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Impacts of Video Games

There is debate surrounding the impact of violent video games on behaviour. This note summarises the key aspects of the discussion, and other potential impacts of gaming such as addiction. It also examines the educational use of games, and reviews mechanisms to ensure children's game safety.

Background

Technological advances, such as the internet and mobile devices have contributed to the popularity of gaming and the growth of the gaming industry. Video games can now be played in different ways on different platforms, diversifying their impact. After the USA and Japan, the UK games market is the third largest in the world. In 2010, 63 million console and PC games were sold in the UK, with games with violent content among the most popular. As gaming increases particularly among children and adolescents (see Box 1), so have concerns over the games' content, influence and excessive use. While the main focus of research and policy has been on violent games, other impacts of games on addiction, brain development, social interaction and education are also considered in this note.

Policy

The Byron Review[1]

In 2008, the Byron review examined the risks to children from internet and video games. This review and the follow-up in 2010 provided a series of recommendations to improve children's digital and video game safety. These included improving awareness and education around age ratings and parental controls, improving the age classification system and the formation of the UK Council for Child Internet Safety (UKCCIS).

Overview

- Video games are classified by age appropriateness. Regulation is moving towards a single, mandatory age-rating system for games in physical formats. The industry continues to self-regulate online games and mobile gaming apps.
- Some, but not all, research suggests links between violent video games & aggression. However, causation cannot be proved.
- A small minority may play video games excessively, but there are no firm criteria for diagnosing video game addiction.
- Video games can be social, educational, and allow for personalised learning.
- Effective use of age verification technologies and parental controls to ensure children's game safety remains a challenge.

Legislation

Games regulation is based on The Video Recordings Act (1984) (as amended by the Criminal Justice Act, 1988, the Video Recording Act 1993, the Criminal Justice and Public Order Act, 1994 and the Digital Economy Act, 2010), which was introduced after public concerns over the so-called "video nasties". The Act does two things. It requires films and video works to be classified by age appropriateness. It also made it an offence to sell an unclassified title, or to sell an age-restricted title to someone below that age.

Currently, video games are classified under two systems by the Pan European Game Information (PEGI) and the British Board of Film Classification (BBFC) (see page 4). In response to the Byron Review's recommendations, the Department for Culture, Media and Sport consulted on options for strengthening classifications. This revealed support for a single enhanced PEGI system. Subsequently, the Digital Economy Act (2010) made provisions for making the classification of video games (rated 12 and above), in accordance with PEGI, mandatory. Once implemented in summer 2012, the Video Standards Council (VSC) will be appointed as the designated body for classifying video games and will operate under the name of the Games Rating Authority.

Box 1. The Profile of Today's Gamers

Who Plays Games?

Figure 1. The proportion of the UK population who play games on one or more platforms by age group and gender.[2]
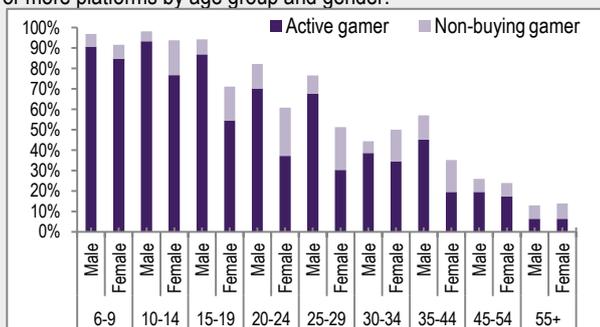
Platforms include: smart phones, portable devices, PCs, consoles, social networks and web browser games. The active gamer category includes games bought from a shop or by digitally downloading its equivalent.

Why Are They Played?

What makes a game 'fun' varies as gamers respond to different elements. For instance, while violence appeals to many, it can also be a reason not to play a game. Generalised gender differences in video game play are summarised in the table below.

