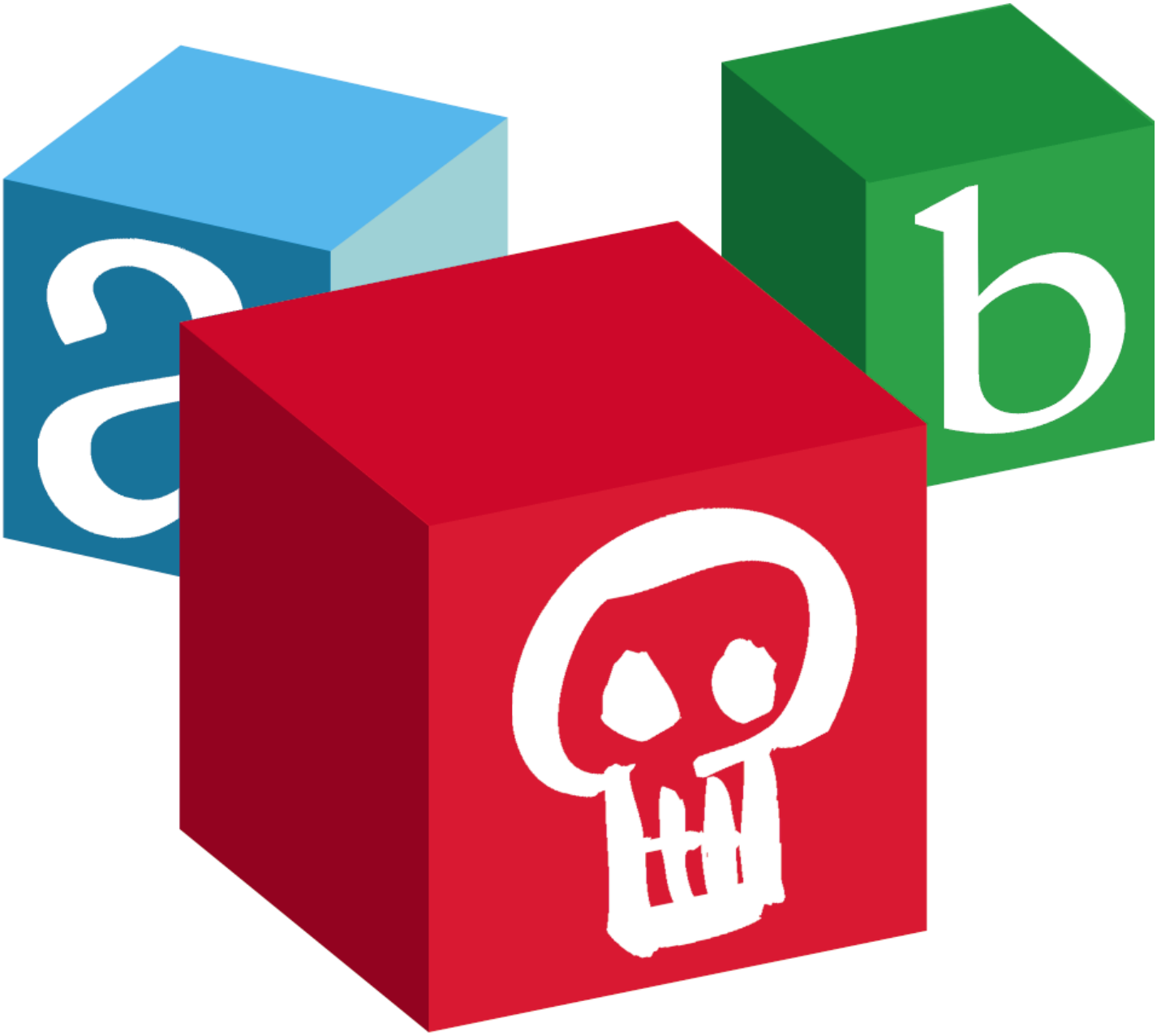

Health warning

Children can be faced with violence and problems of addiction and damage to health through the games and leisure software they use on their PC. We report on the possible health risks associated with computer games

When little Johnny starts spending hours slumped over a computer keyboard, his parents may console themselves with the fact that at least he isn't outside getting mugged, taking drugs or being run over.

