

The Undomesticated Video Recorder

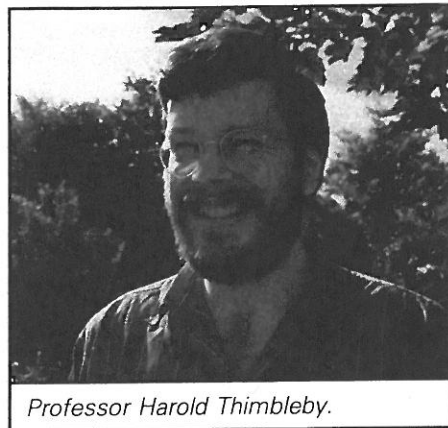
by Professor Harold Thimbleby*

Most people recognise, perhaps even with a self-conscious laugh of embarrassment, that domestic video recorders are difficult to use. This article argues that VCRs are grossly difficult to use and they are unnecessarily difficult to use. Worse, consumers are exploited and made to feel that the problems are theirs alone. Most manufacturers claim their VCRs are "easy to use" so any problems must be the user's fault!

The VCR problems described in this article are symptomatic of design problems with many other similar gadgets, such as photocopiers, FAX machines, camcorders, car telephones, car radios . . . and, worryingly, even nuclear reactor control panels. Awkward car radios are responsible for a few deaths on the road. The common theme in all of these gadgets is that they all depend on computer technology: in brief, so-called "embedded computers" ensure that it is easier for designers to add new features than consider how those features relate to each other. If a designer wants a new feature or an existing button to do something else it is readily done. This flexibility has the benefit for the manufacturer of increasing the number of "star features" that can be mentioned in advertising, and consumers can be persuaded that the gadget does what they want. However it has the very considerable disadvantage for the user that the features are unrelated and collectively impose gratuitous complexity. For example, it becomes all too easy to invoke the wrong functions by accident, and under pressures such as attempting to record a live broadcast, can be

extremely stressful – and, in turn, compound the chance of further error. It is not surprising that many functions fall into disuse and, in turn, this means that the user cannot remember how to use them.

Can you use your own video recorder? Can your children use your video recorder? Don't worry, I can't use my video recorder, and I am a Professor of Information Technology! If anybody should know how to use a video recorder, I should. I know how to do



Professor Harold Thimbleby.

many complicated things. I have three degrees and professional engineering qualifications, yet I can't do something that teenagers can do. At least I ought to be able to learn how to use my VCR, yet even after many months of almost daily and motivated practice I am still making the same old mistakes: I set the timer up, but forget to press TIMER, so the thing doesn't bother to record what I want; or I record the wrong channel; or I record a programme at 3am when I meant 3pm (my VCR has a 24 hour clock, but my head doesn't). And so on.

When I tried to take my video recorder back to the shop to say I couldn't use it (after all, it had been advertised as simple to

use), I was told most people get their children to do it for them. So I'm out of date, behind the times. I am old! Children can do it, and I can't. That's how I was made to feel – but that's not the point at all. I don't really think it's surprising that children can set the video recorder up when adults can't. Children can do Rubik's cube, skate board across the road, win at complicated fast arcade games and many other irritatingly clever things. The point is that my video recorder isn't supposed to be a tricky arcade game for children, it's supposed to be a useful gadget for an adult. VCRs ought to be designed so that they are easier to use, easier to remember how to use and so that their manuals are easier to understand. In short, they should be designed for the people who are supposed to use them, not their children. Besides, they may not have the appropriate children!

Are video recorders unnecessarily difficult to use, or do we really have to live with them as they are? Are homes soon going to get far too complicated to live in?

Let's first mention just four typical problems with VCRs, just to see how easily avoidable they are.

I can't read what my video recorder says unless I get on the floor and lie down in front of it: the display shows text only two millimetres high. Yet if you plug a cheap computer game into your TV, the text can be read from across the room. So *that* problem can be solved, and already has been for video games. (Incidentally, have you noticed that in shops, VCRs are displayed at or near eye level, so you are subtly misled about their display readability?)

