

## Why do we smile when dying virtually? : insights on player experience from physiological and self report measures

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Video games are mainly played as a self-selected activity. Although there are many different types of games and gamers, those playing games generally do so to have an enjoyable experience. Nevertheless, in many games, and First Person Shooters (FPS) in particular, the player's character comes to a miserable end, having to start over again. Perhaps counter intuitively, recent studies seem to suggest that players actually enjoy getting killed in a FPS game. In a recent study (Ravaja, Turpeinen, Saari, Keltikangas-Järvinen, & Puttonen, 2008) for instance, it was found that after a dying event muscle activity of the zygomaticus major (one of the facial muscles involved in smiling) increased. In research using non-interactive media (e.g. when viewing pictures) an increase in EMG activity of the zygomaticus major has been associated with positive affect and liking (Brown & Schwartz, 1980; Ravaja, Saari, Kallinen, & Laarni, 2006), leading Ravaja et al. (2008) to conclude that apparently player death is to some extent enjoyable.

In the current paper we question whether people actually really do enjoy getting killed in digital games. Consistent with Ravaja et al. (2008) we propose that – initially – dying instances can bring about pleasurable experiences, however, only so long as the players frame this as being challenged to their maximum capability. After all, fun in games can arise from being in control, but may also result from the challenge of attaining it (Klimmt, Hartmann, & Frey, 2007). In fact, games are often designed to initially induce challenge or even frustration, followed by an emotional 'high' as a result of overcoming it (Keeker, Pagulayan, Sykes, & Lazzaro, 2004). This implicates that singular events that may be perceived as unpleasant in themselves may serve the purpose of increasing players' ultimate enjoyment of playing.

Crucially, however, although in the light of the game the death event may provide positively valenced feedback, we do not expect people to consciously appraise the event of dying itself as a positive one. We therefore expect that when asked explicitly about their experience during game-play that players will evaluate this event negatively. In contrast, the more unconscious responses such as smiling behaviour when one's character is killed may initially indicate positive affect (release of tension and the sensation of being challenged). But, as their character dies more frequently – signaling to the player that perhaps the challenge is too great – we hypothesize that this will increasingly become less pleasurable. With it we expect EMG recordings of the zygomaticus major to diminish with repeated death events.

We set up an experiment in which participants played a game designed to induce maximum challenge, with player characters frequently dying, without the players giving up. In total twenty-eight participants took part in the experiment. They played first person shooter (FPS) games at least occasionally. Participants played a customized level of the FPS game Half Life II for 10 minutes. During game-play we recorded EMG activity of the

zygomaticus major and currogator supercillii (the facial muscle, used when frowning and expressing suffering). After the game participants reviewed their playing session and rated their experience in a continuous way, using a specially designed slider. In total they reviewed their playing session twice, once reporting their level of arousal, and once reporting their level of pleasantness. The markings for pleasure and arousal used on the sliders were adapted from the SAM scale (Bradley & Lang, 1994). We ran Linear Mixed Model analyses for the EMG and the self-report measures taken during the 3 seconds prior to and 7 seconds after onset of the dying events. This allowed us to analyze the data in a continuous fashion and in relation to specific game events. The results replicated findings of Ravaja and colleagues (Ravaja et al., 2008), showing increased EMG activity of the zygomaticus major upon dying. In addition, however, our findings showed that indeed zygomaticus major activity decreased as people died more frequently. Self-report measurements further showed a clear negative effect of player death on pleasure ratings, without a sign of weakening with repeated player deaths. Combining the results from EMG measurements with those of the self-report measures, we propose that these seemingly contradicting conclusions can be understood as resulting from different origins. The event of dying itself is undeniably an event that does show a failure and players clearly appraise it as such. As part of the ongoing game, however, getting killed may provide feedback on the level of challenge. As such player death can be evaluated as enjoyable. While dying may not be fun in itself, in the face of the game, and catering for a sense of challenge, it may be enjoyable. Without clear progress in the game, however, dying is no longer a laughing matter.