But violence, addiction and long-term health dangers are not only to be found on the street, and many parents are worried that their children may be just as much at risk from what they see and do on their computer screens. ▶

We shall be discussing pornography and violence on the Internet in our September issue, so this article will concentrate on games and leisure software, where most parents' major concern is violence.

Frightening degree of realism

Violence has been part of computer games ever since owners of Sinclair Spectrums were zapping Space Invaders and playing adventure games in the 1970s. But today's personal computers and games consoles can achieve a much higher degree of realism, which is causing concern to experts in child psychology.

The animated characters which feature in games such as Doom, Duke Nukem and Hexen gush realistic blood, and an increasing number of games use footage of real human actors – as in the case of Phantasmagoria, an interactive horror movie featuring extreme violence and semi-rape.

'Games like Mortal Kombat or Doom are a lot more gory and graphic than they used to be,' says Dr Mark Griffiths, senior lecturer in psychology at Nottingham Trent University. 'That kind of blurring of fantasy and reality is worrying.'

> ***There's evidence of short-term behaviour changes after playing violent games...young children tend to be more aggressive afterwards.***

Violence closer to home

Games set close to home and featuring real people may carry a greater risk than blasting aliens and mutants in outer space, believes Professor Barrie Gunter, a psychologist at Sheffield University: 'The more realistic and contemporary the violence is, the more emotionally it affects people.'

Apologists counter that games are no worse than violence and depravity on television. But television is a passive medium, whereas children can actually control the course of a computer game. 'The important difference between video games and TV is that they are interactive and TV is not,' says Gunter. 'The interactive nature invites the possibility that the child will become more involved with what is going on.'

This applies even if the game is no more 'realistic' than a cartoon or an episode of Star Trek, and will increase as games become more lifelike. The development of virtual-reality games, sometimes using a headset which cuts out all sound and visual contact with the real world, may increase the risk still further, believes Griffiths.

Children as young as four are known to be playing violent games. There is evidence of short-term behaviour changes among very young children, between the ages of four and eight, who tend to be more aggressive afterwards, and mimic the movements of martial-arts games in play.

Recognising addiction

Most boys appear besotted with something or someone, be it a soccer team, a rock group or the girl over the road. But when should you worry that little Johnny's obsession with computer games (it nearly always affects boys) is becoming an addiction?

Dr Mark Griffiths of Nottingham Trent University is an expert in the field of addiction. 'People get addicted to computer games in much the same way as they get hooked on fruit machines,' he says. 'Most games have the potential to be quite addictive. I think computer games manufacturers deliberately design things into games to make them addictive.'

These include high scores, which encourage the player to better them; 'levels' promising greater excitement the more experienced the player becomes; psychological hooks and teasers within the game; and even graphics and emotive soundtracks. 'If you play even something like *Tetris* with the music turned off, it's nowhere near as arousing,' points out Griffiths.

He has identified six criteria for assessing whether a person is addicted to something. These are:

- **Salience:** is it the most important thing in the person's life? Do they think about it when not doing it?
- **Mood modification:** does it induce reliable and predictable shifts in mood, such as stimulation or relaxation (like nicotine, alcohol or gambling)?
- **Tolerance:** does the person need to do it more and more to achieve the same effects?
- **Withdrawal symptoms:** does the person become moody or irritable, or suffer headaches or nausea, when the activity is prevented?
- **Conflict:** does the activity get in the way of other things, such as homework or family relationships, or cause conflict within the addict who knows he is overdoing it but cannot stop?
- **Relapse:** does he slip easily back into bad habits after a period of abstention?

In each of three surveys of 11 to 16-year-olds, Griffiths found about five percent of children to be addicted (playing 30 hours a week or more), though this was only a single snapshot – he did not follow subjects over time to see if they stayed hooked, and suspects some did not.

'Children go on binge cycles,' says Griffiths. 'They'll get a new game and play at addictive levels for a month or two, then get bored with it.'

For parents with addicted children, he advises a gentle approach: 'Taking the game away completely is a negative thing to do. It has to be done through negotiation.'

He recommends limiting playing time to an hour or two each day; fostering other activities, both at and away from the computer; and using the game as a reward – for example, after finishing the day's homework.

The boundary between fantasy and reality blurs as, increasingly, footage of real actors is used in interactive blood-and-guts games.