Next, my video recorder "times out": if you are a bit too slow over something, it gives up on you†. Sometimes, it only gives you ten seconds to press the right buttons, other times it gives you a minute. If you don't do the right thing within a minute, it generally throws away everything you've been telling it. Of course, there's absolutely no reason why it can't wait all day for you if you want to take that long.

Thirdly, the on/off light stays on for a moment after I switch the recorder off. Now, if I worry that maybe I haven't really switched the thing off (you see, the light is still on) and I press the off button again, then the recorder enters "child lock mode"

*Harold Thimbleby is Professor of Information Technology at Stirling University, Scotland. He wrote, "Can Anyone Work The Video?", which appeared in "New Scientist", volume 129, number 1757, pp. 48–51, 1991 (23rd February). The New Scientist article provides a number of design principles that address many of the problems described in the present article; a more substantial discussion can be found in Thimbleby's book "User Interface Design", published by Addison-Wesley, 1990.

which really messes things up. For a start, it doesn't tell you that it is in child lock mode and that it's not going to do anything for you (in case you really are a child?). It hardly needs saying, but (a) the on/off light could go out instantly when the machine is switched off (b) the front panel could say "Child locked" or anything similarly understandable (c) child locking could be done with a button called child lock, not the off button!

Finally, the remote control has a different number of buttons from the VCR, and they work in different ways. This means that the manual has to be twice as big as need be (there are two ways to do most things, depending on whether you use the VCR or the remote control), and the user consequently gets less practice doing things in a particular way, so everything is harder to remember how to do. There is simply no need for this inconsistency. Indeed, the remote control could be organised in exactly the same way as the VCR's buttons, even including the flap hiding the little-used buttons. Better still would be to have a holster on the VCR so that the remote control *was* the VCR's controls: at least you would then know where the remote control was.

One might be able to learn to live with a few such design defects. But there are more:

My remote control has 55 buttons, including the ten digits. Thirteen don't do any-

thing relevant, two duplicate other buttons, and many of the remaining 40 do more than one thing each. Many do different things if hit rapidly after another button, or held down continuously for a couple of seconds:

- The Transmit button *triples* up to provide the functions Summer Time Adjust, Winter Time Adjust and Transmit itself. When you press the Transmit button (except in program mode) you advance the remote control's clock by an hour (if you hold the Transmit button down for two seconds, it retards the time by an hour). Typically, my remote control is running several hours fast, merely as a result of throwing a newspaper on top of it. However, you can also change the time using the Clock Adjust button so it is not even clear that this feature is required.
- The channel change buttons (which are Δ / ∇ arrows) are *sometimes* used as tape move buttons, unnecessarily duplicating the more obviously labelled Rewind/Fast forward buttons.
- The remote control can control two VCRs (of the same make). So there is a button on the remote control called "A/B Code" which chooses between them. If the remote control is in A mode, it won't control the B VCR, and *vice versa*. The remote control therefore appears useless if this button gets hit by accident. There is also a Mode button which also has the effect of disabling the remote control,

again because it relies on two VCRs being present.

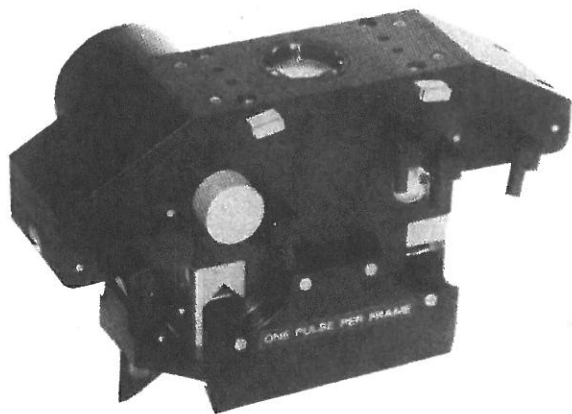
- Rewind and fast forward have a curious double action. If they are pressed briefly, the tape winds continuously until Stop or Play is pressed. If, however, they are held down for at least two seconds, the tape only winds whilst they remain pressed down. This, it is impossible to wind "a bit", that is, anything less than two seconds.

