Should mice and men spend so much time together?

By Jim Rawson, Graphic Designer, PDMS

My three year old daughter has recently discovered the cBeebies games website. I was initially a bit sceptical about letting her anywhere near my laptop, but whether it was her persistent requests or my own childish curiosity, I did eventually allow her (OK, me!) half an hour of unadulterated fun. Whether 'Charlie and Lola's Germ Count' or 'Gordon the Garden Gnome's Veggie Patch' had any genuine educational value I'm not entirely sure, but watching her holding a mouse for the first time did spark the idea for this article!

It may have been parental concern or just idle pondering, but I couldn't help wondering 'is this mouse thing really the best way to do it?'. Whether you're playing games or writing an annual report, the standard computer peripherals we invariably use are a keyboard and mouse. According to UK Government statistics issued in 2006, 65% of UK households have a computer, with the vast majority of the population also using them in workplaces and schools. So who or why was it decided we should be using a mouse and a keyboard to interface with our computers?

First let's look at the history of these two device paragons of computer interaction. The mouse was invented in the 1960s with the first prototypes made of wood. Barring advances in basic ergonomics, materials and mass production it hasn't really changed fundamentally since then. There's no denying the mouse is an intuitive – and more importantly, cheap – device, but it's still quite basic technology by today's standards and I can't help but wonder whether its early pioneers had any idea that it would be used by so many people for such prolonged periods of time? A survey of managers published by the UK Health and Safety Executive in 2002 revealed that the average length of time using a computer mouse is six hours a day. In my experience as an IT industry worker that sounds like a pretty good day!

While we're on the subject of ergonomics, the QWERTY keyboard has a history stretching way back to its conception in 1878 as part of the first typewriter. The position of the letter-keys was not determined as many might imagine by arranging them for comfort and efficiency, but in order to stop the metal arms hitting each other when they were pressed in quick succession. An unfortunate side-effect of this mechanically sound layout for right-handers (who make up around 90% of the population) is that many thousands of words can be spelled using only the left-hand while only a few hundred can be accomplished with the right alone!

Taking the above into account I think it would be fair to say that our model for everyday human-computer interaction is far from user-centred, and it is not surprising to learn that computer-related health problems, mainly relating to Repetitive Strain Injury (RSI) are on the increase. I can't help thinking, are there any better alternatives to what we currently accept as 'the norm', and if so, why aren't we using them?

There are of course many alternative input devices ranging from trackballs and joysticks to pressure-sensitive pen tablets and touchpads. There are also ergonomic keyboards which proclaim improved typing speed and efficiency and eye-tracking devices which allow the user to move the pointer around the screen simply by 'looking'. It would appear that one of the main reasons these alternatives have not made their way into the mainstream is cost, additionally most of these approaches are regarded as 'specialist' for use only by those who cannot use a mouse.

Another alternative which has been around since the 1970s is speech recognition software which has the ability to transcribe your words as you speak and also perform commands as they are spoken. As well as being accurate and effective, voice-recognition software is relatively cheap. The downside? There are many environments where this approach would not be practical: can you imagine a telephonist in a busy office trying to verbally tell her PC to open a customer's file while 40 other staff are all doing the same thing in the background?

In other areas of consumer electronics such as gaming and mobile communications, there is far greater focus on innovative, ergonomic design. Specifically designed controls for consoles such as the Xbox and Playstation and the motion-sensing control of the Nintendo Wii exemplify this. Another rapidly evolving technology is the touch screen. Until recently touch screens were not well suited to sophisticated user input as they could only recognise a single finger press at a time, however the next generation of 'multi-touch' devices allows the recognition of more complex gestures.

An example of this is the much-hyped iPod Touch (which will undoubtedly feature at the top of many gadget-lovers' Christmas lists this year!). While it shares many of the same functions as the earlier iPhone, it has a user interface unlike anything else currently available. Users can resize photos and zoom in on web pages by using 'grab and pinch' movements, and the device also features intelligent motion sensing so that photos and web pages will rotate to match the orientation of the device.

On a larger scale is Microsoft's 'Surface', a 30-inch touch-screen 'table' which will become commercially available from the end of 2007. As well as being sensitive to multiple fingers and gestures, Surface also has the ability to recognize objects that have identification tags similar to bar codes. Imagine a restaurant customer setting a wine glass on the surface of a 'table', which then provides them with information about the wine they're drinking, pictures of the vineyard it came from and suggested food pairings from the menu – it could even allow you to browse travel itineraries and book your wine tasting mini-break to the Napa Valley!

I think most people would agree that our use of computers and gadgetry is only likely to increase and that while some or all of the alternatives I have mentioned may offer improvements over the traditional mouse and keyboard, the main stumbling-block in ousting the incumbent mouse is overcoming its ubiquitous usage.

However, by diversifying the way we interact with computers and manufacturers adopting more user-centred design approaches, the overall standard of ergonomics will gradually improve and in the future maybe our human-computer interaction will be more human than computer. Does that mean my daughter's new-found mouse skills will be wasted? I'm sure it won't take her long to pick up whatever replaces it!

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