Cause for concern

There has been little scientific research carried out on the long-term psychological effects of very violent and realistic computer games, not least because they are a relatively new phenomena. But anecdotal evidence suggests there is indeed cause for concern.

'My gut reaction as a psychologist is that it would be foolish to say that playing something like Street Fighter for five hours a day would have no effect on behaviour,' says Griffiths.

Studies of television have suggested that, for most people, blood and guts is actually not as big a turn-on as other elements, such as fast action, suspense or plot twists. But there are certain types of personality, such as natural loners, who may find violence particularly attractive.

> ***Psychological harm may be more a function of the child than of the computer game.***

Reactions vary

Griffiths believes that psychological harm may be more a function of the child than of the computer game. 'It's much more a judgment of parents as to how much their children react to these things,' he explains.

Antipathy to violent games can manifest itself very early. Dylan Brychta is only three, and enjoys playing the racing game The Need For Speed with his father, Alex. But he hates Destruction Derby, where the object is to force your opponents off the track. ▶

Choosing good software

There is a welter of children's software available, so to pick your way through the bad and the ugly to get to the good can be a tricky business. There are several important factors to bear in mind; ask yourself whether it will:

- Encourage creativity, at the computer or away from it.
- Hold the child's attention.
- Make them want to use it again and again.
- Develop basic skills, eg literacy, numeracy, analysis, general knowledge.
- Support existing interests or develop new ones.
- Appeal to a wide age range and 'grow' with the child.
- Be easy to learn and use.
- Do more than a book or video.

To get children away from the computer, *Fun School Young Scientist* (Europress) has instructions for 40 simple experiments, and *Paperopolis* (Virgin) has instructions for making origami models. For creativity at the PC, get a good word-spinning package like *Creative Writer* (Microsoft), *Kidworks 2* (Ablac) or *Talking Pen* (Longman Logotron), and a picture-painting program like *Fine Artist* (Microsoft). Movie-making packages like *Spiderman Cartoon Maker* (Random House) or *3D Movie Maker* (Microsoft) combine creativity and play, and a basic integrated package, like *Clarisworks* or *MS Works*, is useful for all the family.

Reference works allow the child to look up cross-references and leap from subject to subject. Good encyclopaedias are available from Microsoft (*Encarta 96*), OUP (*Oxford Reference Shelf*), Hutchinson and Grolier. Of the multimedia atlases, *3D Atlas* (Electronic Arts) is impressive.

How Animals Move (Maris), and *Dangerous Creatures* and *Explorapedia* (Microsoft), explain the natural world in text, pictures and animations; *The Ultimate Human Body* (Dorling Kindersley) and *3-D Body* (Knowledge Adventure) reveal the secrets of the human body; while *The Incredible Machine* (Sierra Online), *Widget Workshop* (Maxis) and *The Way Things Work* (Dorling Kindersley) offer insights into the world of machines.

Straight stories are more passive, but can help develop reading skills and might encourage children to explore real books. Broderbund's *Living Books* (*Arthur's Birthday*, *Harry and the Haunted House*) and OUP's talking books (*The Fish Who Could Wish*, *Winnie The Witch*, etc) are popular.

Even simulations such as *Space Sim*(Microsoft) and *Flight Unlimited* (Virgin), sports programs like *Actua Soccer* (Gremlin), and car racing games like *The Need For Speed* (Electronic Arts) can help to teach co-ordination and observation skills.

For older children, documentary-style CD-Roms such as Flagtower's military history series give excellent if disturbing insights. And programs which let you design virtual worlds, like *Simcity* (Microprose) and *Theme Park* (Bullfrog), can foster decision-making and analytical skills.

> ***The major drawback of age ratings is that they make the game appear more glamorous and desirable.***

'I think he was appalled by the violence in it,' says Alex. 'He doesn't like violence on TV, either. I certainly wouldn't like to show him Doom,' (although Alex himself admits to finding the violence in Doom quite cathartic).

Other parents are fatalistic about the possibilities of their children being exposed to PC-borne violence. 'They'll find it somewhere if they want to; it's no different from what's on TV,' says Kevin O'Connell, who has a boy and a girl, aged seven and two.

And the average teenager doesn't seem too worried. 'It's only fun. I don't think it makes me aggressive,' says Andy, 14, an ace at martial arts game Mortal Kombat. 'I was more shocked when Eric Cantona kicked that geezer in the chest, because it was real.'

