

## Noted researcher addresses multiple dimensions of video game effects in new journal article

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Douglas Gentile is painfully aware of how research on the effects of video games on kids is often oversimplified to say that games are either "good" or "bad." The associate professor of psychology at Iowa State University has had his own research typecast on the "bad" side with studies on violent video game's effects and video game addiction, even though he's also done studies demonstrating the benefits of games.

A new article by Gentile appearing in the journal *Child Development Perspectives* argues that existing video game literature can't be classified in black and white terms. Instead, there's a vast grey area when considering the multiple dimensions of video game effects on children and [adolescents](#).

Gentile writes that there are at least five dimensions on which video games can affect players simultaneously -- amount of play, content of play, game context, structure of the game, and the mechanics of game play.

"Parents tend to care about either how much time their kids play or what types of games their kids play," Gentile said. "But when I did a study where the effects couldn't be explained by the amount someone played or the content of the game, it made me realize there's a lot more going on here. And in puzzling through what that more was, I realized there are at least five dimensions on which games have effects."

In his article, which was posted online first by the journal Tuesday, Gentile references some of the most cited literature documenting video game effects in the five dimensions.

Many studies have found associations between the amount of [game play](#) and several negative outcomes, Gentile said. But he contends it's likely that some of those outcomes -- such as findings that kids who spend more time [playing video games](#) typically experience poorer grades -- may not be due exclusively to the amount of play.

"It is possible to argue that this relation might be due to the children themselves, rather than to game time," Gentile reports. "It is likely that children who perform more poorly at school are likely to spend more time playing games, where they may feel a sense of mastery that eludes them at school. Nonetheless, every hour playing games is one not spent doing homework."

While Gentile writes that there is no standard definition of "content," most definitions focus on the "script" elements or themes of the game. And previous research has found it is clear that children learn game content, and that learning can affect future behaviors. "This is how violent, prosocial, or educational games have most of their documented effects," Gentile said.

The least researched dimension of game effects, according to Gentile, is how the game context alters or creates effects.

"It could be that as you play a violent game with a group of your friends, that context increases the aggression affect because you're getting social support from people you care about for being aggressive in the game," he said. "Or it might be that context might have a teamwork motivation and prosocial orientation that you're trying to help your team -- which negates the aggression affect."

The way a game is structured on the screen (to provide meaningful information to the player) also changes the psychological meaning of the content Gentile writes. This is the level at which games cause improvements to visual attention skills.

And game mechanics -- or the type of controller a [video game](#) requires -- could increase fine motor skills (such as with a thumb controller), gross motor skills (swinging the Wii remote like a baseball bat), or even balancing skills (with the Wii balance board), according to Gentile.

By considering all these dimensions, he concludes that the same game can have both perceived positive and negative effects on players.

"There are several benefits to this approach," Gentile said. "One is that it gets us past the dichotomous thinking that games are 'good' or 'bad.'

"It also gives us testable hypotheses, and that's good for science," he continued. "And it also tells a game designer that if you're looking to design a game for maximum impact, you need to focus on these five dimensions."

Gentile is currently working on a study involving "The Beatles: Rock Band"© that looks at three dimensions -- structure, mechanics and content -- independently.

**More information:** *Child Development Perspectives*  
[onlinelibrary.wiley.com/journal/cdep](http://onlinelibrary.wiley.com/journal/cdep)

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