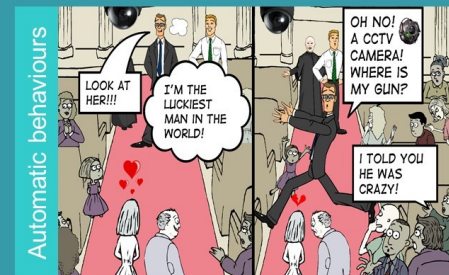
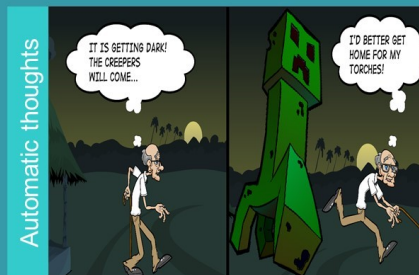
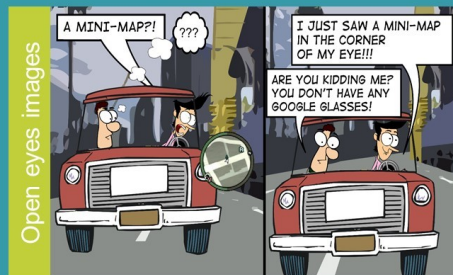




Game Transfer Phenomena - GTP

GTP refers to involuntary phenomena/intrusions with game content that are spontaneously experienced. GTP tends to manifest as altered sensorial perceptions (seeing, hearing or feeling something from the game, including automatic movements of limbs), automatic mental processes, and automatic actions/behaviours.



Challenges and risks

- **Impair performance:** GTP can be distracting, leading to attentional bias toward game-related stimuli and lack of awareness of self-actions.
- **Irrational predictions:** Sensory intrusions tend to elicit thoughts/emotions, which can lead to irrational expectations that events from the game will occur.
- **Impulsive actions:** Sensory cues in the game are paired with in-game events and actions, therefore sensory intrusions can trigger urges/impulsive actions, which can pose risks under compromised situations (e.g., driving).
- **Misinterpretation of game-related stimuli:** Objects/events simulated in the game acquire new meanings or different properties, which can result in e.g., dangerous stimuli or hazardous actions being approached/pursued despite the risks.
- **Agency misattributions:** GTP can be experienced as exogenous (e.g., open-eye hallucinations, sounds coming from game-related objects/nowhere) which may facilitate that GTP are interpreted as not self-generated.

Potential benefits and applications

- **Enhance digital interventions:** 1) Embed video game features/mechanisms associated with GTP to strengthen/prolong the effects of the intervention beyond the exposure; 2) identify factors that interfere with the treatment or provoke side effects after the exposure.
- **Disrupting aversive intrusions:** Replacing or hindering distressful involuntary phenomena (e.g., thoughts, imagery, hallucinations) by inducing GTP with neutral/positive content.
- **Screening tool:** 1) Identify prodromal phases of mental disorders (e.g., symptom markers, environmental triggers); 2) predicting tool for cognitive impairment; 3) psychopedagogic tool to explain involuntary phenomena to patients.
- **Modifying interpretation of environmental stimuli:** pairing aversive stimuli with pleasurable sensory intrusions to promote changes in cognition and behaviours.

Mechanisms of GTP

- Automatic, without awareness and control
- Mostly triggered by associations
- Preserves content with accuracy
- Everyday context
- Recurrent and repetitive
- Some become habitual

Quick facts about GTP

Prevalence: 81-97% have experienced at least one GTP according to various studies (N>6,000; 15-60 years old).

More prone: 18-22 years old. Minors appear to be more prone, especially to thoughts and body-related phenomena.

Duration: Most are short-lived, but sometimes last for hours, days or longer.

Playing time: Those who experience GTP tend to play longer sessions. Playing intensively (e.g., 6+ hours p/day) increases the chance of having severe GTP.

Psychopathology: GTP are not explained by drug use, being under the influence of substances, or underlying medical conditions, although severe GTP (i.e., frequently/ several forms) has been associated with mental disorders (e.g., sleep disorder).

Negative impact: Most have not had any negative consequences, although 20% reported distress/dysfunction, and this rose to 58% for those who experienced severe GTP. Those with both GTP and Gaming Disorder are more likely to experience very negative impact due to GTP.