Means of assessment

What most parents crave is a way of assessing the content of a game. The only foolproof method is to play it themselves, but it can take many hours to master the higher levels where the most shocking scenes are usually found. Alternatively, they could try asking the publisher, the shop, or a trade association like the European Leisure Software Publishers Association (ELSPA).

The next best thing is a classification scheme, like the rating system for films. Although computer games are exempt from mandatory classification under the 1984 Video Recordings Act, the exemption does not cover gross violence, sexual or criminal acts, promotion or use of drugs, or incitement to any of these.

It is up to the software publisher to decide whether a game should be classified under the Act, which is done by the government-funded British Board of Film Classification (BBFC). But if a game deserves to be classified, the publisher can be prosecuted for not doing so.

A few games have been given '18' ratings by the BBFC, including Phantasmagoria. This means that it is illegal for them to be bought or viewed by under-18s, exactly like an 18-rated movie. An increasing number of games require an 18 rating, though it is still less than one percent.

Games that do not require a BBFC classification may be rated under a voluntary scheme, such as the one run by ELSPA. This has four categories, rating games as suitable for people over 18, 15, 11, or 3 (ie, everybody). It is policed by the Video Standards Council, which is funded by the games, video and retail industries.

ELSPA ratings are not binding on retailers. Most stores claim to abide by them, but some are not so scrupulous.

The major drawback of age ratings is that they make the game appear more glamorous and desirable. 'You can guarantee that as soon as you slap a "15" label on a game, every 12 to 14-year-old will want to play it,' says Griffiths.

The ELSPA ratings demonstrate how few computer games are actually considered violent or salacious. Of the 192 titles registered between January and March this year, 73 percent were given a 3+ certificate, 17 percent were rated as 11+, and 10 percent as 15+. None was given a rating of 18+.

The benefits... in moderation

Playing computer games can have a beneficial effect. It provides practice in using the computer itself, especially moving around the screen. It can help develop hand-to-eye co-ordination, and may improve a child's attention span and ability to concentrate.

It can also develop children's capacity to learn from experience. 'There are very few instructions, so you have to learn by trial and error,' says Gunter. 'You have to develop strategies yourself, rather than having them spoon-fed to you.'

Instead of fretting about violent content, some parents might do better to examine just how much time their offspring spend at the keyboard. Griffiths has done three surveys of 11 to 16-year-olds, and found that between 75 and 98 percent played computer or video games at least once a week. ▶

Physical health risks

Anyone hammering away at a computer game, or rushing to finish their A-level project, can display many of the traits which cause computer-related health problems in office workers.

❍ Electrical and physical hazards can be lethal. Watch out for trailing cables.

❍ Repetitive strain injury (RSI) affects the hands, wrists, arms, shoulders, neck or back. The causes are complex, but usually include making rapid, repetitive movements in a static posture. Young children are thought to be less at risk than adults, because their tissues are more elastic. But no one knows what the long-term effects on children will be. The RSI Association has seen cases of RSI in A-level and college students, and in office workers in their teens and early twenties.

❍ Eyestrain is much more common than RSI, though the effects are thought to be only temporary. The main causes are glare, inadequate screens, over-use, and not wearing glasses if you need them.

❍ Stress may affect games players frustrated by their inability to 'beat' the PC, or students under pressure to finish homework or theses.

❍ Epileptic fits are no longer thought to be caused by computer use, according to the British Epilepsy Association. But sensible precautions include good lighting, sitting well away from the screen, good ventilation, and eating and drinking regularly.

What you can do:

❍ Sit up straight, be comfortable, and change posture regularly to avoid stiffness.

❍ Take regular breaks, preferably at a natural point, such as when finishing a section of a game. Try taking a two-minute break every 20 minutes, and stop using the PC after two hours.

❍ Remember to eat and drink, and have adequate ventilation.

❍ Rest the eyes frequently by looking away from the screen, preferably out of a window. Remember to get children's eyes tested regularly (eye examinations for children are free). School eye tests are not a substitute for a full eye examination.

❍ A comfy armchair or curled up on the floor are not good places to use a computer. You need a chair and table at a comfortable height, with the lower back supported and feet flat on the floor.

