



# Game Transfer Phenomena: Digitally Induced Altered Visual Perceptions

By Angelica B. Ortiz de Gortari

## Introduction

Today, virtual environments are evolving from highly immersive into fully immersive environments and this represents a challenge to the human mind. Despite a large body of literature about video game playing, little is known about perceptual post-effects associated with gaming.

## Aim

Identify, classify and explain gamers visual perception experiences associated with video game playing referred to as Visual Game Transfer Phenomena (VGTP) for contribute to the understanding of post video game playing effects.

## Game Transfer Phenomena

Comprise the transfer of video game experiences into the real world. GTP manifest as altered sensorial perceptions, as automatic mental process, automatic actions and behaviours. GTP occur spontaneously and usually without gamers' control. They can occur while gaming, immediately after stopping play, or after some delay.

## Methods

**Participants:** 652 posts from 482 players

**Data collection:** 54 Online Video game forums.

### Procedure:

- The data were coded into a database for classification and quantification.
- The data were classified based on the differences between mind visualizations, visual illusions and hallucinations.
- Videos of gameplay were observed and some games associated with the data were played.

## Results

- See video games elements in real life 45%
- Mind visualizations 21%
- Visual distortions 19%
- Misperceptions 7%
- Unspecified 6%
- Cross -sensory perceptions 2%

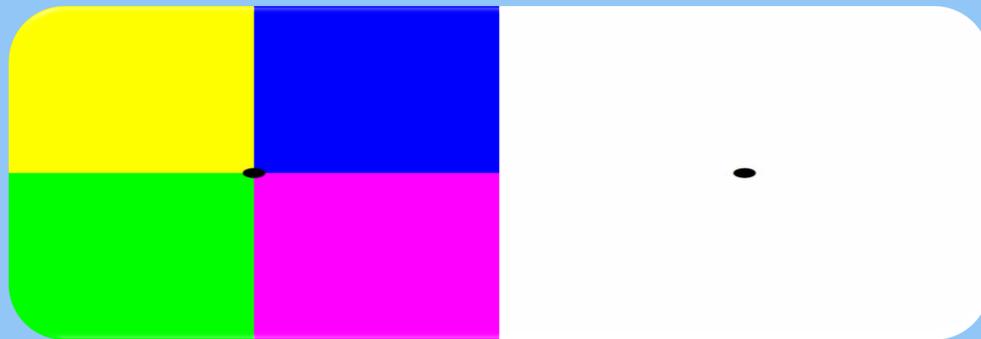
## Conclusions

This study suggests that playing intensively video games can result in altered visual perception manifesting as visual distortions and misinterpretations of real life objects and environments, stereotypical visual experiences that arise from mind visualization, and pseudo-hallucinatory experiences with video game content..

Observation of video game features associated with VGTP suggests in most cases a relationship between the video games' structural characteristics, gamers' VGTP experiences, and gamers' playing habits appeared relevant.

## Try this

Stare at the point on the coloured image for about 30 seconds, then look at the white image. You should see an after-image. You should see a negative after-image.



## Digital Induced images



These experiences resemble positive after-images but with better fidelity, can appear episodically with close or open eyes and sometimes are triggered by associations.

"I looked outside my window at a woman riding a bicycle and saw a red player tag above her head. Luckily, I didn't have my MP5 on hand"  
(Max4)

## Visual Distortions



Our brain adapts to the perception that it receives (1). This does not only occur directly after stop playing but also later when triggered by associations.

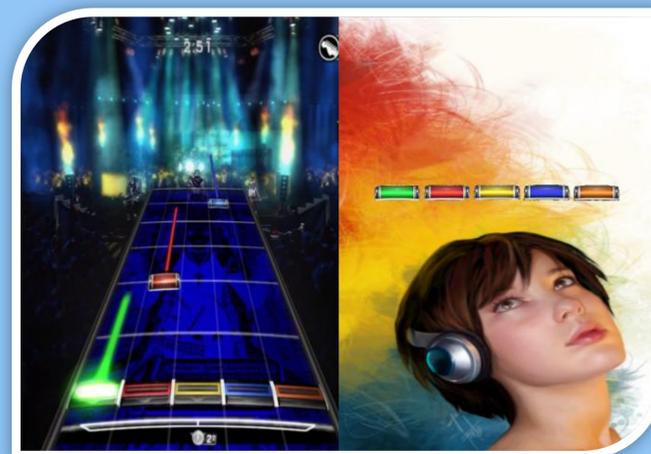
"I'm seeing everything in red, blue, yellow and black every time I see a yellow 'Y' after I played *Assassin's Creed*"  
(Zarte)

## Misperceptions



"Yesterday small white wing in the sky Oh! enemy UAV spotted, nope just a seagull"  
(Cyborg22)

## Cross sensory perceptions



A real life stimulus (e.g., music) in a different sensorial modality triggers a visual experience. This is similar as synaesthesia.

"Playing too much *Rock Band*, certain songs make me see green, red, yellow, blue and orange notes in my vision".  
(Myra)

Supervisor : Professor Mark D. Griffiths

## References

(1) Carandini, M. (2000). Visual cortex: Fatigue and adaptation. [Research Support, Non-U.S. Government]. *Current biology: CB*, 10(16), R605-607.