

# **REVIEW OF RESEARCH ON THE IMPACT OF VIOLENT COMPUTER GAMES ON YOUNG PEOPLE**

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# EXECUTIVE SUMMARY

## INTRODUCTION

The issue of whether playing violent video games causes violent behaviour in young people is one increasingly addressed in media debates about violence in society. In 2001 the Home Office published a review of literature that examined academic research into violent video games between 1985-1994. This current review builds and extends on that work, examining academic literature relating to violent video games and violent behaviour up to 2004. The review has four key objectives:

- to revisit the Home Office review from 2001, ensuring that all key studies examining the relationship between playing violent computer games and real-world violence in young people, carried out between 1985-2004, are covered;
- to advise on the quality and reliability of research carried out to date in this area;
- to advise on the extent to which existing research does or does not provide evidence of a link between the playing of computer games and subsequent behaviour; and

- to make recommendations as to how current gaps in our knowledge of this area could be filled, together with a discussion of the practicalities of doing so.

## **FINDINGS**

- This review broadly endorses the findings of the 2001 Home Office Review;
- The research evidence of a direct link between video games and violent behaviour in society remains contradictory;
- There is an inherent difficulty in researching this area and in isolating one causal factor (in this instance playing violent video games) in any violent social behaviour;
- There is a body of evidence that playing violent video games increases arousal and the possibility of aggression in some players. However, this evidence is often disputed and cannot be simply read as evidence that game playing translates into violent social behaviour;
- There is also evidence to suggest that game playing can encourage positive learning traits in young people;
- Despite the long history of media effects research, there is a paucity of credible *original* research in the particular area of video games and violence;
- The vast majority of the research which argues a direct link between playing violent games and violent behaviour has been carried out in North American from within the discipline of

psychology; there is relatively little or no distinctively UK research in this area;

- The North American research seems somewhat oblivious to the (mostly European) social science research on media effects that suggests the importance of particular context in explaining violent behaviour;
- The demographics of game players has changed over the years, with gamers often much older than is often portrayed in media reporting (in the US evidence puts the average age of a gamers at 29), yet there is very little research into the impact of playing computer games on adults (Griffiths, 2004).

#### **FUTURE AREAS OF RESEARCH**

- The playing of computer games is likely to increase in popularity and is already available across a range of media platforms, many of which are mobile. This raises issues for those wishing to police under-age access to violent video-games;
- As games become increasingly realistic and technology develops the rigorous classification of games and its enforcement will become increasingly important as it is in other areas of media content;
- Indeed one of the conceptual and methodological challenges for future research is making sense of the increasing blurring boundaries between video games, other media and the growing range of distribution systems for them such as the internet and mobile telephony. This raises issues

about whether it is actually possible to view video games as one discrete entertainment entity in the evolving digital landscape.

- As the government encourages the development of a creative/knowledge economy that places digital culture at its centre, this highlights the importance of developing media literacy and media education (aimed at a number of groups including parents) that encourage an understanding of the emerging digital cultural landscape in which computer games will be a central aspect;
- Evidence from the US highlights the importance of on-going research that examines the marketing of violent video games and parental understanding of the classification system. Such research could be linked to media literacy and media education research.
- Answering these questions poses a considerable challenge. An adequately funded programme of work with a UK focus in this area is needed, where possible these should include longitudinal studies and also take into account the changing demographics (age and gender) of gamers;
- This research needs to place violent behaviour within a broader field of social and cultural factors, of which the media are important, but are not the sole influence on shaping behaviour and social attitudes;
- We agree with Egenfeldt-Neilson and Heide Smith (2004) who suggest that rather than ask do violent video games cause violent behaviour, we should be setting a research agenda around a question that examines: *Are there combinations of types of games, types of personalities and situations which might have the potential to have adverse affects – in other words, are there types*

*of games which might cause damage to certain types of (children and young) people in certain circumstances?*

- Exposing younger children to violent games raises ethical and legal issues for researchers, especially when the central aim of such research is to ascertain whether video-game exposure can cause physical, emotional or psychological damage. However the method of 'self reporting' by young gamers allows the possibility of ethically engaging in discussions regarding both their interpretation of game playing behaviour and their perception of any wider behavioural impact that such activity may have.

## SECTION 1: INTRODUCTION

- 1.1 The video-game market in the UK has grown significantly in the past decade. The UK has the third largest market in the world (after Japan and the US). In 2004, sales of entertainment and leisure software in the UK totaled £1.34b constituting an increasingly important element of the overall UK creative economy (ELSPA, 2005).
  
- 1.2 However debate about the potential link between the playing of violent video games and violent behaviour in young people regularly surfaces in the media both in the UK and abroad. In Erfurt in Germany in 2002 media reports of the murder of 16 people by Robert Steinhaeuser, highlighted that he was an avid games player and a particular devotee of the violent video game *Counter-Strike*. While in the UK in 2004, the video game *Manhunt* was implicated in media reporting as a possible factor that contributed to the tragic murder of a young teenage boy. As a result of this coverage retailers pulled the controversial computer game from their shelves.
  