Table 1 Gender preferences in video game play[3]

Females	Males
■ Meaningful actions	■ Clear goals
■ Cooperation	■ Competition
■ Learning by examples	■ Learning by doing
■ Emotional plot	■ Less interest in plot
■ Real world setting	■ Fantasy setting

Violent Games

For many competitive games, violence is integral to progress through the game. It also contributes to the tension within the game, as gamers try to avoid violence directed at their character. Many people enjoy games as a form of entertainment. However, some interested parties have expressed concerns over the violent content of some games. Psychological theories of learning and socialisation have fuelled concern over media content. These theories typically highlight the importance of mimicry, role models, practice and interaction in acquiring knowledge and learning both 'good' and 'bad' behaviours. The worry is that new aggressive behaviours can be learnt while playing violent games. Research investigating the influence of violent video games on aggressive behaviour originates from two perspectives (see Box 2):

■ active media research;
■ active user research.

Research on Violent Video Games and Aggression

Active media research using surveys shows that there is a small but consistent correlation between playing violent video games and aggressive behaviours in the 'real world'. Other experimental studies have tested gamers immediately after a game-playing session. They suggest that those who play violent video games show higher levels of aggressive behaviour, have more aggressive thoughts, feel more

aggressive and less empathetic and are less helpful compared with those who played a non-violent game. Active media researchers claim that the combined analysis (meta-analysis) of 136 of these studies provides evidence that violent video games are a "causal risk factor for increased aggressive behaviour".[4]

However, this meta-analysis has been criticised for failing to include studies that oppose the authors' hypothesis and for overstating the implied risks.[5] Indeed evidence is mixed; previous meta-analyses have failed to find a significant relationship between violent games and aggression.[6] In addition, causation cannot be proved, as many argue that people with more aggressive personality types prefer violent games. Moreover, active user research suggests that social, cultural and genetic factors have a stronger influence on aggressive behaviour than video games. For instance, gender, personality and violence in the immediate family environment are important influences on aggressive behaviour, yet active media research does not statistically control for their impact.

Box 2. Research Approaches

Active Media Research

Mainly based in the USA, active media research uses experimental, laboratory based designs as well as surveys and self-report questionnaires to investigate the effect of violent games on aggression. Experimental studies compare the impact of playing violent versus non-violent video games on a range of 'aggression' indicators measured immediately after game play. Surveys of gamers' experiences are used to see whether there is an association between playing violent games and 'real world' aggressive behaviours.

Active User Research

Active user research emphasises the importance of context. It sees gamers as active rather than passive participants in their environment. It notes that aggression in the 'real world' has many causes. Concern has been raised that individual differences, social and environmental factors and motivations for gaming are not addressed by active media research. For example, gender may, in part, account for the relationship between exposure to violent video games and aggression, since males are more aggressive and are more likely to play violent video games. Today, research in this area is beginning to explore people's ability to cope with negative content in games.

Both define aggression as the intent to harm someone who wishes to avoid harm, and video game violence as intentional acts within game play directed to cause physical harm to an animated character.

How Violent Video Games Might Lead to Aggression

Desensitisation and The General Aggression Model (GAM) are two attempts to explain how violent video games could lead to aggression.

■ Desensitisation is the result of reduced emotional reaction due to repeated exposure to violence. It is thought to increase aggressive responses in individuals and to fuel a demand for more extreme games as gamers search for new excitement levels. However, this is not specific to games and applies to all media.

■ The GAM considers both individual differences (e.g. attitudes or previous experiences) and situational differences to investigate how violent video games influence aggression. The model claims that playing

violent video games activates aggressive thoughts and feelings, which lead to aggressive responses.

The GAM is supported by active media research, but the studies show only short-term effects of violent games. Some question the model, arguing that any experience is likely to activate related thoughts and concepts in the mind, but this does not necessarily influence behaviour. For instance, active user researchers believe that to show that violent video games influence aggression, research must demonstrate that video games are able to shape gamers' internal goals, motivations and personality traits. Presently, research on this is limited and there is no clear evidence on how GAM processes and desensitisation relate to children.

Gamers' Experiences

Some gamers say playing violent games can relieve stress and frustrations. In line with this, research finds that playing violent video games can have cathartic effects, reducing aggression, and increasing positive emotions and self esteem. Many adult gamers refute the notion that violent games encourage violence in real life. However, many young gamers (aged 15) are upset by violence in games that are rated 18.[7] Just as exposure to violence in films, television and the internet can be upsetting so can violence in games, and this is why content in games is age restricted.

