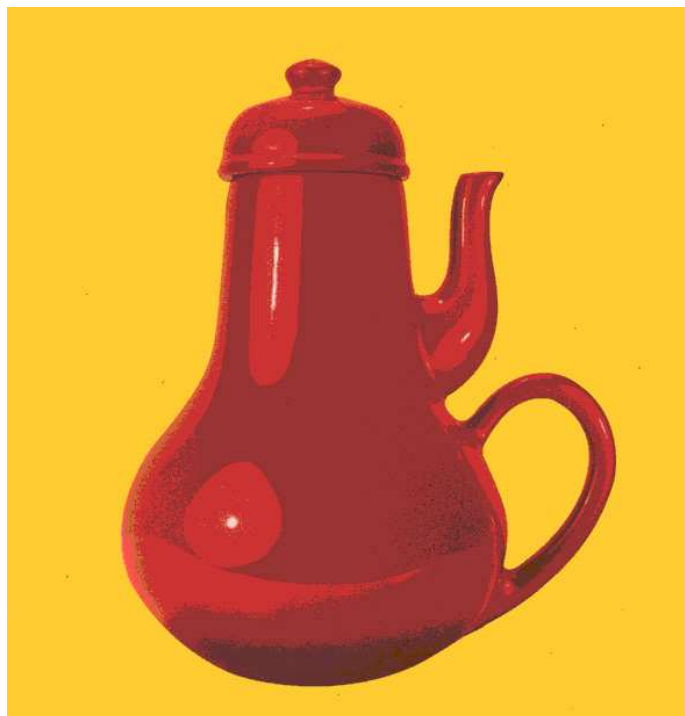


Figure 1 Donald Norman's coffee pot [5]

We love to hate video recorders. The joke is that only children can communicate effectively with these and the rest of us don't speak their language. This may be true to some extent (as most jokes are), but one of us finds that his video recorder is classic fourth category. He wants to cue it up to a precise point from seeing what happens on the screen. It works happily forwards, but fails in reverse. The control on the remote has four buttons arranged in a diamond (figure 2). These have yellow arrows on them for up, down, left and right when they are used as directional pointers, and have other symbols to operate the main tape control. The top one (up yellow arrow) also has a ► symbol, for *play*. Below it (down yellow arrow) there is a □, for *stop*. The right one (right yellow arrow) is marked ►►, for *fast-forwards*, and the left one (left yellow arrow) has ◀◀, for *fast reverse*. There's no ability to go backwards gently; only at high speed. It might have been better if the controls weren't performing two functions, and if the designer put *stop* in the centre, with *slow forwards* (play) and *slow reverse* either side of it, each with a *fast* arrow either side. It would be logical. The current arrangement annoys every time.

Another fourth category example: a food processor. This one includes a liquidiser. The screw-on lid of the goblet fits on with a left-hand thread – with no explanation for the poor user, who has to re-think each use. The explanation, gathered from a placement student, is that a right-hand thread would cause the lid to unscrew itself. It seems to be a case of redesign needed.



Figure 2 Video Cassette recorder remote control

The Dutch car manufacturer DAF started to produce its small cars in the 1950s, fitted with a transmission system using rubber belts. The control lever on the transmission tunnel moved forwards for forwards and backwards for reverse, which seemed logical. When the company was taken over by Volvo one of the first modifications they made to the car was to change the control lever so it was the other way round – to bring it into line with other automatic cars, a category three requirement, which had a gate that had indents for (from the front) PRNDL – Park, Reverse, Neutral, Drive, Low.

In the deliberately hostile first category we find small print that is too small to read: perhaps this is the definition of small print. It's deliberately designed so that the product's shortcomings aren't easily noticed.

4 HOW WE LEARN TO LIVE WITH PRODUCTS

There are many more examples. These few lead us to the question: why do we find these products so annoying? For some of them such as doors, we feel that the way they work should be obvious: the product should have what are called affordances that effectively inform the user how they work, and that these should ideally be inferred from the environment, or if that isn't possible, from conventions. A key to what these are and how they develop is from the left and right hand thread liquidiser example: we *learn* to use products. If we consistently learn that a clockwise rotation holds something on, then when it does the opposite it annoys and we pronounce it user-hostile. Similarly, if we consistently learn that we need to pass the direction selector lever from Park through Reverse to select Drive, then we will expect to do that with the next car we use, even if the learned process is not logical according to the surroundings.

As we learn product categories we sometimes find that we move from a product suitable for the novice to one for the expert. A significant amount of sports equipment is like

this: the novice wants a product that is forgiving, gentle even, in the way it behaves. The expert, however, needs to have a product that, given their mastery, reflects their need to get the best from it and achieve the highest performance possible. But this ‘expert’ product may leave the novice critical of the sport and unable to obtain the finesse required to build up skills. Or it might be downright dangerous for them – like giving an eighteen-year-old a Lamborghini for their driving test.