- 1.3 In the US there have been a number of high profile gun killings by adolescent boys, the most infamous being in 1999 in Littleton, Colorado, when Dylan Klebold and Eric Harris murdered 12 fellow pupils at Columbine High School, before killing themselves. The video game *Doom* was cited as playing a role in that tragedy. The Columbine High School Massacre led the then US President, Bill Clinton, to order a number of



high profile reports, which also led to Senate hearings examining possible links between media violence and violence among adolescent boys. These reports have produced a large amount of documentary material as well as new books and articles reviewing different sides of the media violence debate.

#### *The Home Office Review of 2001*

- 1.4 In 2001, The Home Office (HO) published a review of the literature that examined the effects of computer games on young children (Harris, 2001). The HO review only examined research studies carried out between 1985 and 1994, although some of these did not appear in print until 1995/6. The reason why later studies were not included was explained by the paucity of recent research (i.e. between 1994-2001). For the current report we have been able to incorporate new studies from the US and from various parts of Europe, especially the UK and Scandinavia, where recent books and articles have thrown new light on the nature of academic debates in Europe and the US surrounding media violence and its link to real-life violence.
  
- 1.5 The importance of reviewing recent academic research also lies in the fact that many of the new generation of violent video games only began to appear on the international market from 1991 onwards. These games are a lot more graphic and visually advanced than equivalent games available in the 1970s and 1980s, leading some commentators to argue that games like *Doom* act potentially as simulation-based training systems that

desensitize gamers through repeated exposure to violence and offer classical conditioning by associating aggressive acts with a pleasant experience (Grossman and DeGaetano, 1999).

- 1.6 The HO Review (2001) focused on any connection between game playing and aggressive behaviour, addictive traits in children, academic ability and criminal behaviour. This review is working to a narrower brief, in that we are paying particular attention to any possible link between the playing of computer games and violent behaviour among young people and are less concerned with issues around addiction, criminal activity and reduced academic standing. The HO Review correctly identified that the rise in non-arcade game playing had up until this time frame being largely under researched, although a body of related work was growing.
- 1.7 One of the key issues raised in the 2001 Review was its criticism that many of the studies tended to focus on the short term impacts of game playing, while not looking at the more complex issues of longer-term impacts and influences on children. Indeed the HO Review suggested the need for more research into long-term impacts of game playing. Our conclusion, which will be discussed in the final chapter, is that the whole field of video game violence is under-researched. To cite one leading academic in this field: 'I cannot think of another important issue which scientists have been willing to reach conclusions on such a small body of research' (Freedman, 2001).

### *Issues of Definition*

- 1.8 The defining of 'young people' in this review is taken to be gamers under the age of 21. This definition can be broken down in to three broad categories in line with much of the research in this field: preschool and primary schoolchildren; secondary school children; and university students and young adults (Bensley and Van Eenwyk, 2001: 246). However this does raise an issue of the age profile of gamers, with Newman (2004: 50) noting that:

The contemporary demographic suggests that the audience is comprised of 'new entrants' discovering video games anew and players growing up with the industry.

Indeed Sony PlayStation users are on average 20/21 years of age, while the Entertainment Software Association (ESA) claims that the average age of users in the US in 2003 was 29. We found little research examining the effects of violent video games on adults over 21.

- 1.9 Throughout this review we use the terms computer games to cover games played on any media platform such as a PC or television set. The steady growth of digital convergence increasingly makes any significant distinction difficult. The location where computer games are played remains important; one of the major changes in the last two decades has been the movement out of the arcades (where some level of policing was able to take place) and into the home (where the responsibility shifts to the

parents to police the domestic environment). Related to this is the extent to which the emerging digital landscape now finds games being played across a range of more diffuse often mobile media platforms, from mobile phones, pocket computers and the internet.

- 1.10 Finally, we found working definitions of key terms used in this review difficult to agree due to a lack of consensus. For example, Anderson and Bushman (2001: 354) start their definition of aggression thus: 'Aggression is behaviour intended to harm another individual who is motivated to avoid that harm.' Goldstein (2001) points out however that there is no intention to harm anyone living in video games. Griffiths (2001: 210) also points out that there are problems with many definitions of 'violence' and 'aggression' as there are numerous programmes (i.e. cartoons like *Tom and Jerry*) that do not come within the definitional terms often used by researchers.

## SECTION 2: METHODOLOGY

2.1 Our primary methodological tool for this review was analysis of primary and secondary research literature that focused primarily on the supposed link between the playing of video games and subsequent acts of aggression or violence in real life. Our first search for relevant books and journals involved using our own collection of material built up on previous projects and constantly updated as part of our regular teaching on this subject at the University. This collection alone gave us an extensive map of key academics and universities involved in the various media violence debates. In order to locate further academic literature, we searched relevant library research databases for journal articles and books. For example, using the *Ingenta* and *Athens* databases of journal articles (using keywords: video-games, violence, aggression), we located a number of the key North American psychology and medical journals containing relevant articles.