The VCR may be off, it may be in timer mode, or maybe you've just got the remote control in B mode: the Operate button won't work in any of these cases. So it's easy to press it a bit more enthusiastically than necessary, and doing that enter Child Lock Mode. In fact, child lock means that though the *front* panel buttons won't work, if you lift the little cover to reveal the 13 tiny controls, *they* can be used to reprogram the VCR, change the date and time, and so on. Indeed, you can switch the display off, and hence conceal that the VCR is in child lock mode! (Any child of mine would lift the cover *first!* Two of the 13 concealed buttons don't say what they do at all, not an insurmountable problem for a young child who can't read.)

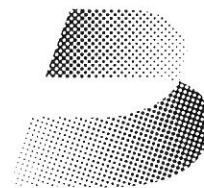
†For some of these points it may be useful to know that I have a JVC HR-D540EK VCR bought in 1990.

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When I got the VCR and naively tried recording BBC1 nothing happened. Of course BBC1 transmits on UHF Channel 40 (the channel number depends on where you live so the manufacturer can't present it correctly for everyone), and the VCR has to be programmed so that 40 is called 1, and BBC2 on channel 46 is called 2, and so on for the other channels. To set the VCR up in this way you follow some apparently straight forward instructions in the manual. (Though when the manual said, "Press the key until the number starts blinking", I first thought it meant press it repeatedly, not hold it down continuously.) Let's suppose we've just discovered that BBC1 is on channel 40, so we should now press the 1 button. But BBC1 and BBC2 programmes look similar; maybe that's BBC2 we're watching? Check with the

placed next to the channel select buttons, so it is likely to be hit accidentally, especially if you are old, have any hand tremor, or are merely paying more attention to watching television than the remote control! You can use the remote control from 8 metres and eject the cassette . . . then you can do nothing, because there is no way of getting the video cassette back in without pushing it in yourself.

The remote control normally shows the date and time. Setting up the timer to record a programme requires knowing the date of the programme and entering it correctly. However, as soon as you start to set up a programme time, the remote control stops displaying the present date, so you have to remember the date and risk entering it incorrectly. When you have entered a programme time, the VCR gives you about 10 seconds to read it before it switches back to the date and time. Ten seconds isn't enough time to check that "3 16.15 17.20 08.11 4" is what you wanted, or to even notice that "2 17.15 18.00 08.11 1" starts five minutes

panel are different. The front control panel is greatly simplified (though, as usual, with hidden buttons under a folding panel): you can stop and eject the tape, but you *cannot start playing from where it is stopped*, instead a special "easy to use feature" uninspiringly called DPSS searches for the start of the *next* program! Other problems include timeouts (e.g. you can spend several minutes setting up programme times on the remote control, then you have just 60 seconds to press transmit – including rewinding your tape if necessary – before the remote control throws away all your information).

So that means – as we knew already – that some video recorder manufacturers think that they can fob-off machines as easy to use when they aren't.

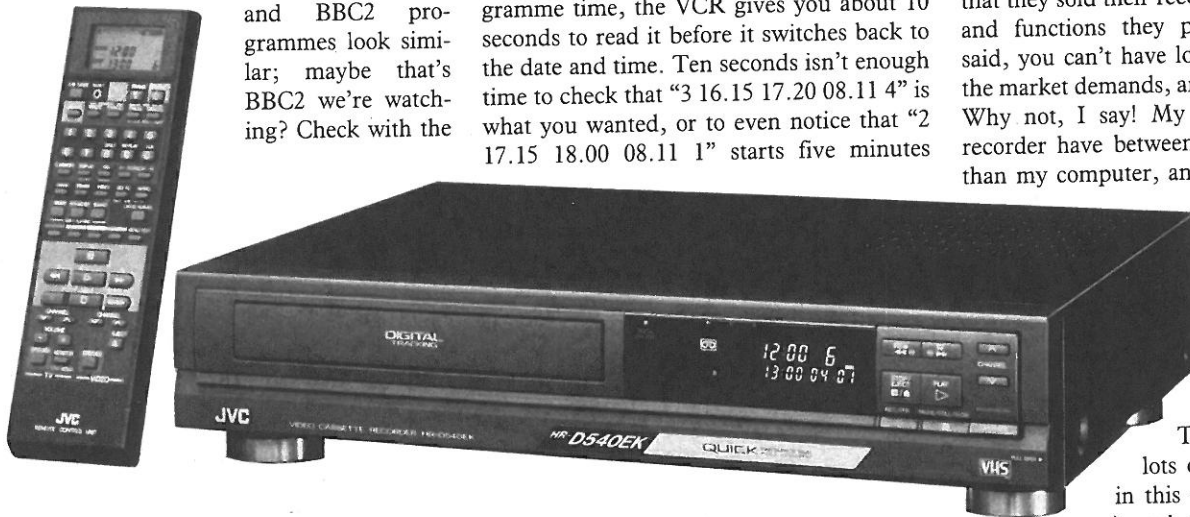
Another company wrote to me and said that they sold their recorders by the features and functions they provided. And, they said, you can't have lots of features, which the market demands, and still be easy to use. Why not, I say! My own TV and video recorder have between them more buttons than my computer, and my computer does