An interesting example was gathered from the internet. A totally blank computer keyboard is available. The idea of this odd product is that it teaches touch-typing skills – good for those with reasonable expertise, impossible for the novice. [6]

In fact, what happens when we learn a skill is that it follows what is known as the Purnell model: we move from a position of not even knowing that the skill could be learnt (unconscious incompetence) through one of knowing that the skill is there and that we don’t have it (conscious incompetence) and having consciously developed a skill (conscious competence) to being able to use it without thinking about it (unconscious competence) [7].

This is shown clearly by Robert Winston in his book on the human mind, where he describes how different parts of the brain are active when a task is being learnt from when it is performed after it has been mastered [8].

This explains not only the way that we assimilate and master products but why we find some products impossible for us: we have learnt a different product model and this different model is one we find ourselves unable to unlearn. The model may have come from our environment or we may have invented it ourselves. Sometimes there are ‘correct’ ways to learn how to use some products: in others, we usually (but not always) make our own headway. Self-taught computer users find illogical ways to use programs.

5 CONCLUSIONS

5.1 How we shape products

How we, as designers, shape products, and add or avoid user hostility, is crucial to the way those products are perceived and used and whether the users bless us as the providers of products that work well in ways that are easy to use or curse us as the designers of annoying products that perform useful functions in ways that we choose to hate. User hostility is a property of the human interface with a product and is a vital consideration to both engineering and product designers.

There has been a significant amount of work carried out by designers such as IDEO, by using simple processes that incorporate people as part of the research. They developed these processes into their IDEO cards [9], which are a set of non-proprietary design methods, collected together and packaged for use. Many of the methods are obvious: they are not new and are methods that make sense: they fit into four categories: *Learn*, *Look*, *Ask* and *Try*. They involve analysis, observation, questioning people and testing out product-based hypotheses using simulations, usually ones that do not cost a lot in terms of time and effort.

Another useful source for people-based methods is Neville Stanton’s *A guide to methodology in ergonomics* [10]. This looks at a range of specific ergonomic design methods and applies them to the design of a car radio installation. It is more limited than the IDEO approach but the methods are identified in a clearer outline and there is an assessment of them, which there isn’t within the format of the IDEO cards.

Ideally the product needs to spell out by its form exactly what is intended: if not, there need to be clear warnings to the user to avoid dangerous situations or unnecessary product failure. When the designer appreciates the user’s view of the product and the

user is helped to understand the designer's intent, most of the hostility will disappear, except perhaps for category 1, where it is intended.

5.2 How we shape the product designers

A professional approach is the only way forward here. The disciplines of people watching and reliable recording of what people do rather than what they say they do are necessary skills for product designers. When it comes to aspects of synthesis, the IDEO cards are a good place to start in that they demonstrate that design is always a human process and spending a considerable time at the fuzzy front end of the process, trying to understand the environment of the product user, is always a benefit. Students seem to have a particular difficulty in realising that they are not the only people in the world, and that others act differently from them. There also seems to be a reluctance to engage with the processes of people watching and analysis – these seem to be boring interruptions when they can't wait to be turning their first real idea into a bodged-up artefact. Another difficulty is that these human-centred methods are perceived as being soft options and improper fixes rather than a set of professional methods that need to be applied. For instance, the thought of producing quick and dirty prototypes to test out an idea without spending much seems to be a foreign way of thinking: they want to get the ideas out of the way before they embody something. We somehow need to encourage this *learn, look, ask and try* approach in a cost-effective manner – to avoid user hostility crawling out at us. What we need to avoid is designer failure.

REFERENCES

- [1] Reeves, B. and C. Nass, *The media equation: how people treat computers, television and new media like real people and places*. 2004, New York: University of Chicago Press.
- [2] Tractinsky, N., A.S. Katz, and D. Ikar, *What is beautiful is usable*. *Interacting with Computers*, 2000. **13**: p. 127 - 145.
- [3] Norman, D., *Emotional Design: why we love (or hate) everyday things*. 2004, New York: Basic Books.
- [4] *The New Oxford Dictionary of English*, ed. P. Hanks. 1998, Oxford: Clarendon Press.
- [5] Norman, D., *The Design of Everyday Things*. 1998, London: MIT Press.
- [6] <http://www.daskeyboard.com/> Accessed on 13 March 2007.
- [7] Purnell, L.D. and B.J. Paulanka, *Transcultural Health Care. A culturally competent approach*. 1998, Philadelphia: F A Davis Company.
- [8] Winston, R., *The Human Mind and how to make the most of it*. 2003, London: Bantam Books.
- [9] IDEO, *IDEO Method Cards*. 2004.
- [10] Stanton, N. and M. Young, *A guide to methodology in ergonomics: designing for human use*. 1999, London: Taylor and Francis.

Eurling Colin LEDSOME
50 St Dunstan's Road, London W7 2HB

colin.ledsome@btinternet.com
+44 (0) 20 8840 3916

Mr Chris DOWLEN
London South Bank University
Borough Road, London SE1 0AA
chris.dowlen@lsbu.ac.uk
+44 (0) 20 7815 7609