2.2 The next part of the research involved reading books and articles collected checking always bibliographical details in order to source further material. In some cases books were ordered via Amazon.com and further journal articles were sourced from libraries in Scotland and London. Finally, and again using contacts with key academic associations, we searched for national and international conferences and meetings in the past four years,

which have examined issues under review in this report. One particular conference, held in Chicago, USA, in 2001 furnished a number of conference papers.

2.3 It became very clear early on in our research that there was a large amount of non-academic related reports, articles and books in addition to academic material. We therefore took the decision to divide research into North American-sourced material and European (and other) material. Dr Boyle concentrated on European research and Dr Hibberd covered US and Canadian material. Key academic research was read by both Dr Boyle and Dr Hibberd.

2.4 Finally, a number of meetings were convened to discuss and analysis key findings and to organise the drafting phase of the research.

## SECTION 3: ASSESSMENT OF EVIDENCE

- 3.1 This section assesses the evidence relating to any links between the playing of computer games by young people and subsequent effects on violent behaviour.
  
- 3.2 One of the key issues in evaluating the diverse range of research output in this area is understanding the starting positions of the researchers. The Nordic researchers Egenfeldt-Neilson and Heide Smith (2004) in their overview of recent (1999 onwards) research identify two broad groupings into which much of the research falls: The Active Media research school and the Active User research outlook.
  
- 3.3 The *Active Media research school*, which has enjoyed a much higher media profile in terms of the reporting of its findings, is heavily influenced by the North American psychological traditions. This school of video games effects research relies primarily on laboratory-based experiments, correlational and self-reporting studies and reads any behaviour changes in those under study as evidence of direct effects caused by particular media texts, in this case violent video games. This research tradition identifies a number of related theories used to predict aggressive behaviour through video-game playing, including social learning (imitation), arousal and cognitive priming theories (Bensley and Van Eenwyk,

2001: 2-3). This school of research more often than not argues that a clear link exists between video game violence and violent behaviour in young people.

- 3.4 The majority of this research tends to be US in focus and content (Anderson 2003, 2004). The main weaknesses of this approach include those noted in the HO Review (2001) and relate to criticisms that much of the North American literature relies on lab-based experiments not conducted in the 'real' world. These studies tend not to ask how or why people play video games (Goldstein, 2001). At times, students are involved in experiments, not actual gamers.
  
- 3.5 The *Active User research school* tends to be more methodologically informed by fieldwork such as ethnographical approaches, and positions itself within social science traditions. It places an emphasis on the wider social and cultural factors which influence the formation of attitudes and behaviour in people of which the media is but one, albeit important, factor. This work is more likely to be conducted within a European context (Livingstone, 2002). It is more likely to argue that media representations of violence cannot simply be read off as evidence that they cause violent behaviour but that the media user is engaging with this material in a more complex and sophisticated manner than is often assumed (Barker,



1997). The main weakness with this approach is the lack of original academic studies.

### *Active Media Research Tradition*

3.6 One of the single-most important pieces of research to be published in recent years from the Active Media research tradition was in September 2001, when Craig A. Anderson and Brad J. Bushman (two key proponents of the psychological or behaviourist school of thought) published results of meta-analytic review of video-game research literature since 1988 in the US journal *Psychological Science* (published by the American Psychological Society). This research was updated in 2004 (Anderson, 2004).

3.7 By searching the database PsycINFO, the authors sought out studies that examined the effects of playing violent games on aggressive cognition, aggressive affect, aggressive behaviour, physiological arousal or prosocial behaviour. The authors identified 35 research projects that included 54 samples of participants. Of the 35 studies, 22 were published in peer-review journals although only nine studies dealt explicitly with aggression and video games (Freedman, 2001).

3.8 The results of the meta-analysis were classified under key headings. The first result was that high video-game violence was associated with heightened aggression in participants and 'this

effect of violent video games on aggression is as strong as the effect of condom use on the risk of HIV infection' (Anderson and Bushman, 2001: 357).

- 3.9 The authors also argued that exposure to violent video games is negatively correlated with being helpful to others in the real world (prosocial behaviour).
- 3.10 Thirdly, the authors argue that video games may also increase feelings of anger or hostility (aggressive affect). Finally, the authors argue that exposure to violent video games increased physiological arousal in participants (arousal measures included: systolic blood pressure; diastolic blood pressure; and heart rate).
- 3.11 In their discussion of these findings the authors pull few punches in stating: 'these results support the hypothesis that exposure to violent video games poses a public health threat to children and youths, including college-age individuals' (2001: 358). These results have been broadly supported by more recent studies (Anderson and Murphy 2003 and Anderson, Carnagey and Eubanks, 2003) (see Cumberbatch, 2004: 36). These research findings also apply to both male and female participants and to children and youths, including college and university-aged individuals (2001: 358).