Other Impacts of Gaming

Despite the media focus on violent video games, the impacts of gaming are diverse and can be positive. This section reviews impacts of video games on addiction, brain development, social interaction and education.

Problematic Use and Addiction

On average, 5-16 year olds play 1.5 hours of video games a day, but many gamers acknowledge that it is possible to devote too much time to games and many parents also worry about this. One concern is that games such as MMORPGs (see Box 3), that have no defined endpoint may lead to problematic use or addiction. A recent review of the literature reports that 8-12% of young people (mean age 21) engaged in "excessive gaming", whereas "problematic gaming" was present in 2-5%.[8]

In common with substance-related addiction and gambling addiction (see POSTnote 356), research on video game addiction maintains that certain criteria must be met for addiction to exist. These are:
- the use of games to modify mood;
- showing increasing tolerance, e.g. playing more to get the same effect;
- withdrawal symptoms;
- detrimental impacts on social activities and relationships;
- relapse back to excessive use after efforts to cut down.

There remains debate over whether gaming addiction is a valid concept, with some researchers claiming that dependency and withdrawal are not observed in video game addiction. The American Psychiatric Association has stated there was not enough evidence to include video game

addiction in the latest edition of the widely used Diagnostic and Statistical Manual of Mental Disorders. However, despite the absence of diagnosable addiction, evidence suggests a minority engage in problematic use.[8]

> **Box 3. Game Genres**
> The way games are played and the purpose of games have changed dramatically over the last decade, creating some new game genres.
> - **Virtual worlds** (e.g. Second Life) are computer based simulated environments, through which users interact through avatars.
> - **Massively Multiplayer Online Role Playing Games (MMORPGs)** (e.g. World of Warcraft, which has over 12 million subscribers). Set in a virtual world, players assume the role of a character, known as an avatar, which is developed by continued game play. Cooperation with, and competition against, others are usually integral to the game, so that gamers interact and communicate with one another within the virtual world.
> - **Serious games** are developed for therapeutic or health care interventions or for educational and training purposes.
> - **Simulation games** (e.g. The Sims) replicate real life activities.
> - **First person shooters** are weapon based combat games from the first person perspective.
> All of these are increasingly using more realistic graphics.

Brain Development

Research on age-related development of the brain is important to understand how children interpret and evaluate virtual experiences. For instance, the frontal lobes, which are related to reasoning and evaluation skills, are less developed in young children. This makes them more susceptible to negative, especially scary, content in video games and media because they are less able to interpret context. Younger children are also less capable of distinguishing between reality and fantasy, making the increasing realism of games a concern for some. Characters look, sound and move more realistically and scenes of violence can be depicted in more detail, particularly with high definition technology.

However, the consequences of increasing realism are far from understood. On the one hand, more realistic games are likely to increase a player's sense of presence, involvement and emotional reactivity, improving the gaming experience. On the other hand, this might increase the potential for addiction and adverse effects of violence. Research on gamers aged 15 to 21 shows that elements of video game play such as thoughts, feelings and actions can cross into real life (game transfer phenomena).[9] However, it is not yet known whether this is a normal way to process experiences or how many gamers have these experiences.

Social Interaction

A common misconception is that gaming is an anti-social, isolating, activity even though some games allow for complex social interactions (see Box 3). Research has indicated that children who engage in social interactions during game play are more likely to take an interest in civic participation, while others have shown that online engagement replaces other activities. There is also concern over risks of inappropriate contact. This is recognised by the games industry, which provides mechanisms for the self-regulation of social spaces. For example, gamers can block

players and report improper behaviour and content to the game service provider, resulting in a ban from the game.

Education
Some of the most popular games are educational (e.g. brain training games). Generally, educational games are developed to increase pupils' motivation, communicate information, improve specific skills and test competencies. They can allow for personalised learning by being able to target specific learning difficulties and can also be used with groups of children, allowing players an active role that demands a wide range of skills.[10] However, it is currently unclear the extent to which video games make a new or useful contribution compared with other modes of learning because there are insufficient evaluations in the classroom.

