Chapter 15
Fear of (Serious) Digital Games and Game-Based Learning?
Causes, Consequences and a Possible Countermeasure

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ABSTRACT

Digital games and their power as a tool for acquiring knowledge, training skills and changing behavior are – for some laymen – associated with rather negative concepts, and are thought to pose a general health risk. This paper shortly reviews and evaluates the scientific evidence for both positive and negative outcomes. It describes how particularly the negative effects are portrayed by the mass media and perceived by the general public and educators (especially in Germany). The conclusion is that negative effects such as addiction or personality changes towards aggression have been exaggerated in size, and that the positive effects and outcomes like their use as educational tools are at risk of being widely ignored. Additionally, the paper reports upon observations in a university lecture on the effects of violent digital games in which students could engage in a positive, healthy and enjoyable experience of learning with digital games.

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THE EDUCATIONAL POWER OF DIGITAL GAMES

Digital games are well known for their potential to support the acquisition of knowledge, the training of certain skills, and to assist teachers and instructors in their educational endeavors (e.g. Gee, 2003). Given appropriate surrounding circumstances, for example additional non-virtual support like providing a context that specifies the learning goals, successful applications and benefits can be found in various domains such as teaching tools for school subjects in general, self-management of health problems such as asthma, diabetes or cancer, or job skills like repairing a car (Swing & Anderson, 2007; Ferguson, 2010). Furthermore, positive effects on general perceptual and cognitive skills, speeding up reaction times and improving visuo-motor coordination, recovery from a stroke, and improving surgery skills have been reported (Green & Bavelier, 2006). Game-based learning allows for healthy and safe training circumstances for hazardous environments (Bösche & Geserich, 2007) and can be a motivational driver for learning and promote mental health (Nacke, 2009). The main reasons and conditions for these successes (Swing & Anderson, 2008) are that digital games can capture and maintain players' attention. They offer clear objectives, support active learning including feedback and the ability to practice until mastery, and offer both intrinsic and extrinsic rewards.

This general potential of digital games and game-based learning, however, can be accompanied with risks. Whilst no one would find it problematic if a digital game was responsible for an overdose of Latin vocabulary, it is quite likely that some objections will be raised against aggressive behaviors and content in video games. On the one hand, aggressive behaviors and content in video games might be used as a very powerful way to maintain the players' attention and ensure her / his rigid playing and higher performance in a game. For example, Bösche (2009) compared three small games that required participants to click on targets as fast and as accurately as possible. While the games where identical in the required mouse manipulations, they differed in the amount of violent content depicted on screen. The players scored higher in the violent game versions. On the other hand, critics might object that violent content from a game in combination with the aforementioned features ensuring the learning successes could lead the players to commit imitative real-life violence (Ivory & Kalyanaraman, 2007). But a categorical exclusion of aggressive content as a beneficial motivator could put educational games at a disadvantage (Ferguson, 2010).

A complicating factor is that all possibly unintended or abusive outcomes of digital games might be applicable to educational games and game-based learning in almost the same manner. In the next sections, arguable negative effects of the use or consumption of digital games are mentioned. It will be outlined a) which of them are most portrayed and focused on in the mass media, b) whether this resulted in somewhat negative attitudes of laypersons and teachers towards digital games in general, and c) to what extent the most prominent portrayed negative effects can be backed up by scientific evidence. Finally, some observations will be reported following an effort to teach about violent interactive media using a violent digital game as a virtual classroom. A proposal is made how to cope with such negative attitudes and irrational fears of digital games raised by the mass media.

DIGITAL GAMES IN THE MASS MEDIA AND ITS PERCEPTION

Digital Games as a Serious Public Health Risk

First of all, negative effects of digital games are indeed conceivable. If there are proven positive learning effects in (educational) digital games, it is probable that some negative side effects could also exist, for example some unintended learning