- 3.12 However, a number of criticisms have been made of Anderson and Bushman's findings. In their overview of experimental research, Bensley and Van Eenwyk (2001: 254-255), argue that such research tends to point to violent video-games affecting younger children (four-eight year-old) rather than for other age-groups (from 9 to 21 year-olds). They argue that it is not possible from current research to determine whether video-games increase hostility in teenagers and college students. They too argue however that there are few gender differences in research findings (2001: 254).
- 3.13 Turning to Anderson and Bushman's main conclusion that video-games pose a threat to public health, one prominent critic, Jonathan Freedman (2001), states: 'This is a serious paper and a very serious assertion'. Freedman even goes on to accept that there may a 'small but significant effect of playing violent video games on the measures of aggression employed in the studies'.
- 3.14 But according to Freedman, however, this is not the same thing as admitting that violent video games cause people to be aggressive. That is, Freedman does not question the data produced by the studies covered in the meta-analysis; rather, he questions whether the results of Anderson and Bushman's research can be interpreted as indicating that playing video games causes aggression because of inherent flaws in the methodological design of the studies under

analysis. Such limitations of this type of research, he argues, can be summed up thus:

- 3.15 All research of this type compares gamers reactions to violent video games with non-violent video games. The violent video games under research might cause more arousal or aggression simply because the comparative game is less exciting.
- 3.16 With design experimental research there is a high possibility that elements of the procedure will give the subject the impression that a particular response is expected, desired or allowed and this will affect how the subjects behave.
- 3.17 The ways in which these studies try to measure aggressive (commonly known as measures of thoughts or aggressive cognitions) have little to do with most people's understanding of aggression.
- 3.18 There is support for Freedman's findings from other violence experts. In a review article for the UK industry-funded watchdog, the Video Standards Council (2004), Guy Cumberbatch examined research focused on video games and their perceived impact (mostly on children). A range of studies, all from psychologists and underpinned by the hypothesis that a relationship exists between

violent video games and aggressive thinking and often behaviour, were examined. Cumberbatch (2004: 36) concludes that:

The evident weakness in the individual studies and the general pattern of inconsistent findings would not normally lead us to expect researchers to make any strong claims about video games. However, this is far from the case. As with other research on media violence, some of the strongest claims are made on the most flimsy of evidence.

- 3.19 Another important strand of the *Active Media School* of media effects comes in the form of desensitisation theory. In their book on video-game, TV and movie violence, Lt. Col. Dave Grossman, an American army psychologist, and Gloria DeGaetano, a media consultant, argue that violent video-games desensitise players, repeatedly exposing young people to violence and thus conditioning them to see killing as a natural occurrence. Furthermore, they also point to the fact that violent video games are also used by US army to train recruits to kill (as well as helping recruits to develop a range of other skills, such as decision making). Finally Grossman and DeGaetano (1999: 9-22) use crime statistics to demonstrate a correlational link between the rise of violence video games and the rise in juvenile assaults. Other studies have pointed to low 'empathy' levels of violent video-game players as evidence that gamers are becoming more desensitised to violence.

3.20 But desensitisation theory fails to take account of the argument that young people can distinguish between different types of violence and that fictional violence is often considered less violent than images of 'actuality' violence (i.e. that broadcast in TV news) (Millwood Hargrave, 2003). Grossman and DeGaetano have also been criticised by a number of writers, including Helen Smith, author of the *Scarred Heart*, as the effects Grossman predicted in his argument a decade or so ago (i.e. a rise in juvenile crime) have not come to pass. Smith argues: 'The research on video-games and crime is compelling to read. But it doesn't hold up. Kids have been getting less violent since those games came out. That includes gun violence and every other sort of violence that might be inspired by a video game' (Smith: 2000, 86-87). Likewise, Bensley and Van Eenwyk use crime statistics, but in order to downplay any link between video games and homicide rates in the US (2001: 244).

3.21 What is also striking about much of the psychological research under review is the extent to which it appears to largely ignore the extensive body of work on media violence that has come out of the social sciences. It is also worth noting the extent to which most of the recent research in this area begins from the assumption that a direct link exists between media violence and violence in society, despite the fact that a few studies such as that by Bavelier and Green (2003) advocate that there are positive benefits (including the

idea that video-games can have a cathartic effect on players therefore reducing aggression levels).

- 3.22 In more recent research on the influence of media violence on youth, Craig Anderson (2003) has argued, along with colleagues, that:

Though the scientific debate over whether media violence increases aggression and violence is essentially over, several critical tasks remain (Anderson et al, 2003: 81).

- 3.23 In our opinion, this debate is far from over, and on balance the case for a direct and unproblematic link remains unproven. Or, as Freedman (2001) concludes: 'there is no such work and no scientific reason to believe that violent video games have bad effects on children or adults, and certainly none to indicate that such games constitute a public health risk.'