❍ Don't have an uncurtained window directly in front of or behind the computer. Don't sit in the dark, but avoid glare and reflections.

❍ Keep the computer screen clean and adjusted for brightness and contrast. Make sure you are using the highest possible 'refresh rate' (eg, 70Hz or more) to reduce flickering. For action games, a mouse or joystick is better than a keyboard.

❍ Portable PCs are less comfortable to use than desktops.

❍ Everyone's needs are different, and anyone suspecting a problem should seek expert advice.

Of these a third played every day, and between five and seven percent played more than 30 hours a week. Both boys and girls played regularly, but the heaviest users were almost always boys. There was a fairly even spread across the 11-16 age group.

Many parents are worried that children are becoming addicted to games, or that they will damage their physical health by spending so much time bashing away at a keyboard (see separate panels).

Some also fret that little Johnny is not developing social skills while communing with his computer. Exactly the same concerns have, of course, been expressed about television, radio, cinema, comics, and even books. In the days before electronic entertainment, many a child was told to 'take your nose out of that stuffy book and go and get some fresh air'.

The lack of fresh air and social skills is a worry. Even playing games with a friend does little for the latter, since the children spend most of the time interacting with the computer rather than each other.

But a computer can become a focal point for family life, and something for parents and children to share. 'We've had a PC for five or six years, and I can't imagine this corner of the room without it,' says O'Connell. 'I try to have a CD-Rom around that everyone can enjoy, like The Way Things Work.'

His two-year-old daughter Ellen sits on his knee and plays with a mouse while he works, and her brother Sam, seven, likes to show her around his favourite software. 'If he's making things happen, she's happy to watch,' says O'Connell.

Sam seldom wants to spend more than half an hour at the PC, but older children may need to be rationed. Peter and Bridget Taylor have devised a voucher system for their two girls, aged 12 and 8, which allows them to use the PC in half-hour stints (as much to forestall arguments over whose turn it is, as to prevent them from developing square eyes). 'I'm not against the PC,' says Peter. 'The television can be just as anti-social.'

Beware the bootleggers

Another thing to watch out for is that children are not committing a criminal offence when they acquire leisure software. A few years ago, when most packages came on floppy disks, piracy (illicit copying) was rife. 'We couldn't afford new stuff, so we all used to copy each other's programs,' says one 15-year-old. 'More than half the software on my machine I never paid a penny for.'

Now most games come on CD-Roms, which are impossible to copy without expensive equipment, so playground bootlegging has dwindled. But with full-price leisure titles costing £30-60 apiece, there are rich rewards for professional criminals.

ELSPA estimates that 10 to 20 percent of CD-Rom sales may be pirated. Most of these are on 'gold' disks – gold-coloured disks which can be written to using mastering equipment costing a few thousand pounds. These are easy for parents to spot.

Counterfeits faked up to look like the real thing can be very difficult to distinguish, so be wary of car-boot salesmen, market traders and small ads advertising software well below its market price.

'It's basically the same people who peddle pornographic videos and bootleg music CDs,' says ELSPA's director Roger Bennett.

If caught, they can end up in jail, but children are unlikely to end up behind bars just for buying a bootlegged CD-Rom. 'It's very unlikely we would pursue consumers under the law, unless we knew they were buying products to duplicate or distribute,' says Bennett.

It is perfectly legal to lend or swap bona fide CD-Roms with friends, because the software cannot be played without being in possession of the CD-Rom.

The V-Chip

Parents who hope for a PC version of the V-Chip to screen out subversive content in games will be disappointed – there are no plans to develop one.

The consensus on the V-Chip itself (which would allow parents to 'lock out' certain categories of programme on their TV sets) is that it will be ineffective. It will be years before all TV sets have one; the only parents who will bother to use it are those who already control their children's viewing; and children will probably learn how to program it before their parents do.

The best way to oversee what children are doing is to keep the PC in a communal area. 'My advice has always been that you should buy your children a computer, but you should keep it in the living room for the whole family,' says retired headteacher Grahame Leon-Smith. 'It's like a car or a phone – it's part of the family and everyone uses it.'

The psychologists, too, advise a balance not a ban. 'It's the same as TV,' says Gunter. 'You can't forbid children to play games, because they'll want to do it all the more. You need an environment where children are doing a variety of things. The onus is on parents to exercise some control.' **Paul Bray**