far more complicated things and is much, much easier to use! (Even my children can use it . . . er, what am I saying?)

There are obviously lots of complicated things in this world (like driving a car) and we shouldn't expect

to be able to do everything without difficulty. But video recorders aren't cars and they needn't be so complicated. We should complain when we're sold or made to work on an unusable machine. While we go on secretly feeling inadequate, or being made to feel inadequate by young smart-alec salesmen, manufacturers will go on making expensive toys for our teenagers. Some people may dismiss the problems with the domestic video recorder as a joke, or say that you anyway don't need to use the features you can't work, but the same sort of design problems appear in professional equipment and, far worse, the same problems appear in many life-critical systems (car radios, medical systems, aircraft control panels, etc) where they can have fatal consequences. Human error is often designer error, but everyday things like video recorders have made us all too timid to admit it. □

‡For example, if you want to search the tape, there are at least seven different ways to do so, and they are classified under four different functional headings in the manual: Convenient features related to playback; Special-effects playback; Convenient facilities related to recording; Convenient tape access functions.



The JVC HR-D540EK VCR. The remote control has 55 buttons. As a rule, the more buttons there are, the simpler each button should become. (Typewriters have lots without being daunting!) However that expected simplification has not happened in this design. Thus the digits 8 and 9 have double meanings when entering times, exactly when those digits may need to be pressed! This results in unnecessary and counter-intuitive conventions, here, that times earlier than 10 must be entered as two digits (00, 01, etc).

TV by using the TV controller. Yes, it really is BBC1. So press key 1 on the VCR controller. Oh! The VCR has forgotten what we are doing, it's timed out! Start again . . . and again . . . and again. It took me 90 minutes to set the VCR channels up! (Note that I didn't know what the right UHF channel numbers were so I had to search for the channels as well.) The main problem is that the scheme for setting up the channels gives you just ten seconds to enter the correct numbers, which isn't very long if you are trying to read the manual and aren't quite certain what to do, and even then aren't certain which channel you are receiving (the programmes being broadcast even change during the 90 minutes it takes).

The remote control's eject button is

before the other one finishes. The VCR won't tell you; it won't even tell you if you try to record something yesterday by mistake.

So this is the VCR that was advertised as "simple to use" and that *What Video* called "the cheapest member in a family of good performers from the inventor of VHS. It's basic in dress and qualification but does what it sets out to do very well." (Susan Hickey in *What Video*, April 1991, p.37.) And the tedious list above mentions just some of its problems. The manual is bad as well, but even the obvious ideas of organising the manual around tasks (what you want to do) rather than functions (what features and buttons the VCR has) won't help much when the VCR itself is so difficult to understand‡.

I wrote to every video recorder manufacturer I could find and said, if you've got an easy to use video recorder I'd like to know about it. I got quite a few replies, but I think it would be unfair to say which company said what! One company rang me up and said, yes, they had an easy to use video recorder – would I like to borrow one? I said I would be delighted to have a go with it, and it duly arrived, and it duly turned out to be ridiculously and unnecessarily difficult to use. Again, the remote control and the front