### *The Active User Research Tradition*

- 3.24 Although the active user research tradition has an extensive following in academic circles in the UK and other parts of Europe, one of the most forceful books arguing the merits of video games is by an American, Gerard Jones. In his book *Killing Monsters. Why Children Need Fantasy Heroes and Make-Believe Violence*, Jones sets out to criticise much of the North American tradition of violence-

related research. The central argument of his thesis, however, is that violent video games can help children in contemporary societies and that even the most violent games and TV programmes can help children conquer fears and develop a sense of identity. (2002: 73).

3.25 This more holistic approach to the possible impact of video games on young people is evident in European based work (Sorenson and Jessen, 2000) and also in work in which video games are looked at simply one part of the digital landscape with which children interact (Buckingham, 2000; Livingstone, 2002, see also Gunter's 1998 review). Indeed the Danish research of Carsten Jessen (discussed in Enenfeldt-Nielson and Heide Smith, 2004; see also Sorenson and Jessen, 2000) is part of a longer ten-year project into young people's use of computer games. Using a mixture of qualitative interviews and ethnography this research concludes that most children use video games as a form of play and that they offer less negative effects than say violent television and film. The key to this type of research is trying to understand how children themselves understand and place the computer game experience within their wider social world, rather than outsiders (usually adult academics) simply reading off behavioural impacts from their own interpretation of 'content'.



- 3.26 The complexity of the situation is well illustrated by some recent research carried out by Dr Jon Sykes from the eMotion Lab at Glasgow Caledonian University in conjunction with Professor Robert Winston for the BBC series *Child of Our Time*. The series traces the development of a number of children all born in 2000 over the first twenty years of their lives. An episode broadcast on Tuesday 11 January 2005 (BBC 1) examined the impact of media on the lives of some of the now four-year-old children. In particular they were interested in the impact that playing a particularly violent video game had on one of the children, four year old Ethan. The game *Halo* actually carried a 15 certificate, yet Ethan played it incessantly, getting clearly worked up as he became engrossed in the game.
- 3.27 The research clearly demonstrated that Ethan's arousal levels increased significantly when playing the game (one problem being his inability to settle for bed after immediately playing the game). It should be noted that excitement levels were also raised in one of the parents who took part in the experiment and who does not play or even like video games. However as the *Child of Our Time* study is a holistic account of the child's experience, they were also able to show that playing the game had not made Ethan aggressive or violent towards the children he played with at his day nursery. Indeed he was a popular and well-liked boy who integrated well with his peers. The research actually showed that his decision

making ability had been heightened and improved by playing the game. Indeed the potential benefits of video game playing have also been developed in other work and reviews carried out by Durkin and Barber (2002), Emes (1997) and Gee, (2003) and in a review of game playing literature carried out by (Mitchell and Savil-Smith (2004) for the Learning and Skills Development Agency. When Ethan played against Professor Winston, he was actually very reluctant to shoot his opponent's player and didn't want to hurt them. He was, in fact, quite a gentle boy in terms of his social behaviour.

3.28 Obviously this was only one particular child in the sample, but it seems to us to illustrate some of the issues that emerge from reviewing the wider body of work. Taken in isolation, playing violent video games may well increase arousal and possibly aggression; this may however be simply a short-term outcome. It is impossible to simply then read this as something likely to cause violent behaviour, as much of the North American research appears to do, without placing young people within their broader social, familial and peer environment and recognising the factors that will influence their behaviour, attitudes and moral outlook towards the world around them.

3.29 A recent (2005) review study for the *Lancet* carried out by Browne and Hamilton-Giachritsis from the Centre for Forensic and Family

Psychology at the University of Birmingham went some way to recognizing this issue. They focused on six North American studies (of which four related specifically to video and computer game violence) and concluded 'that a small but significant association [between media violence and its influence on children and adolescents] is shown in the research'. However they also noted the multifactorial aspects involved in shaping aggression, the methodological challenges of carrying out such research and the inconsistent evidence, particularly with regard to long term outcomes. In so doing they called for more research in a range of areas, including using large population samples to investigate the link between violence in the media and violent criminal behaviour (2005: 708).

### *Issues of Researching Risk*

3.30 Setting aside the various research traditions from the US and Europe, other key US research has recently been published that might provide the focus for further study. Jeanne B Funk (2001) has recently published some research that explores video games and their impact on so-called 'high risk' players. High-risk players are those defined as 'individuals who are drawn to violent video games because of pre-existing adjustment problems'. Examples given are younger children, bullies and victims, and children with emotional problems. Although the Funk study acts as a literature review of other (experimental-based studies) research, her findings

that there are more powerful influences on children's behaviour than playing video games (family life, poverty, peer-group pressure, etc) echoes European-based research that some children might be especially vulnerable to exposure to violent video games.