Importantly, there is a difference between learning *skills* such as problem solving, and learning *behaviours* from video games. Playing video games can improve reaction times and visual skills related to attention and problem solving regardless of their genre. However, it is more difficult to show that behaviours, both positive (e.g. pro-social) and negative, transfer from video games into the real world.

Challenges
Age Verification
Concern over the ability to purchase age restricted items on the internet has been raised previously in Parliament with the first reading of The Online Purchasing of Goods and Services Bill, in January 2008. Had this progressed it would have required anyone selling age-restricted goods and services over the internet to take steps to verify whether customers are old enough to purchase them.

Age verification and identity technologies are available to prevent the purchase of over-18 age restricted goods and services by minors. They currently operate to prevent underage gambling online, by checking the age and identity of the consumer against one or more online databases. However, age verification for children is a more difficult task and not yet cost-effective. UKCCIS are reviewing potential solutions, such as accessing existing national databases and the use of "digital wallets". These allow users to make electronic transactions and require parental consent to operate. Some consoles use similar technology, allowing parents to control how much their children spend online.

Classification of Mobile Apps and Online Games
Presently, the Video Recordings Act (and the pending amendment) applies only to games supplied in a physical format. Games that are published online or played through internet browsers or mobile phone game apps are not subject to a mandatory age rating system. In these domains, the industry self-regulates, operating voluntary codes (see Box 4) or markets using their own systems (e.g. Apple rates iPhone apps).

Parental Controls
All consoles have parental controls. Although they differ, they generally have the ability to: block the playing of age-

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Box 4. Video Game Classification Systems

Pan European Game Information (PEGI)
This European wide age rating system is designed to aid consumers, particularly parents, with information enabling them to make an informed decision about the suitability of a game. The system has two parts; an age rating and a content descriptor.

Age Rating
Each game is given an age rating, which indicates the minimum age for which the game is considered appropriate. It appears on the front cover.

Content Descriptor
Games may also feature one or more content descriptors on the back cover. These provide additional information about what the game entails and justify the age rating.

PEGI Express classifies games for Windows 7 mobile platforms.
PEGI Online is a system for rating gaming websites.

The British Board of Film Classification (BBFC)
More widely known for the classification of films, the BBFC also classifies video games that contain film footage or include violence, criminal or sexual activity (approx 6-7% of all games).
BBFC Online classifies games for download or streaming online.

inappropriate games and films; restrict access to online and communication features; restrict purchasing features; and limit play time. Many (e.g. UKCCIS) agree that gamers should be presented with an unavoidable choice to activate parental controls when setting up a console, but also recognise other issues, such as children, not their parents switching on and setting up consoles for the first time.

The Byron review recommended improving information and advice for parents and gamers about parental controls and age classification systems. There is an on-going need to educate parents about their responsibility to monitor game play. UKCCIS has working groups on these areas. Also once the PEGI system becomes mandatory, the games and interactive entertainment trade body UKIE will campaign actively to promote awareness of the system.

Endnotes
1   Byron, *Safer Children in a Digital World*, 2008. http://goo.gl/pzNnP
2   Data provided by GameVision, researchers of video games consumer behaviour and attitudes. http://www.gamevisioneurope.eu/
3   Lucas & Sherry, *Communication Research*, vol. 31: 499-533, 2004
4   Anderson *et al*, *Psych Bulletin*, vol. 136: 151-173, 2010. http://goo.gl/xBd8s
5   Ferguson, *Review of General Psychology*, vol. 14: 68-81, 2010.
6   Ferguson, *Psychiatric Quarterly*, vol. 78: 309-316, 2007. http://goo.gl/EbPZ4
7   Cragg Ross Dawson, *Video Games*, 2006
8   Kuss & Griffiths, *Int J of Mental Health Addiction*, 1-19, 2011.
9   Ortiz de Gortari, *et al*, *Int J of Cyb Behav, Psy & Learning*, vol. 1: 15-33, 2011
10 Wastiau *et al*, How are digital games used in schools? European Schoolnet 2009. http://goo.gl/nVhwb