3.31 Another study of interest is one the US Federal Trade Commission (FTC) published in 2000 and which is based on a 15-month study of the marketing of violent video games in the US (Engle, 2001). In a rather startling finding, the FTC found that US video-game companies routinely marketed to children the very products that had the industries' own parental warning or ratings with age restrictions due to its violent content. Furthermore, for many of the products, the FTC found evidence of marketing and media plans which specifically targeted children under 17 (the recommend minimum age for violent games). Specifically, of the 118 games with a Mature (over 17) rating, the FTC selected 83 for its study and found that 60 of these were targeted to children under 17.

3.32 Furthermore, the FTC also found that most US retailers made little effort to restrict children's access to products with violent content. Finally, the FTC found that US parents understanding of the ratings system in the States and the system of labeling varied (Engle, 2001).

3.33 The Commission's report concluded:

The practice of pervasive and aggressive marketing of violent movie, music and electronic games to children undermine the credibility of the industries' ratings and labels and frustrates parents' attempts to make informed decisions about their children's exposure to violent content.

- 3.34 The Commission, however, has declared that there are a number of legal limitations, including substantial and unsettled constitutional questions that prevent it from enforcing current statutory and industry regulations. As far as we can ascertain, no equivalent large-scale research of this type has been undertaken in the UK.

## SECTION 4:

### CONCLUSION AND RECOMMENDATIONS

- 4.1 This part of the review outlines key gaps in our understanding, and provides an overview of the practicalities of carrying out good quality research in this area.
- 4.2 In July 2000, the American Academy of Pediatrics presented a joint statement to the Congressional Public Health Summit stating that ‘well over 1000 studies... point to a causal connection between media violence and aggressive behaviour in some children.’ (AAP: 2000) A few months later the White House gave a figure of 300 studies, asserting that ‘all’ of them showed some link between entertainment and violent behaviour. As we have discussed in this paper, two of the US’s leading authorities on experimental laboratory studies could only find a limited number of studies on which they based their meta-analysis study.
- 4.3 Our first conclusion is that we have found many inconsistencies in the reported amount of research in to media violence. Put simply, there are a lot of myths, misinterpretations and mis-representations surrounding the quantity and quality of research on this issue. This has led to some US researchers, including Lilian Bensley and Juliet

Van Eenwyk (2001: 256), from the Department of Health, Washington, to argue that current evidence is not supportive of a major concern that video game violence leads to real violence but that more research is required, especially on recent and more realistic games. Most US research, as we have discussed, does however claim to support a causal or correlational link between video violence and real violence.

- 4.4 In Europe, since the late 1990s there has been a growing research interest in the relationship between video game playing and violent behaviour, as this form of popular culture has become more widespread and the games industry has boomed. Here, academics such as Mark Griffiths (1999) from Nottingham Trent University, are calling for additional research.
- 4.5 Our second conclusion is that despite the rise in research interest in this key subject, the amount of research undertaken and published has not kept pace with the growing importance of video games as a key area of popular cultural activity.
- 4.6 The majority of the research into the impact of violent video games on the behaviour of children and young people is US-based and located within a particular strand of psychology.

4.7 We conclude that this raises issues about the direct relevance of much of this research for the particular cultural context of the UK. The latter has resulted in much work being carried out within a very tight frame of reference, often heavily influenced by the North American behaviourist model and underpinned by an assumption that some link exists between media representations of violence and violent behaviour. As the HO Review (2001: 14) previously noted:

In attempting to explain or to account for the problems associated with computer games, the research might be accused of spending too little time addressing social issues, such as family background or education.

4.8 We recognise that there are some challenges to overcome in conducting further research on video games. While the majority of academic literature is united in its belief that too little international research has been conducted into the effects of violent video-games, such a consensus does not always extend to best ways to conduct research in this field: in terms of sample size, the methodologies required (i.e. lab-based or field-based) and the time-length of studies. It should not be overlooked too that the 'perfect' research project is not possible.



- 4.9 As Freedman (2001) argues: 'For ethical, legal, moral and logistical reasons, one cannot assign children to play certain games for years even if one were willing to do so... we must rely on less perfect studies in attempting to answer our question'. These ethical and practical limitations apply particularly to younger children, especially those aged 4-8. Previous research (see Young, 1997) has questioned whether children in this age-group are fully able to articulate or report their feelings in relation to issues surrounding media violence. Exposing younger children to violent games raises ethical and legal issues for researchers, especially when the central aim of such research is to ascertain whether video-game exposure can cause physical, emotional or psychological damage. However the method of 'self reporting' by young gamers allows the possibility of ethically engaging in discussions regarding both their interpretation of game playing behaviour and their perception of any wider behavioural impact that such activity may have.
- 4.10 We have argued in this report that much more UK-based research needs to be commissioned from both life science and social science academics. Such research should take account of the criticisms we have made of experimental-based studies, but also seek to be more representative of the actual age profile of players, while recognizing that video-game playing is only one factor in shaping the behavioural development of children and young adults. New research also needs to address the question of why children choose

to play video games, what entertainment value these games provide, and what, if any, positive benefits accrue from playing them. And this requires the active participation of players themselves in research studies. Research should seek to identify the influence of video game advertising and marketing on parents and children and, importantly, in the formation of peer pressure.

4.11 Shaping future research projects will require ingenuity and substantial financial resources. It will also require the active participation of games-manufacturers themselves to help ensure that academic studies cover up-to-date games, which take account of technological advances. This might help allow academic research to catch up with the rapidly evolving technological advances in video game imagery and the multi-media distribution of video-games.

4.12 Indeed one of the conceptual and methodological challenges for future research is making sense of the increasing blurring boundaries between games, other media and the growing range of distribution systems for them such as the internet and mobile telephony. This raises issues about whether it is actually possible to view video games as one discrete entertainment entity in the evolving digital landscape.

- 4.13 Most of the studies we have examined, especially those from the US, measure the short-term impact of video video games on young people. We would concur with HO Review (2001: 14) that there remains a need for longitudinal studies. We also feel that it would be important that such studies are drawn from a more social scientific environment that is alert to the wider cultural and social factors which help shape behaviour, and particularly aggressive behaviour, what Egenfeldt-Neilson and Heide Smith (2004) call the *Active User* approach.
- 4.14 To this end future studies need to place video game playing within a wider cultural and social context that sees video games as one element of a young person's engagement with a range of media and social factors which may influence behaviour. A more nuanced approach to this more general area is required. We agree with Egenfeldt-Neilson and Heide Smith (2004) who suggest that rather than ask do violent video games cause violent behaviour, we should be setting a research agenda around a question that examines: *Are there combinations of types of games, types of personalities and situations which might have the potential to have adverse affects – in other words, are there types of games which might cause damage to certain types of (children and young) people in certain circumstances?*
- 4.15 Answering these questions poses a considerable challenge. An adequately funded programme of work with a UK focus in this

area is required and where possible this should include longitudinal studies and also take into account the changing demographics (age and gender) of gamers, something largely absent from many studies.

4.16 As games become increasingly realistic and technology develops the rigorous classification of games and its enforcement will become increasingly important (and difficult, see 4.12) as with other areas of media content. Ongoing research might be required to ensure that games-manufacturers, retailers and parents all understand their duties and responsibilities towards young people. It should also be stated however that computer games are likely to increase in popularity and are already available across a range of media platforms, many of which are mobile and raise difficulties for those wishing to police who plays violent video games (see 4.12).

4.17 While the government encourage the development of a creative or knowledge economy that places digital culture at its centre, this also highlights the importance of developing media literacy and media education programmes (aimed at a number of groups, including parents) that encourage an understanding of the emerging digital cultural landscape in which computer games will be a central aspect.

4.18 Many of the concerns about the impact of video games on young people are actually symptomatic of deeper social concerns about the changing nature of childhood in the modern world and the perceived increase in the elements of risk to which young people are exposed in society. As long as these concerns exist, areas of popular cultural activity such as computer games culture will be the subject of ongoing debate about its wider social impact on patterns of behaviour.

## APPENDIX: KEY TEXTS 1994 -2005

Much of the evidence emerging up to 2004 is in fact extended reviews of the existing literature. We have identified some of these below along with key original research that has appeared since 1996. In some instances the research is not solely concerned with video game playing and violence, but will make reference to this in a wider research context.

**Anderson, C.A. and B.J. Bushman (2001) 'Effects of violent video games on aggressive behaviour, aggressive cognition, aggressive affect, physiological arousal, and prosocial behaviour: A Meta-Analytic Review of the Scientific Literature', in *Psychological Science*, Vol. 12 No. 5, September.**

This is a review of literature from two prominent academics in video violence debate.

**Anderson, C.A. (2004) 'An update on the effects of violent video games'. *Journal of Adolescence*, 27, 113-122.**

This updates a piece of meta-analysis research first published in 2001 (Anderson and Bushman, 2001). Anderson argues that the 2001 underestimates the effect of violent video games on aggressive behaviour.

**Bensley, L. and Eenwyk, J. (2001) 'Videogames and real life aggression: review of the literature'. *Journal of Adolescent Health*, 29, 244-257.**

Very useful overview of video-game research from two researchers in the Department of Health, Washington. Their findings go against much of the US-based research.

**Browne, K.D. and Hamilton-Giachritsis, C. (2005) The influence of violent media on children and adolescents: a public-health approach, *Lancet*, 365: 702-10.**

They focus on six North American studies (of which four related specifically to video and computer game violence) and concluded 'that a small but significant association [between media violence and its influence on children and adolescents] is shown in the research'. However they also noted the multifactorial aspects involved in shaping aggression, the methodological challenges of carrying out such research and the inconsistent evidence, particularly with regard to long term outcomes. In so doing they called for more research in a range of areas, including using large population samples to investigate the link between violence in the media and violent criminal behaviour.

**Buckingham, D. (2000) *After the death of childhood: growing up in the age of electronic media*, Cambridge: Polity Press.**

Overview of the challenges and debates facing policy makers as children grow up in the digital age.

**Cumberbatch, G. (2004) *Video Violence: Villain or Victim?* Video Standards Council ([www.videostandards.org.uk](http://www.videostandards.org.uk)).**

**Dill, K.E. and Dill, J.C. (1998) 'Video game violence: a review of the literature'. *Aggression and Violent Behavior*, 3, (4), 407-428.**

**Engle, M. (2001) 'The Violence Debate II: The First Amendment, the FTC Report, and Legal Strategies', paper presented to *Playing the Rules* conference, University of Chicago, 26-27 October 2001.**

Findings of report from FTC in to marketing of video games in the US. The report was commissioned by President Clinton.

**Enenfeldt-Nielson, S. and Heide Smith, J (2004) *Playing with Fire: How do computer games influence the player?* Nordicom: Gothenburg University.**

Is useful in that it reviews a number of key Scandanavian studies, a number of which has not appeared in English.

**Emes (1997) 'Is Mr Pac Man eating our children? A review of the effect of video-games on children' *Canadian Journal of Psychiatry* No 42 (4), pp 409 – 414.**

Article from Canadian-based academic that argues that there could be positive and negatives consequences of violent video-game playing.

**Freedman, J. L. (2001) 'Evaluating the Research on Violent Video Games'. Paper presented to the *Playing the Rules* Conference, Chicago, 26-27 October 2001.**

Canadian academic who examines and critiques Anderson and Bushman's (2001) findings.

**Freedman, J. L. (2002) *Media Violence and its effect on Aggression: Assessing the Scientific Evidence*, Toronto, University of Toronoto.**

Key Canadian academic that presents cogent critique of Anderson's work.

**Funk, J. (2001) 'Children and Violent Video Games: Are there High-Risk' Players?', paper presented to *Playing the Rules* conference, University of Chicago, 26-27 October 2001.**

**Gee, J.P. (2004) *What video games have to teach us about learning and literacy*, New York, Palgrave Macmillan.**

**Goldstein, J. (2001) 'Does Playing Violent Video Games Cause Aggressive Behaviour?' paper presented to *Playing the Rules* Conference, University of Chicago, 27 October 2001.**

Very useful critique of pro-effects arguments from Dutch-based academic.

**Griffiths, M. (1999) 'Violent video games and aggression: review of the literature'. *Aggression and Violent Behavior*, 4, (2), 203–212.**

Key UK researcher who argues that debate remains inconclusive due to lack of original UK research and inconsistencies in US findings.

**Grossman, D. and G. DeGaetano (1999) *Stop Teaching Our Kids to Kill. A Call to Action against TV, Movie and Video Game Violence. With forward by President Clinton.* New York: Crown.**

Oft-quoted book by US Army psychologist and media consultant arguing that modern video games desensitise players. This book is often cited by pro-effects civic groups in the US.

**Gunter, B. (1998) *The Effects of Video Games on Children: The Myth Unmasked,* Sheffield: Sheffield Academic Press.**

**Jones, G. (2003) *Killing Monsters: Our Children's Need for Fantasy, Heroism and Make-believe Violence.* New York: Basic.**

Former screenwriter and media educator who defends the role of violent video-games.

**Livingstone, S. (2002) *Young People and New Media,* London: Sage.**

Part of a wider European project looking at young people and their engagement with new media.

**Millwood Hargrave, A. (2003) *How Children Interpret Screen Violence,* London: Broadcasting Standards Commission.**

Key UK regulator that commissioned some excellent work in to media violence in the 1990s. This was the last report written by its research director.

**Newman, J. (2004) *Videogames,* London, Routledge.**

**Mitchell, A. and Savill-Smith, C. (2004) *The use of computer and video games for learning,* London, Learning Skills Development Agency.**

**Smith, H. (2000) *The Scarred Heart. Understanding and Identifying Kids Who Kill.* Knoxville: Callisto.**

Overview to subject by US-based psychologist who bases research on interviews with patients. Useful critique of Grossman.

**Sorenson, H.D. and Jessen, C. (2000) 'It isn't real: Children, computer games, violence and reality' In C. van Feilitzin and U. Carlsson, (eds.), *Children in the New Media Landscape.* Goteborg: UNESCO.**

Much of the evidence reviewed in the HO Review of 2001 was centred on the US. Of the 18 key texts that were the core of the review, 15 were American based studies. One central issue this raises is the validity of some of these studies when explaining behavioural patterns occurring in the UK. The cultural environment within which young children grow up and develop in the US and the UK remains distinctly different, despite claims that American popular culture exerts a significant influence on British children.



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